

# THE VULCAN LETTER

## Voice of the UAB MSTP

JANUARY 2021

### Welcome, Dr. Payne!

*Alana Jones, GS-2*

Last fall, the MSTP welcomed a new assistant director, Dr. Gregory Payne. Because we're not yet able to gather again due to COVID restrictions, Dr. Payne wanted to provide students with an opportunity to get to know more about him. I was able to (virtually) sit down with him over the holidays and discuss his background, what his goals are as the assistant director, and more. You can watch the full interview on Instagram [@UABMSTP](#).

#### For those who don't know you, what is your background?

I'm originally from Indiana. I was born and raised in Muncie, Indiana, which I don't expect anyone here to know. It's a college town, and my parents were professors and administrators at Ball State University in Muncie. I was surrounded by academics and research growing up. So it was already in my DNA to get way too many degrees. I attended Yale for undergrad and majored in chemistry, and then came back to Indiana for medical school as a straight MD student. I'd considered MD/PhD programs, but about a month into medical school I realized I'd made a mistake and needed to get back into research. So I worked in a re-

search lab in the summer after my first year and joined the Indiana MSTP during my second year. I joined a PSTP pathway for residency, which is how I got to Birmingham. I trained in internal medicine and cardiology here at UAB. I'm now in my third year as a PI, so my training isn't that long ago.



#### Were there any research experiences in medical school that made you realize you needed to get back in the lab?

Yeah, so I was doing research in high school. I was always the kid who wanted to tear things apart, including almost electrocuting myself trying to put a radio together. Research was always my passion, and even when I considered medical school, I thought of it from more of an MD/PhD standpoint. So it's kind of hard to unpack why I thought medical school alone would be enough. But it was clear to me after I tried to walk away from research and it pulled

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### Unique Pre-Clinical Opportunities: A Promise to Help

*Lamario Williams, GS-2*

As a first-year medical student busy with the Fundamentals of Medicine block in the Fall of 2017, I wanted to find a clinical volunteering opportunity. This was important to me because it helped me envision the "light" at the end of the proverbial tunnel. We had been learning how to take a patient's history in our Intro to Clinical Medicine class, so I figured I could utilize the skills I was learning. There are a good number of options for medical students to get clinical volunteering opportunities at UAB, including Equal Access Birmingham (EAB), which has previously been featured in the [UnABridged](#) blog. Because there is a lot of enthusiasm for EAB, volunteers have to sign up in advance and may wait weeks to months before actually getting into the clinic.

I learned of **Spirit of Luke (SOL)/A Promise to Help (APTH) Foundation** through the UAB chapter of Alpha Epsilon Delta (AED), an undergraduate organization of

premedical students. Even though I had not participated with APTH as an undergrad, I figured that, as a medical student, I could be of more help. The basic premise of APTH has been to visit a city in the Alabama Black Belt region on the first Saturday of every month and provide free medical services, counseling, and pharmaceutical refills to the citizens. This service is a tremendous help in a region where healthcare access and literacy are quite limited. Founded by Dr. Sandra Ford (an internist based in Birmingham and UABSOM alumna) and her husband Henry Ford, APTH has been providing healthcare for people across the Black Belt for 17 years.

Coined the "Black Belt" because of its dark, nutrient-rich topsoil, this region of Alabama was inhabited by the Choctaw and Creek Native American tribes until they were forcibly removed in the 1830s. Later on,

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# Alabama Rare: Uniting & Advocating for Families with Rare Disease

Paige Souder, MS-4

Living with a rare disease comes with a number of challenges, none of which are made easier during a world-wide pandemic. I have had the incredible opportunity of meeting many of these patients and their families during my clinical training and their resilience is truly unmatched. This has become more apparent after working with the Alabama Rare organization (AL Rare)—founded by Swapna Kakani, who has a rare disease herself—to unite families across Alabama and advocate for the rare disease community with our state legislature. Brooke Thomas is another resilient mom who has three children with MPS I, also known as Hurler Syndrome. She has not only been one of the primary leaders in Alabama Rare, but is also the NORD Rare Action Network Ambassador, demonstrating a clear commitment to making sure her family and others have the resources they need to thrive. I sat down (virtually) with Brooke and learned about her experience with Alabama Rare and as mom of three amazing kids with rare disease. Enjoy reading through our interview, and consider attending the upcoming virtual Rare Disease Symposium on February 27 (website coming soon!).



## How did you get involved with Alabama Rare initially?

I come from a non-profit background, so I have always been one to advocate for others. I moved to Alabama a while ago and have since had three kids diagnosed with MPS I/Hurler Syndrome. I stay home to take care of them but wanted to continue advocacy work. I met Swapna at an event through the [EveryLife Foundation](#) at Children's of Alabama and the rest is history. Soon after that meeting I took my oldest son, who was 10 years old at the time, to a state house event in Montgomery to meet with our state legislators and he was a big hit. He is obsessed with Hamilton and loves Washington, DC. I realized there that there was a big need to focus on newborn screening policies in Alabama and have since been involved in other events (calling federal legislators, EveryLife events, etc.).

## Very cool and glad you have been such a strong voice for the rare disease community in Alabama. Could you give a brief summary of Hurler Syndrome for those who aren't familiar?

Of course! MPS I or Hurler Syndrome is a lysosomal stor-

age disorder where you don't naturally produce the enzyme alpha-L-iduronidase. Imagine if your garbage or recycling stopped running. It would be fine for a little bit but eventually your garage would fill up with trash and then your laundry room and then your bedroom and then your house would be totally taken over unless you have something to come take the garbage away. So without that enzyme, you can't breakdown cellular waste and it accumulates. There are only 7 kids with MPS I in Alabama including mine.



Brooke, Development & Program Director at AL Rare

## That's a great analogy. What are treatments like at this point?

Right now, the standard of care is a bone marrow/stem cell transplant. They have enzyme replacement therapy as well, so most patients start enzyme therapy immediately after diagnosis while preparing for transplant. The goal of transplant is to avoid having to continue enzyme replacement therapy for life, and also the infusions don't cross the blood brain barrier. Life expectancy is up to 30 years old now with transplant. We are waiting on gene therapy to be available! My kids had transplants at the University of Minnesota so most of our care is there, but we see 12 different specialists. The current therapy doesn't help with the ortho issues, so we still need a lot of surgeries. Being able to diagnose and start treatment early is a game changer. MPS I is on the federal list for newborn screening but hasn't been approved in Alabama yet.

## Hopefully more work on that soon! How are your kids doing now?

They had to miss their appointment in Minnesota this year due to COVID and have had some surgeries delayed, but they are amazing kids. My oldest son is coming up on the 10-year anniversary of his transplant coming up this February and has designed a shirt for awareness. He wants to donate the proceeds to foundations that support families going through transplant or right after diagnosis. He came up with it all on his own and is such a great kid.

## Very impressive and congratulations on the anniversary! What are some challenges you've had with the healthcare system or things that need to change?

Insurance, insurance, insurance. My family specifically has

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fallen through the cracks at times because we can afford our insurance premiums but not always the out-of-pocket costs and we don't qualify for much state assistance. There are a lot of families who fall through the cracks that way. We also see problems with AL Rare members in terms of durable medical goods and making home equipment accessible. I am a big proponent of Medicaid expansion within limits – in other states who have done this it actually can hurt rare disease families. If you are on Alabama Medicaid, you may have to fight a year to see an out-of-state provider. This is especially relevant because there is also a shortage of specialists especially in genetics in southern Alabama. We are lucky that we can travel to go to all of our appointments but not everyone can. I know families who have been personally hurt because of a delay in diagnosis resulting in ineligibility for transplant and life-saving care. I will also say our state is behind in terms of newborn screening: we still don't have MPS I, adrenoleukodystrophy, SMA, or Pompe disease, and we were one of the last states to add severe combined immunodeficiency (SCID). All that being said, there is a lot of good here too and we have really great people here working for change.

### **What can we do as students and future physicians to aid in that effort?**

We are always looking for help with AL Rare. At this point myself and Swapna are both really invested in policy at the state level, which is easier said than done, but it's not hard to get your feet wet with Montgomery being so accessible. With rare disease advocacy in general, nothing is going to get done unless it comes from people with passion pushing the legislature/government officials/etc. We really need providers and physicians and researchers to stand behind the patients and caregivers and demand change where you see inequity or a lack of care or where the system isn't working. We need those professionals to stand behind us and get it fixed.

### **That's such great advice and that is certainly my goal moving forward with my career. To end the interview, could you tell us about the goal of the upcoming Rare Disease Symposium and the overarching goal of Rare Disease Day?**

The goal of having an official Rare Disease Day is to bring awareness in general about rare disease. In Alabama, we are really trying to unite the rare disease community and the stakeholders within our state. When you are diagnosed with a rare disease, it's hard to make connections with people and find someone close to you with the same disease. Because of this, it's really important to unite the community so patients and families know they are not alone and can form friendships and bonds with one another. I am

lucky being a mom of kids with Hurler Syndrome because there is a major hub where so many other families go for care. I've met some of my best friends that way, but they live nowhere near me. The goal of the symposium [which happens during February - Rare Disease Month] is to bring those families together. This year is different because of the pandemic, but we also took into account feedback from previous years and wanted to make the symposium patient and family focused and add in content the community wants to hear about. We are actually excited that it's virtual this year because it will allow more people to attend who may not be able to easily drive to Birmingham. With the way 2020 turned out, we are focusing on mental health and how to cope with a rare disease and having a rare disease in a pandemic. Even for those outside the rare disease community, finding any kind of community in the middle of a pandemic and remembering self-care and work-life balance is important for anyone this year. We have a more research/provider-focused symposium as well on Friday, but we really love when attendees of the Friday symposium come to the family/patient-focused event on Saturday because it really shows the families that they care about them as people and not just patients. It gives providers an opportunity to hear about things their patients go through that they might not think of otherwise if you don't see them outside the clinic.

### **I have to say I'm definitely looking forward to this year's event! What talk are you most looking forward to?**

I'm really excited to hear from the family therapist we got to speak who specializes in medical trauma/care. Something that's really overlooked is the mental impact of rare disease on a family and on a kid who's just trying to grow up.

For more on Alabama Rare, visit [www.alabamarare.org](http://www.alabamarare.org) or contact me at [jsouder@uab.edu](mailto:jsouder@uab.edu). This year's symposium will be held virtually February 26-27, with the Friday event being geared toward providers/researchers and the Saturday event geared towards patients/families/caregivers. Your attendance is welcome at both! The registration link will be live soon!





## Dr. Payne, cont.

me back. I had studied chemistry and cancer biology before landing on cardiovascular disease. So I had a lot of different touchpoints with research and never lost interest.

### How did you land on cardiovascular disease in your research and ultimately your clinical specialty?

Well it really found me. In undergrad, we didn't talk about physiology or cardiovascular disease. So my first exposure to it was in medical school. And until that point, cancer biology was the ultimate example of what a physician scientist would be doing, but it was pretty clear that I wouldn't be happy as an oncologist. So when I learned physiology, and specifically cardiovascular disease, I was presented with a short list of rules to learn (some love it and others hate it). And with my chemistry background I really loved that I only had to memorize the bare minimum and extrapolate what you needed to know from those basic rules. I was also able to see principles I'd learned in physics and chemistry in undergrad (such as Ohm's law) in effect when we were talking about vascular resistance. Those direct parallels really spoke to me and afterward I just fell in love with it. I ended up doing a variety of research with the person who eventually became my PhD mentor. Plus I thought it was clinically interesting. But I also really like renal physiology and went back and forth between cardiology and nephrology, but I enjoyed being a cardiologist in the clinic more than being a nephrologist.

### What is your research topic?

I would call myself a vascular biologist. In particular, we're most concerned with endothelial cell function and inflammatory mechanisms that alter endothelial cell function. So the underlying hypothesis is that cardiovascular disease is an inflammatory disease, and the rubber meets the road at the endothelium. So are there mechanisms that we can uncover to prevent development of atherosclerosis, hypertension, etc. that endothelial cells are involved in perpetuating. I'm interested in the role of the extracellular matrix, including metalloprotease activity and how it may turnover the ECM in a potential pro-inflammatory, feed-forward mechanism. In graduate school, I studied how obesity may be a driver in inflammation, so this work has morphed by interests to study how inflammation exerts its will on endothelial cells and leads to vascular events.

### You've mentioned going between cardiology and nephrology in residency, so how did you finally decide

### on your fellowship?

Time. I had to make a decision. When I matriculated to UAB, it was known that I was interested in both [cardiology and nephrology] fellowships. One thing that was helpful was that I went to a nephrology national conference. The beginning of the end of nephrology for me was when I looked at the topics at the meeting. Only about 10% of the talks were interesting to me, but on the flip side I felt like I couldn't find enough time to go to all the talks at the American Heart Association meeting. It was also easier to see myself happier as a cardiologist when you can see an immediate improvement in a patient. Plus, I really enjoyed some of the "high-intensity" moments of cardiology.



Dr. Payne speaking at the 2019 MSTP retreat

### You joined UAB's PSTP track for residency.

### How and why did you take that route for your next step of training?

I loved my MD/PhD training and I wanted it to continue, but I wasn't sure how. Back then PSTPs weren't as frequently spoken about, so I didn't hear about it until I got an email from the PSTP director at UAB when I was in grad school encouraging me to apply for this program. And as a third-year medical student, I struggled to figure out how to take all this training and become an independent investigator. So I thought a PSTP was the best program to see that through. I didn't know that much about UAB at that point, but as soon as I came down here, my dean at Indiana spoke very highly of UAB. And then the PSTP was really supportive. The air of collaboration was pretty obvious, and I got a sense that there were a lot of open doors here at UAB. And if I wanted to be successful, this would be the place to do it.

### Why did you want to become the MSTP assistant director?

As much as I enjoyed my MSTP training, I realized that I was only one of four of my classmates who was still in academia. After conversations about this, I thought that MSTPs in general could benefit from younger [physician scientists] turning around to give information and advice to people who are currently going through it. I was so focused on the minute details, and it's hard to have the bandwidth to look forward and plan the career you want to have for yourself. In speaking with Drs. Geisler and Yacoubian, we wanted to provide a glimpse into the immediate next step after graduating. There also aren't that many physician scientists around and I enjoyed working with you all, so it seemed like an obvious fit as I wanted to get more involved here.

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**You've already talked about wanting to bring a more recent perspective to the program (e.g., ABIM/PSTP pathways). Are there any other things that you see yourself contributing in your new role?**

Well first, I hope to be another person who can offer advice and help people weigh their best options, whether they're early in medical school or about to graduate. Second, it was important to see a variety of models of the same thing before I could envision what success would look like for me. So I want offer myself as another example of how to juggle 2-3 jobs at once and still be happy with it.

**Could you tell us who "Greg Payne" is outside of work?**

I'm the professional Christmas tree putter-together. I have two daughters, 3 and 5, and my wife is an internist at the VA Hospital. My one hobby that I have remaining time for is exercise. I was really into CrossFit before COVID closed the gyms. I also enjoy sports and hanging out with friends.

**Anything else you want to share with the students?**

I know we can't gather in person yet, but don't feel intimidated about emailing me or reaching out. My door is always open. If you see me in the hospital, stop and say hi. Overall, I'm just looking forward to developing relationships with each of you and helping you meet your goals.



## A Promise to Help, cont.

enslaved African Americans would grow cotton on massive plantations. Even after chattel slavery was abolished in 1865, the politically powerful region maintained a booming plantation economy via sharecropping well into the 1900s. However, over time, both Black and white residents left for economic opportunities in large, industrial cities. Today, the Black Belt is one of the poorest regions of America, with poverty rates ranging from 25% to 43%.<sup>1</sup> With poverty comes health disparities due to a lack of access to healthcare and healthy lifestyle education. The Black Belt has higher rates of cardiovascular diseases and cancer mortality than other parts of Alabama.<sup>2</sup> The work APTH does there is vital.

I've personally benefited from volunteering with APTH in many ways. The drive down to any of the Black Belt cities is typically about two hours. The rolling landscapes are beautiful, and I absolutely love jamming out to music on these road trips. I've had good laughs and interesting conversations with the other volunteers. Many undergrads help with the missions, and I love mentoring them answering their questions about navigating undergrad and applying to medical school. APTH also provides some good southern cooking, typically fried fish. I've learned so much



Dr. Ford and her husband, Henry



from my experience with APTH, including refining my physical exam and history taking techniques. And because other current and retired healthcare providers volunteer with APTH (e.g., a cardiologist, a nephrologist, pharmacists, and nurse practitioners), I have also been able to cultivate my clinical reasoning and interprofessional skills.

More students are beginning to learn about Dr. Ford and APTH. So in an effort to formalize and consolidate the efforts of medical students helping Black Belt region citizens for generations to come, Raymond Lopez (MS-3) has started a student organization through UABSOM called Equal Access Alabama (EAA). He plans to work with Dr. Sandra Ford and AED to figure out the best ways UAB students can help Black Belt residents. This includes volunteering at the monthly missions, raising money, and hosting toy drives for December missions.

The COVID-19 pandemic has had its negative effects on APTH. However, Dr. Ford and volunteers have continued to travel to the Black Belt monthly, delivering supplies such as masks, hand sanitizer, and gloves to members of the community. Dr. Ford hopes to resume clinical visits early this year. Pending approval, APTH may even help administer the COVID-19 vaccine at their health missions. The administration of two doses is a difficult challenge to overcome, which applies to any low-income community, whether rural or urban. But they are brainstorming ways to be of the most help.

Since I've known Dr. Ford, I have come to learn that she truly prioritizes wholeness. She doesn't just refill prescriptions. She takes the time to educate her patients while educating the young APTH volunteers as well. Dr. Ford realizes that we must transform old ideologies of what health is in order to sustain the impacts of this work.

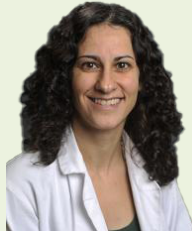
## From the Diversity & Inclusion Committee:

# Practically Speaking

For our first submission of 2021, we want to introduce our ongoing series "Practically Speaking". In every newsletter, we will pose 3 questions to leaders within the UAB community to understand how they continue to further the mission of inclusive excellence. For our inaugural series, we pose 3 questions to our 3 directors!



**Dr. William Geisler, Co-Director, Infectious Diseases**



**Dr. Talene Yacoubian, Co-Director, Neurology**



**Dr. Gregory Payne, Assistant Director, Cardiology**

### What is your approach to understanding the perspectives of people from different backgrounds?

I have a basic approach for understanding perspectives of anyone that consists of these 3 actions: 1) I don't assume anything...how they feel, what they believe, how any past experiences, teaching, or upbringing may have influenced their perspectives, etc.; 2) I listen and watch body language attentively – taking time to listen to one's perspective (avoiding interruptions except for clarification), as getting a sense for how they feel about this perspective is very important; and 3) I seek more knowledge myself to better understand their perspective – this may be reading online or print sources or may be talking to other colleagues/peers about a particular topic related to their perspective.

I hope to bring principles of respect, fairness, understanding, openness, curiosity, and tolerance to my interactions with others. If I sense there is miscommunication, I try to step back and think about what is leading to the miscommunication in order to redirect the interaction. When the other person is upset or angry, I try to stay patient and calm and not to overreact; as a rule, I don't send an email response when I am angry, but instead set it aside and reread it when calmer. I also try to consider whether my biases are affecting my interactions, particularly if I am feeling a negative emotion. I also try to educate myself through reading books, attending lectures, and watching interviews and documentaries from people of different backgrounds, and of course, I hope to learn from the initiatives being developed by our D&I committee.

I think sincere, thoughtful listening has been the best approach for me to understand others' perspectives. I have had to learn to slow my thoughts and communication down in order to better appreciate the needs/concerns of patients and colleagues. When in doubt, I try to politely ask people to clarify their positions if we seem to be at a loss. While this approach has at times fallen short, I think it has left my patients and colleagues with the impression that I genuinely care about their opinions. To me, this helps form a foundation of trust on which to build a better understanding.

### Given that we all possess unconscious biases, what steps do you take to ensure fairness in your interactions with patients and colleagues?

A few steps come to mind: 1) I try to treat everyone as a unique individual and avoid comparing anything about them to others; 2) I try to understand their perspectives per my response to question 1; 3) I try to respect everyone as I would respect my own family – that may sound like a cliché, but it's true. Even for patients or colleagues in whom I have had difficult interactions, I try to maintain respect; and 4) I accept I may have unconscious biases and I listen to my gut feelings and my heart. When I am interacting with someone and something in that interaction makes me feel uncomfortable, I don't ignore that feeling; rather, I try to understand it.

I always try to put myself in the other person's shoes, especially if I am feeling uncomfortable, angry, or frustrated. Why do I feel that way? Do I have some previously unrecognized bias? Can I learn from this scenario, and with that knowledge, can I then approach a difficult situation more fairly in the future? Similarly, if I am being treated poorly by patients or colleagues, I try to think consider whether they might be acting on some bias against me: my gender, my age, my ethnicity? If so, is there some way to appeal to their better nature? I also find it helpful to talk with colleagues and friends whom I respect about uncomfortable scenarios. Am I justified in my anger or frustration, or was I in the wrong?

Step one has been to acknowledge the many biases that influence my professional relationships. This acknowledgment also means accepting the need to continually reassess my own opinions. Clinically, I try to gauge these biases by reflecting on my decision process for treating patients with similar diagnoses with different personal backgrounds. As a cardiologist, I am cognizant of the many trials that have documented how implicit bias influences clinical decision making (see seminal [article](#) by Schulman et al.). While systemic, societal barriers are not easily overcome, I try to make sure that I am providing equal care to all of my patients regardless of my opinions or emotions.

### What is the most impactful lesson you've learned in your career?

It's really difficult for me to just pick one, so let me share a few: 1) when I get upset at a person or situation, I should not react immediately; rather, I should allow myself to calm down, reflect, and then professionally respond; 2) the most effective form of communication is in person (not by phone, email, or Zoom); 3) never, ever assume; 4) the best leader is one who leads by example – don't be afraid to roll up your sleeves and contribute in any way you can; and 5) one of the most meaningful measures of your success is the success of those you have helped.

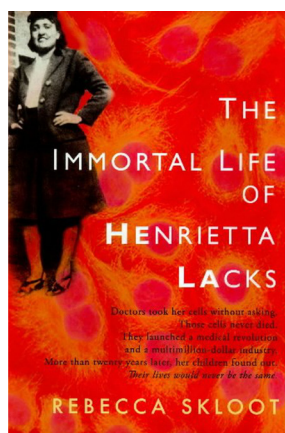
It is hard to point to just one impactful lesson, but here are a few I've learned throughout my career. 1) I've learned it's okay not to be perfect. As a physician-scientist, I will not always be the best clinician nor the best scientist, but I bring a unique perspective by bridging the two worlds. 2) I've learned to develop a thicker skin and not to take things too personally. 3) I've also learned that you can't make everyone happy 100% of the time – you have to be content that you've done your best to be fair and to fulfill reasonable expectations from others, but sometimes demands are not realistic. 4) Finally, I've learned that any given struggle eventually ends. Staying focused and positive and finding support is vital to getting through each adversity.

**"Just keep moving forward".** It is easy to get caught up in the highs and lows of academic medicine and research. An important lesson that I had to learn was to keep my self-esteem and confidence separate from the outcomes of my research. The same mantra can be said for clinical medicine and training. Each year will offer new challenges and difficulties but getting wrapped up in your own anxiety will steal any joy that you might gain from practicing medicine.



## New & Noteworthy

### To Read



In this biography about **Henrietta Lacks** and her contribution to the scientific world via the **immortal HeLa cell line**, Skloot exposes how the practice of medical science can have an unintended dehumanizing effect and, through her writing, reveals the woman behind HeLa. Learn more about Henrietta Lacks [here](#).

### More @ UAB

#### UAB Institute for Human Rights

The **IHR at UAB** facilitates a platform for engaging in conversations about the awareness, education, research, and ongoing initiatives for the advancement and protection of human civil rights here at UAB, in Birmingham, and across the globe. The institute provides newsletters and outreach programs to inform the UAB community about opportunities to expand their knowledge and awareness of global human rights. Subscribe to the IHR Newsletter [here](#).



Register for the 5-Course Diversity Education series through Campus LMS:

- Awareness@UAB
- Cultural Awareness Building Blocks
- SafeZone
- Unconscious Bias
- Bystander Intervention

More information [here](#).



### D&I Spotlight



We shine a light on **Alana Jones** and the **UAB-APSA Community**.

Balance is key to the success of this scholar. A 4th-year (GS-2) MSTP trainee, Alana is dedicated to uncovering the root causes of health disparities. In addition to her dissertation research, Alana chairs the MSTP Communications Committee and uses her social media platforms to educate others on misconceptions that plague race-based medicine and care delivery mechanisms.

Last November, Alana partnered with her college friend Christina Amutah, to co-found the **Forum on Race, Advocacy, and Medical Education (FRAME)**. Creating this virtual summit to focus on one of the hardest topics to discuss in medicine—racism—was no easy task, but the two achieved it, having more than 500 registrants from 44 states and seven countries! For those who missed the event, you can watch the plenary sessions on [YouTube](#).

During 2020, COVID restrictions challenged **UAB APSA** to reimagine how they could continue their meaningful partnership with the YMCA Youth Center. Because in-person science demonstrations were off the table, **members developed a DIY science kit series for students to enjoy at home!** APSA hopes to continue to excite and engage the children of our community despite the distance necessitated by the pandemic. Follow APSA on Instagram [@uab-som\\_apsa](#).



**Samuel Chang (MS-2)**  
YMCA Outreach Coordinator



**Courtney Swain (MS-2)** teaches how to make rock candy



### To Watch

#### How racial bias works -- and how to disrupt it



Our brains create categories to make sense of the world, recognize patterns and make quick decisions. However, this ability to categorize also exacts a heavy toll in the form of

unconscious bias. In this powerful [TED talk](#), social psychologist **Jennifer L. Eberhardt** explores how our biases unfairly target Black people at all levels of society, from schools and social media to policing and criminal justice.

She concludes with a discussion on how being more specific with our words and creating points of friction can help us actively interrupt and address our assumptions.

# The Pandemic, the Female Academic, and the Scientific Reward System

Shreya Kashyap, GS-3

The year of 2020 has left its indelible mark on research. I am immensely grateful for the distribution of multiple COVID-19 vaccines, thanks largely to a remarkable, global collaboration that started just three months after the virus was discovered. As of August 2020, just six months after the virus was discovered, there were over 20,000 COVID-19-related manuscripts published.<sup>1</sup> The pandemic has bolstered scientific collaboration, which all researchers, regardless of field, should be proud of. However, the pandemic has also hindered academic productivity for many researchers, and its impact is by no means uniform. The shift toward virtual work, virtual instruction, and virtual conferences, along with the added constraints on “wet-lab” science, exposes disparities within the research community that existed even before the pandemic.

In addition to the psychosocial impact of isolation and the turbulent political climate of this country, the COVID-19 pandemic disproportionately affects women, particularly women of color and those in early stages of their career. A quick scroll through the [#coronapublicationgap](#) Twitter feed reveals numerous anecdotes of the pandemic’s gendered impact on academic productivity. There are also quite a few publications and opinion articles quantifying this phenomenon. Drs. Olga Shurchkov, Tatyana Deryugina, and Jenna Stearns parsed data from *Academic Sequitur*—an academic database and search engine created by Dr. Deryugina—to examine publication data for women pre- and post-pandemic. They examined seven different economics-based preprint servers and found that the number of female author submissions dropped by three percentage points in March of 2020 and by five more percentage points in April 2020. They did not report changes in the number of male author submissions during the same time period.<sup>2</sup> There is also a disproportionate impact of the pandemic on the number of female first author publications. Female first author submissions to *medRxiv* dropped by 16% from December 2019 to April 2020.<sup>3</sup> Since a majority of first authors are scientists early in their training (i.e., graduate students or post-docs), the impact of the pandemic goes far beyond the year of 2020.

Success in academia is tethered to success in securing

funding, which in turn hinges on one’s ability to publish. For female early career investigators, the pandemic’s disproportionate impact on academic productivity could have lasting effects on career trajectories, and in turn, the gender makeup of academic panels and hiring committees. Since academic panels and hiring committees often make decisions about faculty positions and who gets them, their gender makeup could have generational effects that impact future early career investigators.

Dr. Megan Fredrickson, an ecologist from the University of Toronto, Canada, published an analysis of eleven different preprint servers on [GitHub](#) to determine if the pandemic had differential effects on academic productivity between male and female scientists over the same time period. After scraping the preprint servers’ e-print repositories, she used an algorithm written by Dr. Lincoln Mullen, a historian at the George Mason University, to predict and assign gender to each author’s first name, based on US Social Security Administration’s database of known “female” and “male” names. As is acknowledged both by Dr. Mullen and by Dr. Fredrickson, there are caveats to this method since it can mis-gender or exclude individual authors, and use of this database may also have serious cultural, racial and ethnic impacts on the interpretation of the data. However, both Dr. Fredrickson and Dr. Mullen stress that this code can be used with a substantially large dataset to gauge overall trends within a large population, and in this case study gender biases within massive preprint server datasets. Dr. Fredrickson’s analysis adds to existing evidence of the “publishing gap,” which isn’t unique to 2020. In 2019, the number of male authors on *bioRxiv* preprints was almost 2.8 times more than the number of female authors on *bioRxiv* preprints. The number of male authors on *arXiv* preprints was almost 4.3 times more than the number of female authors on *arXiv* preprints. The events of 2020 have only exacerbated this gap. While the number of female authors on submissions to *arXiv* grew by 2.7% from March 2019 to March 2020, the number of male authors during this same time period grew by more than twice that number, 6.4%.<sup>4</sup>

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*“American women today, on average, spend more time on childcare compared to American women in the 1960s, despite the fact that the number of working mothers has increased over this time.”*



# COVID-19 & Women in Academia, cont.

The gendered dynamics of academia are underscored by the often-disparate nature of non-research responsibilities. Women are more likely than men to take on “emotional labor,” which includes mentorship and counseling, both inside and outside the academic setting.<sup>5</sup> The 2018 MTV/Public Religion Research Institute

(PRRI) study found that young women were more likely than young men to report participation in forms of political activism including but not limited to online and in-person participation in demonstrations, phone-banking, and serving on committees dedicated to activist causes.<sup>6</sup> According to the 2014 Faculty Survey of Student Engagement, a national survey of nearly 19,000 faculty members at 143 different colleges and universities, female faculty spent on average 0.6 more hours per week on service activities compared to male faculty after controlling for race, rank, and discipline.<sup>7</sup> Female faculty on average also take on more teaching responsibilities than male faculty, which requires adjusting to both altered research programs and the new, often unwieldy, world of online instruction. The pandemic also exacerbates the gender inequality of household division of labor and the challenges of balancing childcare with academic duties.<sup>8</sup> Even prior to the pandemic married women spent a greater fraction of their total work hours in unpaid family care (which includes but is not limited to managing household finances, housework and childcare), compared to married men. American women today, on average, spend more time on childcare compared to American women in the 1960s, despite the fact that the number of working mothers has increased over this time.<sup>9</sup> The “motherhood penalty” took on a whole new meaning in 2020, with the shift to at-home, virtual schooling.<sup>10,11</sup> Many of the anecdotes I have read about the gendered impact of the pandemic on academic productivity are written by early career investigators who are also parents.<sup>12</sup> According to the Survey of Doctorate Recipients of 1999 which surveyed tenured faculty in the Sciences (PhDs from 1978-1984 who are tenured 12 years out from PhD), 70% of tenured male scientists are married with children, while only 44% of tenured female scientists were married with children.<sup>11</sup> The long-term impact of the pandemic on this existing disparity has yet to be quantified.

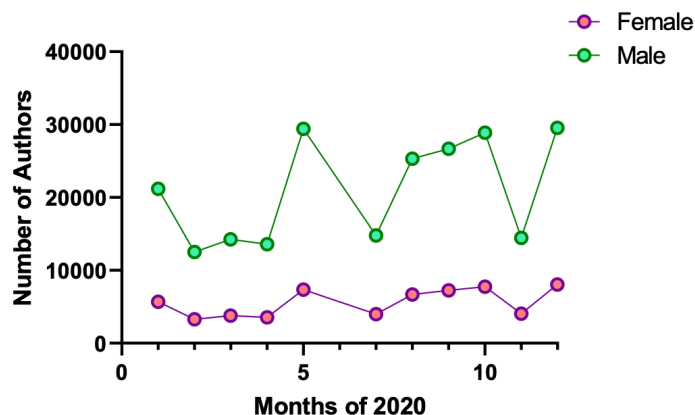


Figure 1

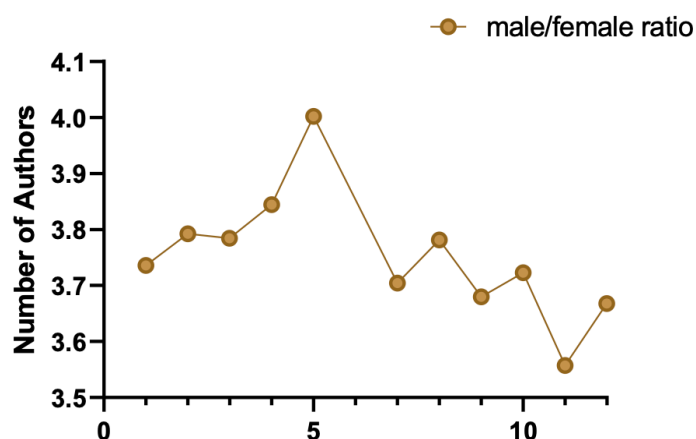
The psychosocial impact of the pandemic on working women in academia weighs more heavily on women scientists of color. In addition to the traumatic sociopolitical climate of this past year, structural racism and increased policing and surveillance continue to disproportionately impact working women in Black communities. Because of structural racism there is also a greater risk of COVID-19 infection and death in Black communities.<sup>13</sup>

Socioeconomic status also enhances the impact of the pandemic:

the affordability of childcare and healthcare for dependents is yet another external stressor that uniquely affects parents and caregivers. The ability to work from home is a privilege that many graduate trainees and postdocs may not have, especially if they are also caring for children or ailing relatives.<sup>13</sup>

The pandemic has affected all of us, regardless of gender. But events like these usually only magnify existing systemic inequalities in our societies. Since journals are slow to publish, using preprint server data is an ideal way to measure the impact of the pandemic in real time on both male and female authors. I wanted to look at the gendered impact of the pandemic on a month-by-month scale for the year of 2020 using Dr. Fredrickson’s protocol. I scraped preprint server data from the *arXiv* repository using the R package [arXiv: Interface to the arXiv API](#) and assigned gender with Dr. Mullen’s [gender+genderdata](#) R packages. The publishing trends for male and female authors largely mirror each other in pattern, though the magnitude is drastically different. By pairwise comparison, the number of male authors on *arXiv* preprints is significantly greater than the number of female authors on *arXiv* preprints for

Figure 2



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# Virtual Medical School – What’s It Like?

Jenny Hsin, MS-1

I have had so many mixed feelings about finishing my first semester of medical school in a pandemic. For the most part, I’m proud and relieved. Medical school is hard. I do think that most of the things that make medical school hard for me now are the same things that would make medical school hard for anyone even if we weren’t in a pandemic. The firehose of information and test after test after test trap you in a constant grind with only the rare “golden weekend” to catch a breath. In my opinion, however, the pandemic’s biggest impact on making virtual medical school difficult has been its impact on our mental health.

For one, I’ve heard the phrase “Zoom fatigue” a lot, and, as the type of person who likes to go to lectures, I wonder if I could focus better if I could attend in-person lectures rather than watching them online. It’s one thing to be able to actually experience live lectures, decide they’re not for you, and become a Kaltura convert for medical school. It’s a different story to only have one choice. On the bright side, I think that having lectures online has kept me committed to watching the lectures live. I’ve continued to watch lectures live throughout the first semester and it’s nice to be able to watch lectures online in real time in the comfort of my home rather than a lecture hall. Part of me thinks that if medical school had been in person, I would have long given up if I had to actually walk to Volker Hall to attend lectures. Also, I wouldn’t be able to wear sweatpants to lecture! Yet, as much as I love being comfortable, I’m missing the feeling of being an actual medical student among a cohort of other equally motivated, bright people who are all working towards their dream of being doctors. I’m eternally grateful for the few friends that I have made so far, but I keep waiting for the feeling of being a real medical student to hit me.

Another thing that has really been highlighted for me is the importance of having a support network as a medical student. Moving to a new city, living alone in an apartment, and not meeting very many new people while trying to be safe during a pandemic has been a difficult adjustment. I truly appreciate the few people who have made me feel welcome and made me feel like I do have a home in Birmingham. I’m definitely still working on building relationships here, but I’m also incredibly thankful that I had the chance to go home to recharge for winter break. The medical school’s decision to go entirely online for the last block between Thanksgiving and Christmas was a blessing in disguise. Before that decision was made, I had felt that only having two weeks of winter break was not worth risking air travel. With Block 5 being fully online, I decided to go home.

There was a lot of gorgeous SoCal sunshine, but it wasn’t all sunshine and rainbows. I wore a mask at home with my parents and ate my meals separately for two weeks

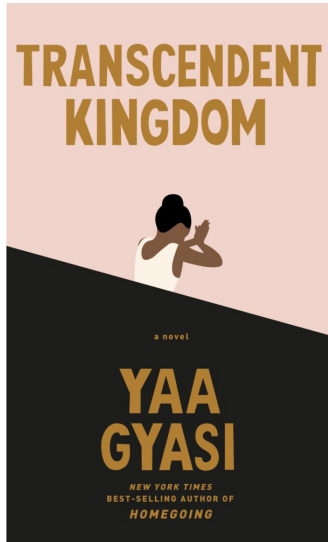
and stayed in my room to quarantine, just in case. Luckily, being in online medical school made it really easy to quarantine because I basically stayed in my room studying all day anyway. Being able to hug my parents at the end of my self-imposed quarantine made everything worth it. Plus, even masked and six feet apart, having actual human interaction every single day at home was glorious. Moreover, Block 5 Microbiology was intense, but I’m glad that I did it at home with the support of my mom bringing me cut fruit to eat while I studied – something that hasn’t happened since I was in high school! Sadly, I won’t have that luxury for organ modules, but it was good while it lasted.

The pandemic has forced us to go online for classes and social interaction, and I can’t wait for these things to return in person. Yet, I will admit that technology and the Internet really are great tools. Even when we weren’t in a pandemic, I remember stumbling upon the UAB MSTP’s UnABridged blog while Googling tips for medical school interviews. At the time, I remember reading the blogs and imagining myself getting to meet my classmates, going to classes, and having a patient interaction as an actual medical student. Although I had no idea yet where I would be going at the time, I craved having a connection to medical students because I desperately dreamed of being one myself. The blog was one way for me to get to know one of the programs I was applying to and to have some kind of connection to the students. Little did I know, well over a year later, I’d still be relying on online interactions to connect. I find it funny that I’m writing an article about my experiences as a first year medical student when I’m still reading blog posts to figure out what kind of experiences I should be having.



*“Part of me thinks that if medical school had been in person, I would have long given up if I had to actually walk to Volker Hall to attend lectures. Also, I wouldn’t be able to wear sweatpants to lecture!”*

# MSTP Book Club

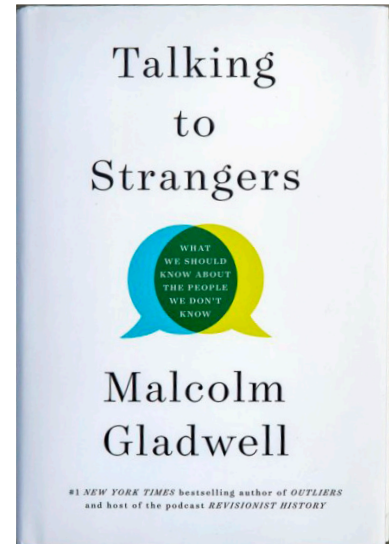


Kasey Brida, MS-2:

It seems like Yaa Gyasi knew the year needed a book like *Transcendent Kingdom* (released September 2020). Gyasi's novel explores so many difficult issues through the voice of Gifty, daughter of Ghanaian immigrants, born and raised in Huntsville, Alabama. Her life was splintered by Nana's (her brother) overdose, and his death not only fractured Gifty's faith in God but also triggered a deep depression in her mother. As a graduate student at Stanford studying the molecular mechanisms of addiction, Gifty attempts to understand why her brother died—why he chose the high over his family and over her. With a virally delivered opsonin and an intracranial laser, she's able to get a mouse, hopelessly hooked on Ensure, to ignore that sweet chocolate drink:

*When I watched the limping mouse refuse the lever, I was reminded yet again what it means to be reborn, made new, saved, which is just another way of saying, of needing those outstretched hands of your fellows and the grace of God.*

Since the death of Nana, Gifty had spent her life refusing this need of outstretched hands, never talking about her brother's overdose or her mother's vacuous depression. Yet when Gifty's mother falls into another spell of deep depression and comes to stay with Gifty in California, she begins to open up to her colleagues about Nana's death and her mother's illness, reluctantly accepting those outstretched hands surrounding her. There is strength, not weakness, in seeking help, a message that truly resonates during these times. ☞



Lamario Williams, GS-2:

This book was really appealing to me because, as future physician scientists, our careers will be filled with meeting and talking to strangers. But further than just talking to them, we will need to quickly gain the trust of these strangers in order to either figure out the best way to treat them or convince them to give us grant funding for scientific research. The book centers around the theme of the “default-to-truth” theory proposed by psychologist Dr. Timothy R. Levine, which is the notion that humans inherently trust the information they are given as truth. However, this trust leads to misconceptions about emotional transparency.

In the chapter “The *Friends* Fallacy,” Gladwell elaborates on how the critically acclaimed show *Friends* has contributed to so many people believing in the “folk psychology” that it is easy to read the emotions of others, particularly strangers. He notes that expressing and reading emotions are important for survival, citing Charles Darwin: “[The face is] a kind of billboard for the heart.” He even states that on the show *Friends*, the actors were intentional about making their faces highly emotive so the audience could follow the show even without sound. Gladwell contrasts the highly expressive facial expressions of the *Friends* cast with his father. Once, when his mother was held at knife point, his father was deadly calm (as he is in all high stress situations) as he sternly ordered the robber to leave. It has become glaringly evident to me that the patient interview is more art than science.

In communication, we must be careful when we assume perceived behaviors reflect another's thought processes. Whether it is intentional or not, the way we verbally and non-verbally communicate doesn't always accurately reflect our internal dispositions. ☞



## COVID-19 & Women in Academia, cont.

every month of 2020 (Fig. 1). The ratio of the number of male authors to the number of female authors on *arXIV* preprints peaks in the month of May (the same month during which the US COVID-19 death toll passed the 100,000 mark<sup>14</sup>), although it consistently hovers around 3.6 to 4.0 for the entire year of 2020 (Fig. 2). It would be interesting to revisit this preprint server later in 2021 and see if these trends change as we resume “normal operations” after vaccination of a majority of the population.

There are a couple of other studies using journal submissions and survey data to directly compare male and female academic productivity, as well as male and female psychosocial burden of COVID-19 related changes to the workplace. These studies also support the observation that the pandemic disproportionately affects female academics, especially those who also have childcare responsibilities.<sup>15,16,17</sup> Various organizations like 500 Women Scientists, the Colorado State University Council for Gender Equality on the Faculty, and the Michelle R. Clayman Institute for Gender Research of Stanford University have outlined recommendations for universities and principal investigators to take meaningful steps to support women, especially those who are also parents and/or caregivers, in academia during this time.<sup>11</sup> They call on institutions to encourage taking time off and establish the need for flexible schedules. Universities should consider providing some financial support for graduate students who need to pay for childcare or healthcare for dependents. Principal investigators should re-evaluate decisions they make regarding project opportunities, authorships, and training. Expanding research staff during this time may also be helpful, if the means permit, to ease the burden of

non-project related lab duties on trainees. Journals and academic committees should re-examine the gender makeup of academic panels, journal editors, and reviewers. The gendered impact of COVID-19 on academic productivity of trainees and early career investigators is something that should be addressed by national funding organizations, especially since positive career progression is intimately linked to securing funding, which—again—depends on rate and record of publications.

2020 has precipitated a rapid evolution of research as we know it, but the scientific reward system remains, and its distinct impact on women and women of color should not be ignored. ✍

## Volunteer Spotlight

### Christine Carico, GS-2

*“Christine has been a star as recruitment chair for MSTP admissions this year. Despite the unprecedented challenges in the interview process this year due to COVID, she has been a calm force and has developed innovative ways to promote our program and to connect our students with potential future colleagues. We couldn’t have done it without her hard work!”*

Dr. Yacoubian, MSTP Co-Director



## Where The Money Resides: NIH F30/F31 Awards



**Blake Frey (GS-3)**

NIDDK: Control of colitogenic Th17 cells by Vitamin D receptor signaling



**Shreya Kashyap (GS-3)**

NIA: The progranulin c-terminal domain & AAV-progranulin gene therapy for frontotemporal dementia



**Kristina Tymes-Wilbekin (GS-3)**

NICHD: Perceptions of multipurpose prevention technologies aimed at HIV/STI/unintended pregnancy among African American women in the Deep South



# A Few Thousand Words

Vaccines, baking, virtual conferences, and more!



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