

NPHR

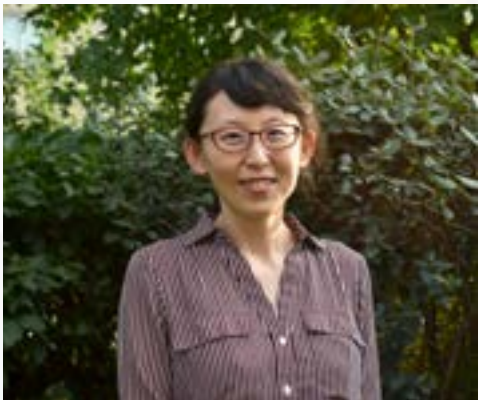
*Structural Racism in
Public Health and
Medicine*

Fall 2024 Issue



Cover Artist

Siwen Wang



“When I was tasked with creating an illustration about the implications of racism on access to health care, I wanted to present it in question form instead of giving any direct answers—how does racism affect access to health care? To depict this question in my illustration, I deconstructed it into three elements: underrepresented groups, access, and the health-care system. I used the key to represent the concept of “access,” and I employed the door with the sign of the Rod of Asclepius to represent entry to the health-care system.

The key is glowing and floating in the air, and a lady with dark skin who represents underrepresented groups, is standing in front of the entrance trying to reach the key. I hope this illustration will provoke readers to think before they open the journal, prompt them to find answers within the articles, and inspire deeper thought after they read it.

Siwen Wang is originally from China. She earned her PhD degree in Biochemistry from Purdue University with a concentration in computational life sciences. Finding that the most efficient way to understand and explain a complex biomedical problem is often through visuals, she decided to pursue a MS degree in Biomedical Visualization from the University of Illinois at Chicago. In the future, she wants to help her audience to better understand science by using her expertise in scientific research, storytelling, and artistic creation.

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Letter
from
the
Editors



Dear Readers,

We are thrilled to present the 2023 edition of the Northwestern Public Health Review. This issue explores the health consequences of structural anti-Black racism. We highlight the work of several Black-American physicians and scholars, along with several programs and initiatives working to achieve greater racial equity.

We, as an editorial board, recognize the enduring harm of structural anti-Black racism in public health and medicine and call on our readership to take actionable steps.

First, Dr. Kimberly Laughman and Dr. Nevert Badreldin describe racial disparities in maternal mortality. They emphasize the origins in anti-Black racism and the social construct of race and offer solutions to address racial

gaps in maternal mortality. Dr. Nia Heard-Garris then contributes her perspective as a pediatrician, studying how racism experienced during childhood impacts health outcomes. She emphasizes the importance of health equity scholarship in addressing known health disparities and offering evidence-based solutions to policymakers. Both pieces highlight the impact of structural inequities on health outcomes.

We then include an interview with internal medicine physician Dr. Muriel Jean-Jacques, who addresses the persistent racial disparities during annual flu vaccinations. She explains the reasons for these inequities and offers strategies for combating them, drawing connections to the early stages of the COVID-19 vaccine rollout. Finally, Dr. Dineen Simpson, a transplant surgeon, describes the racial gaps in kidney disease and access to organ transplantation. She describes how patients fall out of the transplant process due to structural racism and how she founded the African American Transplant Access Program at Northwestern Medicine. Both articles comment on community distrust in the healthcare system and offer approaches for healthcare providers to restore patient-physician trust.

Throughout this issue, we also include brief features of three programs and initiatives at Northwestern seeking to address the harmful effects of anti-Black racism in medicine and public health: the Center for Health Equity Transformation (CHET), the Student to Resident Institutional Vehicle for Excellence (STRIVE) program, and the Program in Public Health’s (PPH) coursework on structural

racism. CHET uses research, community engagement, and educational programming to address health disparities and train future healthcare professionals and public health practitioners. The STRIVE program aims to improve access to and representation within medical education by offering medical students with marginalized identities mentorship from residents and fellows who are also underrepresented in medicine. PPH began offering a course on structural racism in 2021, stimulating discussion and growth among students and faculty. These programs serve as examples of how we can address the effects of structural racism on health and wellbeing through training, mentorship, and education.

We thank everyone who contributed to this important edition, including the students of the University of Illinois at Chicago Biomedical Visualization program for their incredible illustrations that accompany the writing throughout this issue. We wish to especially acknowledge the Black scholars, physicians, editors, illustrators, and supporters that brought this edition of the NPHR to fruition. Developing this issue during the COVID-19 pandemic and social justice movement was a labor of love, and we are excited to share it with our readers.

In Health,

The NPHR Editors-in-Chief
Grace Bellinger, PhD, MPH
Joo-Young Lee, MD
Meilynn Shi, BA



Maternal Mortality in Numbers

*Kimberly B. Laughman, MPH
Nevert Badreldin, MD*

“You’re my doctor?”

asked my antepartum service patient, her face softening as I stepped closer to greet her. This is a reaction I’ve grown accustomed to from many patients when they see me, a young black woman, walk into the room. “I’m scared,” she began, “I don’t want to die.” I was shocked. Though it seemed obvious to me that this routine admission would likely be brief and uneventful, the patient feared she would become a statistic: yet another black American woman dying during pregnancy.

The patient’s fears were not unfounded. At 17 maternal deaths per 100,000 births, U.S. maternal mortality rates rise to more than twice that of other high-income countries.ⁱ

When examined by race, the mortality rate for non-Hispanic white women drops to 13 maternal deaths per 100,000 births, but jumps to 41 deaths per 100,000 births for non-Hispanic black women.ⁱⁱ Furthermore, for every maternal death, 100 more women suffer a “near miss” — a severe maternal morbidity event such as requiring an emergency procedure or suffering organ failure. Severe morbidity and mortality aside, black women are at increased risk of pregnancy complications like preeclampsia, diabetes, and postpartum hemorrhage; they also undergo cesarean section at higher rates when compared to white women in the U.S.^{iii,iv} Thus, not only are black women more likely to have complicated pregnancies, but

they are also much more likely to die from these complications than their white counterparts.

Black women in America face many socioeconomic inequalities that contribute to these disparities in pregnancy-related health outcomes.

Due to long-standing societal structures that perpetuate racism, black women in the U.S are more likely to have worse access to healthcare, less education, lower income levels, and experience a higher likelihood of living in a food desert neighborhood with limited walkability as compared to their white counterparts.^{v,vii} However, several studies have demonstrated that even after accounting for several of these variables, poorer outcomes persist.^{viii,ix} A large, population-based cohort study by Johnson et al. found that among college-educated women with private insurance, black women experienced a preterm birth rate significantly higher than their white peers (9.9% vs. 5.5%). Moreover, the difference in maternal mortality rate is even more pronounced in this population; among those with at least a college education, black women experience a five-fold higher maternal mortality rate than white women.ⁱⁱ

In another study, researchers found that infants born to black mothers with advanced degrees were more likely to die within their first year of life than infants born to white mothers with only an 8th grade education.^x Interestingly, studies have found that gestational age at delivery and birth weights of neonates born to recent black African immigrant women were more aligned with those of neonates of white American women

than those of black American women, suggesting that the root cause of these disparities lies in a social concept of race, not a genetic one.^{xi}

In their Lost Mothers series,^{xii} NPR and ProPublica investigated the stories of women who lost their lives due to pregnancy related complications. They write that for black mothers, “being devalued and disrespected by medical providers was a constant theme.” This notion was reinforced through countless examples, ranging from the Florida mother whose shortness of breath was cast off as secondary to obesity while she suffered from pulmonary edema and heart failure to the Nebraska new mom whose doctors refused to believe she was experiencing a heart attack until she had her second one and the Brooklyn woman who began bringing her white husband or in-laws to every prenatal visit to stave off her sense of “just [knowing] in your bones when someone feels contempt for you based on your race.” These are biases from which no amount of wealth or education can protect black women. To quote Dr. Joia Crear-Perry, founder of the National Birth Equity Collaborative, “race isn’t a risk factor in maternal health. Racism is.”^{xiii}

What, then, can be done about this grave reality?

The answer, like the question, is complex. First, it is paramount to encourage and fund continued research into racial disparities in maternal and neonatal outcomes, as well as targeted interventions.^{xiv} As healthcare professionals, we must also examine how we train student doctors and provide them with a framework from which to interpret the social context of each patient’s interactions with our healthcare system. For example, conventional teachings commonly list black race as a risk factor for medical conditions, despite there rarely being any biologic or physiological justification to support this.

^{xv,xvi,xvii} This encourages student doctors to look at black patients as other: always relatively more or less likely to have a medical condition compared to a white patient, the implied standard.^{xviii} These educational practices further promote implicit and non-implicit biases and may contribute to dangerous misconceptions like those identified by Hoffman et al., who found that roughly half of white student and training doctors falsely believed that black people are biologically less sensitive to pain due to “thicker skin” and “less nerve endings.”^{xix} Myths like these have real consequences for black patients who, research has demonstrated, are less likely to receive aggressive pain management than their white peers.^{xx} Unpacking this faulty pedagogical framework is a crucial step toward breaking down the racial disparities entrenched in our field.

Another vital part of the solution lies in hiring a fuller array of physicians and healthcare workers who mirror the population for whom they provide care. While only about 5% of U.S. physicians are black, studies have shown that receiving care from a black physician may be associated with improved outcomes for black patients.^{xxi, xxii} A study by Greenwood et al. demonstrated that black neonates cared for by a black pediatrician had a 53% reduction in mortality compared to black neonates cared for by a white physician.^{xxiii} Evidence also suggests that when black patients share racial concordance with their providers, they experience improvements in shared decision-making, medication adherence and time spent during visits.^{xxiv,xxv} Thus, increasing diversity among the obstetrics and gynecology physician workforce may provide protective benefits for black women.

While we work on ways to create a safer healthcare landscape for black women, it is important to acknowledge the reality of disparate pregnancy outcomes that exist in the current system. In their 2016

publication, the Center for Reproductive Rights and Black Mamas Matter Alliance asserted that the healthcare industry must create a culture of respect for the autonomy and decision-making power of women in order to better engage patients and improve maternal outcomes.^{xxvi} Empowering patients to become more involved in their own healthcare, providing education on concerning symptoms, and assisting them with maneuvering the complexities of health care systems are critical tools to help safeguard against the disheartening statistics.

The landscape of the U.S. population is rapidly changing; people of non-white race are projected to become the majority of the U.S. population by 2050.^{xxvii} As the nation becomes even more an amalgamation of races and cultures, it is imperative that we find lasting solutions to tackle the maternal and neonatal disparities that impact what

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Cover Artist
Laura Sheehy



Laura Sheehy is a biomedical illustrator who combines her passions for education, medicine, art, and design. She obtained her Master of Science degree in Biomedical Visualization from the University of Chicago at Illinois. After receiving a Bachelor of Fine Arts degree from the School of the Art Institute of Chicago, she worked as a liaison between clients, designers, and vendors for a decade. Laura enjoys using her clear visual communication and illustration skills to distill complex scientific and medical information into impactful visuals.



Meilynn Shi

Building Health Equity Begins in Childhood

GROWING UP, DR. NIA HEARD-GARRIS SAW FIRSTHAND HOW RACIAL AND SOCIOECONOMIC LINES DIVIDED HER NEIGHBORHOOD IN CINCINNATI, OHIO.

Every week, she would take a five-minute drive to visit either her mom in the north part of the city or her dad in the south part of the city. She soon noticed how her friends on the northside, presented with opportunity and security, only kept climbing higher, while her friends on the southside struggled to find a foothold. Only a few streets marked where their lives drastically diverged.

While in residency at the Children's National Medical Center in Washington, D.C., Dr. Heard-Garris continued to see how similar divisions manifested in health care. In one room, she would care for a patient whose family worked in high-level government positions, and in another room, she would care for a patient who was living at a homeless shelter.

"That's why I was drawn to medicine," Dr. Heard-Garris said.

"What I want to get my head around is not only that there are those differences, but why they exist and how we fix those differences. Namely, for me, that's driven by structural racism."

When researchers discover a disparity in health outcomes and cannot attribute it to any specific cause, they often point to genetics as the most likely explanation. However, when genetics is used as a proxy for individual- and population-level differences, particularly ones that fall along racial lines, it obscures the insidious role of poverty, underfunded public schools, unstable housing, lack of green space, segregation, racism—non-biological factors that then give rise to biological differences. It falsely blames the individual for consequences that are shaped not by biology but by society and its institutions.

"For the most part, we are the same genetically," Dr. Heard-Garris said. "There are structures that have contributed to the disenfranchisement of people, and that's what's different. We're not measuring race. We're measuring racism and oppression."

Dr. Heard-Garris, an Assistant Professor of Pediatrics at the Feinberg School of Medicine, dedicates her time to studying how racism, discrimination, and other adverse events experienced in childhood affect health

outcomes later in life. She defines herself as a health equity scholar and seeks to push discussions beyond just the recognition of inequity.

"When we limit it to disparities, we're just talking about differences, but health equity scholars challenge that and say it's not the disparities [themselves]," Dr. Heard-Garris said. "The differences are symptomatic of a much larger problem with racial equity, social justice, and structural racism."

Discussions of health equity often focus on disparities in chronic disease management among adult populations, but disparities begin early on in childhood, extending as far back as prenatal care and only widening from there.

Many studies have found that structural racism impairs critical development stages, increases rates of chronic stress, increases the likelihood of disease and mortality, and increases the likelihood of low birth weight deliveries.

Studies have also shown that as in adults, racial discrimination can affect asthma severity, access to kidney transplants, pain management, and surgical outcomes among children. The problem is that children are often left out of the conversation, in part because they don't yet have the autonomy to advocate for themselves.

"Children don't vote, and so their voices

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“Children don’t vote, and so their voices aren’t often heard,” Dr. Heard-Garris said. “They are a really natural population to try to be advocates for, and they’re our next generation and leaders. If no one’s going to fight for them, what’s our future going to look like?”

Dr. Heard-Garris still remembers the time in medical school, when she met with legislators in D.C. and spoke about the importance of removing junk foods from vending machines to create healthier options for kids.

“I remember them saying, ‘Well, kids should have more willpower to make better decisions,’” Dr. Heard-Garris said. “I was like, ‘Can we even make good decisions?’ When I heard that I knew then that we have a lot of work to do.”

Dr. Heard-Garris spent a lot of her time on Capitol Hill as a medical student, resident, and Robert Wood Johnson Clinical Scholar, in which she served as a fellow at the United States Department of Health and Human Services and supported the response to the Flint Water Crisis and the Zika virus. She wanted to pursue a career in government where she could work directly with senate leadership to craft policy and drive health equity forward. But during her time as a fellow, she realized that research was needed to help inform and drive policy change. It was the data that made policy robust.

“Government leaders need evidence and evidence-based solutions, research, and strategies that speak to what they are trying to decide on,” Dr. Heard-Garris said. “I realized I could be just as effective and maybe even a little more effective outside of government, providing government leaders and legislators with data, science, and research to help them on issues that are very complex.”

In the past, people have told her to “stay in [her] lane,” Dr. Heard-Garris said, and focus on practicing pediatrics. But medicine and health extend beyond the hospital walls and require not only biomedical advancement but also social innovation. It has been shown again and again that investments in policies addressing poverty, hunger, education, insurance, and other social determinants have directly improved birth outcomes, overall health outcomes, and overall

healthcare access.

“As a pediatrician, I’m with patients for 15 to 20 minutes. It’s a blip in their day, let alone their lives,” Dr. Heard-Garris said. “Where they go back to live, work, and play is extraordinarily important. When you diagnose your kid with type two diabetes and you’re telling them to go get this medicine but there’s no pharmacy in their neighborhood, and you’re telling them to go play outside but there’s gunshots and there’s no green space—of course it’s tied to health.”

Driving structural change and advancing health equity requires a multi-sector approach. It involves redesigning curriculum, recruiting and retaining more diverse students and leaders, funding the research, becoming an anchor institution, and investing in local infrastructure. It involves bringing together clinicians, local organizations, legislators, and community members and leveraging the full force of multidisciplinary partnerships.

“There are multiple layers [of adversity], and that’s why it’s important that doctors and medical professionals don’t try to do this on their own because there’s no way you can tackle structural racism with a one-size-fits-all approach,” Dr. Heard-Garris. “You need partners in school systems, you need partners in social services, foster care, and government.”

There’s a lot of work to be done. But that also means there are many ways to get involved.

“At every level, especially in medicine, whether you’re an undergraduate or graduate student or whether you’re a resident, you have some level of power and you have some level of access,” Dr. Heard-Garris said. “How will you choose to make the medical environment a place for everyone?”



Cover Artist

Allysya Benedict

Allysya graduated with a BFA in Art & Design at the University of Michigan where she specialized in illustration. She completed a Masters of Science in Biomedical Visualization at the University of Illinois at Chicago where she took classes in molecular visualization, 3D modeling, anatomy, animation, and illustration. Allysya focuses on creating captivating and educational visuals for a variety of audiences. She is currently a Media Artist and Medical Illustrator for the company TrialGraphix.



Illustration Artist

Malcolm Houston

Malcolm Houston is from Richmond, Virginia, where he graduated from Virginia Commonwealth University with a BFA in communication arts, with a concentration in scientific and pre-medical illustration and minor in biology. From an early age, he had a natural affinity for biology, visual arts, and sports.

He started his educational career as a physical therapy major, but quickly transitioned to the field of medical illustration when he realized a preparatory path was being offered at his undergraduate university. Using art to explain scientific concepts was more aligned to his natural strengths, and further education was the only way to delve deeper into the medical illustration process. After completing his undergraduate degree, he went to obtain a Master of Science in Biomedical Visualization at the University of Illinois at Chicago (UIC). Malcolm currently works as a medical illustrator, creating content to help both accurately and aesthetically depict scientific information for educational purposes.

On Vaccine Hesitancy

An Interview with Dr. Muriel Jean-Jacques

by Grace Bellinger, PHD, MPH

GRACE BELLINGER (GB):

Tell me more about the racial disparities in receipt of the flu vaccine specifically.

MURIEL JEAN-JACQUES (MJ):

There are longstanding and persistent disparities in receipt of the flu vaccine, with rates being lower for racial and ethnic minorities compared to white patients. We see consistent disparities in receipt of the flu vaccine across all regions in which Northwestern Medicine delivers care, with the rate among Black

patients being 5-15 percentage points lower than that of white patients. We also see persistent ethnic disparities between patients that identify as Hispanic versus Non-Hispanic, but the differences are lower in magnitude. These racial disparities have been shown nationally, state-wide, city-wide, and within our own healthcare system.

Receipt of the annual vaccination against influenza is a longstanding racial health disparity that receives less attention. The limited supply of the COVID-19 vaccine in early 2021 drew global attention to distribution inequities. Dr. Grace Bellinger, Co-Editor-in-Chief of the NPHR, met with Dr. Muriel Jean-Jacques, an internal medicine physician who serves as co-chair for the Northwestern Memorial HealthCare Quality and Equity Committee, in February 2021 to discuss disparities relevant to the flu vaccine. At the time of this interview, rollout of the COVID-19 vaccine was in its very early stages and there was broad discussion surrounding how to make the process more equitable.



GB: *Why do these racial disparities in receipt of the flu vaccine exist?*

MJ: Some major factors are trust in the healthcare system (or lack thereof), trust in the pharmaceutical industry and safety, and trust in the recommendation of the physician or healthcare provider in front of the patient. Scientific understanding and acceptance also contribute to disparities in vaccine receipt.

GB: *How can these disparities be addressed?*

MJ: Patient education, general health education, and the use of ambassadors can help address the persistent disparities. Ambassadors are trusted people from within a particular community, such as religious leaders, physicians, teachers, or leaders of community organizations. Leaders within a community act as ambassadors by sharing messages about the efficacy and safety of vaccines. It is very important to try to change how people think about vaccines before they walk in the clinic door. If someone declines a vaccine in the clinic, it can be harder to move the needle. Yes, it is still possible to have a conversation about vaccines, but if you start with a no rather than ambivalence it is more difficult.

The team members at the clinic also matter. In our practice, we have a model in which the medical assistants or nurses initiate the discussion about receiving the flu vaccine as they room the patient. The team members' acceptance of vaccinations, as well as their racial or class concordance with the patients, can influence receipt. When we talk about trust in the healthcare system, we often focus on individual patients not trusting us. This places the problem on the patient's lack of trust, as if they are the one that needs to be intervened upon. We also need to spend more time and effort discussing the ways in which the healthcare system has previously done and continues to do things that are untrustworthy. The more that we can recognize, address, and own up to that; correct and acknowledge prior wrongs; and undo current injustices from within the healthcare system the better off we will be. The healthcare system needs to sustain that over time and show themselves to be trustworthy.

GB: *In a recent media campaign by Northwestern Medicine, you mentioned that you start with humility*

when interacting with patients that are hesitant to receive the flu vaccine. How do you approach patients with humility?

MJ: I start by asking people what their concerns are about the flu vaccine. Is it based on personal experience or the experience of a loved one or someone they know? Where I think we go awry in healthcare is when someone tells us something and we say, "No, that didn't happen." You are not going to get anywhere with that. If they say, "I had the flu shot and it made me sick" and you respond with, "No, the flu shot does not make you sick," what are you telling them? That they are lying, that they did not get sick, that they do not know how to tell what is happening to their body? You can instead start with, "Can you tell me a little more about that, did it start right after your shot?" As a healthcare professional, you do not want to presume. Because if the symptoms started a couple days after the vaccination, that could be the patient's immune system responding to the vaccine. But if it happened weeks later, or if the patient was diagnosed with the flu, we can discuss "the flu" (i.e., influenza) versus all the other seasonal bugs that can make someone sick. If you do not understand where a patient is coming from in rejecting a vaccine, it is going to be hard to have a productive conversation. Just saying, "No, you are wrong," is not going to get you anywhere, in my experience.

GB: You recently wrote an editorial published in JAMA about COVID-19 vaccination programs. In the weeks since that article was published, do you think the vaccine distribution efforts have been equitable, as you put forth?

MJ: I think there are efforts to make it equitable, but they have been very hampered by the overall limited supply of the vaccine relative to the very high demand. I feel that people trying to implement equitable programs have been burned and criticized from both ends. If you are getting burned or criticized from both ends, you are probably doing something right.

For example, I have seen criticisms that trying to account for equity makes the system too complicated. It is much easier to say we are going to vaccinate all people 65 and older. It is harder to put into action that we are going to vaccinate people over 65 plus people that are at the highest risk based on their

race, zip code, or occupation. There are criticisms that those considerations are going to make the rollout too slow. At the same time, programs that have tried to target certain neighborhoods or high-risk occupations have also received criticism when they have not strictly enforced rollout in those communities. They have not asked for a work ID or proof of residency, and therefore people that do not meet those criteria come in to get the shots that were reserved for others.

Those are some of the challenges. Yes, it may take more time to do things equitably and try to get the vaccine to those that are at highest risk first. At the same time, trying to be human about it and not act like police in terms of strict enforcement also invites people to game the system. People leading these programs have been thoughtful. They realize there is the opportunity for gaming the system and hope people will not do it because the ultimate goal is to vaccinate those who need it.

Again, if you are getting criticized on both ends, you are probably doing something right and working in an area that is challenging. Some cities or counties are doing both strategies. There is some vaccine allotted first come-first served style that requires high speed internet access and the time to constantly hit refresh. Then there is a portion held for certain people in the community who really need it. That is a great strategy but is difficult to implement when there is a limited supply and people feel like they are not getting what they need fast enough.

The thing that's been interesting to me as far as the COVID vaccine and vaccine hesitancy is that it truly has been hesitancy rather than denial or refusal.

Hesitancy can be overcome but it takes time. The reason I like the dual approach just described for distribution is that it allows you to have some time to put in the work to build the trust, address concerns, get from hesitancy to "yes," and then be able to convert that "yes" into receipt of the vaccine. People have been understanding because the short supply has been well-publicized, but it is still very frustrating for those doing the work on the ground if they cannot finish the task due to lack of supply.

GB: Do you have any final thoughts to share on this topic?

MJ: There has been a lot of messaging around patients learning about and receiving the vaccine from a trusted source. Trusted

sources do not all have to be Black and Brown, and I think that is important to mention. Many students here at Feinberg, whether they are racially, ethnically, and culturally congruent or not with patients, have been able to change many people who are hesitant from a "no" to a "yes." They are using their skillsets and instincts to meet people where they are, actively listen, address concerns, and talk through the facts. It is not either being a trusted source or using these skills, it is both. Trusted ambassadors may be more effective, but individuals that are not from the community can also be effective advocates and allies to move the needle on

MURIEL JEAN-JACQUES, MD is an Assistant Professor in the Division of General Internal Medicine and Geriatrics at the Northwestern University Feinberg School of Medicine. Her research focuses on the implementation and dissemination of quality improvement initiatives that aim to eliminate disparities in healthcare quality in primary care settings. Her educational focus is on issues related to social determinants of health, health equity, and health advocacy. She maintains a busy outpatient primary care practice with a focus on serving those who face significant medical and/or psychosocial challenges. She serves as Associate Vice Chair for Diversity Equity and Inclusion for the Department of Medicine and as Co-Chair of the Quality Equity Committee for Northwestern Medicine and in these roles has developed and led initiatives to advance health equity for patients and communities served by NM.

Expanding Equitable Access to Organ Transplantation

Dinee Simpson, MD

Illustration Artist

Regan Falin



Regan Falin was raised in Cleveland, Ohio and has wanted to pursue Biomedical Visualization since her junior year of high school, after her art teacher introduced her to the field. With this goal in mind, Regan went to Ohio University, majoring in Studio Art: Painting + Drawing and minoring in Biological Sciences, to curate the artistic skills and scientific knowledge required for medical illustration. After graduating in 2019, Regan immediately started graduate school at the University of Illinois at Chicago (UIC) to get her Master of Science in Biomedical Visualization. At UIC, Regan dabbled in 3D modeling, interactivity, and animation, however, her love for illustration only grew.

Today, Regan is working as a Medical Illustrator at Amicus Visual Solutions in Richmond, VA.

“Of all the forms of inequity, injustice in health care is the most shocking and inhumane.”

Martin Luther King Jr.

One of the leading causes of death within the United States is kidney disease.^{1,2}

Kidney disease affects Black Americans at a rate nearly four times higher than their White counterparts; in fact, despite comprising only 13% of the population, Black individuals account for 35% of all dialysis patients.² Despite this health inequity, Black patients are less likely than White patients to be referred to transplant, less likely to be listed for transplant, and experience longer wait times once listed. Dineen Simpson, MD, Northwestern University's first Black transplant physician and the first Black female transplant surgeon in the state of Illinois, sought to address these inequities by founding the African American Transplant Access Program (AATAP), an organization that works to assist Black patients in navigating the transplant process.

Currently, early detection of kidney disease is the foremost tool in mitigating long-term effects, as early detection can allow patients the opportunity to make any lifestyle changes that are necessary to support their kidney health and function. Once the kidney fails, the only remaining options for patients are receiving dialysis or a kidney transplant. When fighting kidney disease, the greatest success occurs when patients in the early stages receive specialty care through a nephrologist (kidney specialist); however, nearly 40% of new kidney

disease cases never receive specialist care. This can be linked in part to structural and institutional racism, ultimately contributing to worse health outcomes among minorities. Black Americans have higher rates of comorbidities, including diabetes and high blood pressure, which are the leading causes of kidney disease. Additionally, Black patients progress to end-stage more rapidly than White patients, are less likely to be treated via kidney transplant, and spend a greater length of time waiting for an organ than White patients.

Dr. Simpson was first exposed to the realities of racial disparities in kidney disease treatment during her time as a resident physician at the Brigham and Women's Hospital of Harvard Medical School. It was during this training that she was able to engage firsthand with the transplant process and noticed not only the “overwhelming burden of kidney disease in the Black community,” but also how the potential for bias seeps its way into the organ transplant selection process.

In the first step of the kidney transplant timeline, the patient goes to see their primary care physician to be screened with blood work. The patient's samples are then sent to a lab and the team of doctors notice some irregularities that seem to suggest kidney

dysfunction. They prescribe the patient a treatment plan, and, in some cases, refer the patient to a nephrologist for more specialized care. This specialist can then direct the patient to a transplant facility or center. At the transplant center, the patient receives an evaluation that culminates in the patient's listing on the national organ recipient waitlist. Their wait time is dictated by how long they have been below a certain threshold of kidney function or how long they have been on dialysis.

Objectively, the transplant committee will evaluate a patient based on blood type, presence of any comorbidities, etc. Subjectively, the committee evaluates measures such as how likely they perceive a patient to be capable of caring for the organ post-transplant.

“[A] lot of the structural barriers that minority patients tend to face—because they tend to be of lower socioeconomic status, have less education, and live in impoverished areas [with] less access to good health resources—can create stereotypes and biases for how fit a patient is to take care of a transplanted organ and therefore puts them at risk for not being selected,” Dr. Simpson said.

These observations spurred Dr. Simpson into establishing AATAP within Northwestern Medicine to service the Chicagoland area. The program is anchored around four pillars—trust, cultural competency, health literacy and diet, and psychosocial support—

that enable it to fulfill its two primary goals.

1. Improve access to resources that help African American patients navigate the transplant process and achieve better health through transplantation
2. Continue to be a trusted destination for transplantation among African American patients and improve trust in healthcare overall

Improve access to resources that help African-American patients navigate the transplant process and achieve better health through transplantation

A patient's environment, defined here as the resources available to the individual within their immediate community, plays a large role in a patient's access to health resources. The zip code within which one lives, particularly in large metropolitan areas like Chicago, can influence life expectancy by up to 30 years depending on the neighborhood.³ Neighborhoods in places like Chicago tend to be unofficially segregated by race and income due to a history of racist redlining practices. The minority communities within these cities tend to have higher air pollution and less access to healthy foods, green spaces, and health resources. Given that transplant centers and specialists are often located outside these minority communities, patients face additional barriers that may cause them to drop off of the transplant pipeline, including not having sufficient transportation or childcare available to

attend appointments. AATAP is designed to be a intermediary and provide identified individuals with additional support in “navigat[ing] those barriers so that they can get to the transplant evaluation process and experience it as equally as anyone else.” The AATAP team maintains a social worker on staff that can assist patients with overcoming the more psychosocial factors that can sometimes complicate health attainment.

Continue to be a trusted destination for transplantation among African American patients and improve trust in healthcare overall.

It is well-documented that Black Americans have a history of distrust in the medical community due to the harm healthcare providers have inflicted on Black individuals over centuries. If an individual has a poor experience in a doctor's office, they are likely to share the narrative of that experience with friends and loved ones out of genuine concern or a desire to protect others from having a similar experience. These stories are retold and shared amongst community members and can ultimately contribute to distrust. This distrust is the footstool for many Black patients not viewing transplantation as a viable or accessible treatment option for kidney disease. To reach across the chasm of medical distrust, members of the AATAP ensure race concordance between the provider and the patient in the initial evaluation visit, helping to remove some feelings of otherness that literature demonstrates might arise when the medical provider and patient are not of a similar racial background. The team also practices patient-centered communication, focusing on establishing a relationship between the medical provider and the patient by not allowing time to be a constraining factor. During a patient's initial in-take visit with the AATAP team, patients and providers spend a considerable amount of time getting to know each other so that the patient can

feel like AATAP team members are truly their champions.

In addition to these meaningful engagements, the African American Transplant Access Program (AATAP) is working with community leaders in minority neighborhoods to bring awareness to both the AATAP program and understanding kidney disease. Through public service events and community engagement, AATAP aims to increase health literacy so that Black Americans may feel more comfortable navigating information about their personal healthcare.

At present, patient participation in AATAP is referral-based, which allows the team to provide full assistance to those who need it the most. In the first year after the inception of the program, Northwestern Medicine saw a 55% increase in the number of Black patients being evaluated for transplant and an 18% increase in the number of Black patients listed on the transplant waiting list.

The goal in creating programs like the African American Transplant Access Program and the conceptually-similar Hispanic Transplant Program created by transplant surgeon Juan Carlos Caicedo is not to segregate the transplant process into the “Black Transplant Program” and the “White Transplant Program.” Rather, the goal is to assist patients who are experiencing certain barriers and provide them equal opportunity to engage in the transplant process.

Learn more about the African American Transplant Access Program at <https://www.nm.org/conditions-and-care-areas/organ-transplantation/african-american-transplant-access-program>



Illustration Artist
Mikaela Muersch



Mikaela Muersch is a medical illustrator from the south suburbs of Chicago. She received her MS in Biomedical Visualization from the University of Illinois at Chicago. Mikaela discovered this unique field during her undergraduate studies and was excited that she could use art to help educate people to live happier, healthier lives.

With a background in figure drawing, Mikaela has keen observational skills and expertise in anatomical accuracy. After receiving a BFA in Life Drawing from the American Academy of Art, she continued developing these competencies during her time at UIC in addition to taking various courses in the biological sciences. Mikaela aims to use her creativity and visual problem-solving skills to make useful and meaningful visualizations that fill a communication gap.

More of her work can be seen on her website ***MikaelaRianne.com***.



Illustration Artist
Nicole Shepherd

Nicole Shepherd grew up in the Chicago suburbs and attended the American Academy of Art downtown where she graduated as valedictorian with a BFA in Illustration. As an undergraduate student, Nicole worked primarily with traditional media or digital illustration, but her skills and interests have expanded throughout her time in graduate school. She has gained a passion for 3D modeling and interactive development and seeks out a career in the emerging field of interactive media and virtual reality. She considers herself a lifelong learner and feels fortunate that she has found a field that caters to this pursuit of knowledge. She is currently completing her Master of Science in Biomedical Visualization at the University of Illinois at Chicago.

Northwestern Features

1 **Center for Health Equity Transformation**

² *Student to Resident Institutional
Vehicle for Excellence*

³ *Structural Racism Course*

Racism is constantly under the national spotlight in the US from the protests in response to the police murder of George Floyd to the insidious racism within healthcare. The Center for Health Equity Transformation (CHET) recognizes racism and works to expose it, along with other root causes of health inequities, through research, education, and community engagement. CHET is a joint center between the Robert H. Lurie Comprehensive Cancer Center (Lurie Cancer Center) and the Institute for Public Health and Medicine (IPHAM) of Northwestern University. Dr. Melissa Simon, founder and faculty director of CHET, laid the foundation for CHET with her diverse health equity and community-based participatory research, teaching, and community partnership portfolio over the span of more than a decade.

CHET's research addresses many racial disparities, especially in maternal health.

Black and Latinx pregnant people have the highest risk of maternal mortality and severe maternal morbidity compared to any other group in the U.S. The OPTIMIZE research study, funded by the National Institute on Minority Health and Health Disparities, is an evaluation of a comprehensive perinatal care checklist to mitigate maternal health disparities. Similarly, the Health for All: Navigating Wellness project utilizes library partnerships to improve health equity by increasing accessible health information for underserved populations. The supplemental module, “Well Mama” addresses structural racism by creating accessible information and resources tailored to BIPOC pregnant people. Both projects aim to increase health equity in maternal health through improved prenatal and postpartum care quality and accessibility.

Community media outreach takes many forms at CHET. The Center’s newsletter, Voices, provides up-to-date information on local and national initiatives, highlighting health equity research, resources, funding opportunities, and events. The Center’s podcast Skinny Trees: Lift Health for All (accessible on CHET’s website) seeks to provide insight on health equity from researchers and the community. The goal of the podcast is to discuss the importance of achieving health equity, highlighting health disparities, and exploring innovative ways to improve health for all.

The Center has forged opportunities to connect with the community and address cancer health disparities through projects like the Chicago Cancer Health Equity Collaborative(ChicagoCHEC). ChicagoCHEC is the Midwest’s first comprehensive, tri-institutional partnership to advance cancer health equity in the city of Chicago. Since its inception in 2015, ChicagoCHEC has funded 9 grants for 32 investigators, been a part of 195 peer-reviewed publications, and developed two smartphone applications

(in English and Spanish) for breast cancer survivors and cancer survivors with disabilities. The goal of one of the current ChicagoCHEC research projects is to address the four- to five-fold increased risk of death from hormone-dependent breast cancer that Black women in Chicago face as compared to white women. Additionally, ChicagoCHEC continues the core tenets of education, training, and community engagement of its other programs.

The Center for Health Equity Transformation is dedicated to preparing the next generation with skills and experience to advance health equity and diversify the workforce to improve future health outcomes.

In addition to research, community engagement, and partnership with ChicagoCHEC, the Center offers a variety of educational and training programs that provide equitable opportunities to underrepresented minorities. The T37 Northwestern University Minority Health and Health Disparities Research Training Program (NU-MHRT), Health Equity Scholars Program, and Career 911: Your Future Job in Medicine Massive Open Online Course (MOOC) offer health research training and education to undergraduate level students and beyond.



Illustration Artist
Nicole Hampshire



Nicole Hampshire graduated from the University of Illinois at Chicago (UIC) with a Master of Science degree in Biomedical Visualization in 2021. She now works as an Associate Medical Illustrator at Osso VR, a cutting edge surgical simulation company. During her time at UIC, Nicole was elected Social Chair of UIC’s Student Association of Medical Artists and joined the Association of Medical Illustrators as a student member. Outside of her professional work, Nicole enjoys training for and competing in athletic competitions, cooking, and working as a personal trainer at a local gym.

2 Student to Resident

The road to a career in medicine can be particularly arduous for medical students who are underrepresented in medicine (UIM). Learning the ins and outs of anatomy and physiology is challenging but doing so in an environment that can, at times, be unwelcoming due to microaggressions, bias, and overt racism can seem downright impossible. What structures are in place to support students as they go through the process? Can mentorship help?

We founded the **STRIVE Program**, the Student to Resident Institutional Vehicle for Excellence, to answer these questions. **STRIVE** is a near peer mentorship program that supports UIM medical students at Feinberg through panel discussions, curriculum review sessions, and social events. It is unique because resident and fellow trainees serve as the mentors for the students. Residents and fellows who are UIM have overcome similar obstacles and therefore can teach students first-hand what it takes to succeed in medical school. For the students, they have the opportunity to see someone who looks like them in the years ahead. It can serve as inspiration for career development and specialty choice. For resident and fellow trainees, they get to learn the tenets of mentorship and play a role in the successes of students.

STRIVE and programs like it can serve as resources for trainees who may be subject to injustices along racial and ethnic lines. Together, we can make the experience of medical education better and more fruitful.

3 Structural Racism Course

Northwestern University’s Program in Public Health offered an elective entitled Structural Racism and Race Disparities in Health for the first time in spring 2021. The course was taught by Omari W. Keeles, PhD, MPH from the Department of Preventive Medicine. Program in Public Health faculty and administrators suggested the course in alignment with efforts to create a more inclusive learning environment. Dr. Keeles was given full autonomy to design the course structure and requirements. There was overwhelming interest in the inaugural offering of Structural Racism with several students being waitlisted or opting to audit the course.

Dr. Keeles aimed to design an engaging graduate-level course that was interactive, individualized, and collaborative. His primary intention was for students to critically assess how societal structures have been purposely stratified to privilege certain groups and disenfranchise, marginalize, and oppress other groups. Dr. Keeles sought to foster a community of learners in which every individual – the students, professor, and two graduate student instructors – was contributing to knowledge creation. He hoped students would finish the class with an impactful and lasting experience after being challenged in ways related to their growth and learning.

In selecting the content, Dr. Keeles was very intentional in extending beyond the Black/White binary paradigm of race in class discussions. He wanted to ensure that the syllabus acknowledged and reflected the unique history of Black people in this country being descendants of enslaved people while also recognizing that other racially minoritized groups have faced similar challenges with the healthcare system. The course content explored social constructions of health through an interdisciplinary and in-depth engagement with relevant historical issues and examined key theoretical frameworks and empirical public health data, therefore emphasizing critical analysis and application of knowledge. The students and instructional team evaluated how the United States healthcare system puts the health and wellbeing of racial and ethnic minoritized groups and other vulnerable populations at risk and identified prevention and intervention approaches for change. While the first offering of this new course was focused on the United States context and healthcare system, additional training within the Program in Public Health could include international perspectives on the same topic.

Throughout the term, each student wrote either a research proposal or formal report addressing an issue related to structural racism and health inequities of their choosing.

Dr. Keeles believes the special topics class should continue to be offered in future terms and be considered mandatory at Northwestern University. He hopes Structural Racism and Race Disparities in Health will inspire additional courses focused on the health and wellbeing of marginalized communities. Since clinicians and public health practitioners work in various communities, it is important that graduates of the Master of Public Health program have a profound understanding of the ways in which a person's intersectional social

identities impact their health outcomes and experiences with the healthcare system. Ideally, Dr. Keeles envisions the foundational aspects of his course eventually being deeply integrated throughout the required public health curriculum such that a class dedicated to structural racism and its impact on health is no longer necessary.

<NPHR picture>

About NPHR

The **Northwestern Public Health Review** is a student-run organization founded in 2013 to share and stimulate multi-disciplinary conversations about current public health issues. Through our print issues, blog, and campus events, we hope to help the Northwestern and broader Chicago community achieve greater health equity.

Partnership with BVIS

Founded in 1921 by Professor Thomas Smith Jones, the Biomedical Visualization graduate program (BVIS) at the University of Illinois at Chicago (UIC) is one of only four accredited graduate programs in North America providing professional training for careers in the visual communication of life science, medicine, and healthcare. The program's unique curriculum attracts graduate students from a variety of disciplines such as medicine, life science, art, digital animation, and computer science.

BVIS utilizes the academic resources of multiple departments throughout the UIC campus to support its interdisciplinary studies. The curriculum strongly emphasizes effective communication and problem solving and provides a solid foundation in medical science, learning theory, and innovative visualization techniques. In addition to illustration and design, course offerings in visualization technology have been expanded to include animation, interactive media, educational gaming, virtual reality, stereography, haptics, and augmented reality.

Close relationships between UIC BVIS and other prestigious Chicago universities and medical centers provide opportunities for student immersion experiences and effective collaboration with peers. For the eighth time, BVIS students have contributed editorial illustrations to the *Northwestern Public Health Review*.



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