UTIBE ESSIEN: Hi there. I'm Utibe Essien, and I'm an Assistant Professor of Medicine here at the University of Pittsburgh, as well as a Health Equity researcher at the VA Center for Health Equity Research and Promotion. And I'm pleased to speak with you all today on the topic, Racial Disparities in Health Care.

I have no relevant financial relationships to report. In our talk today, we'll touch on three objectives-- discussing the history of racism in medicine and how it impacts health disparities, examining the impact of racism on clinical care, research and medical education, and identifying strategies to reduce disparities in health care. I plan to use the following session outline to guide us through our talk today, including discussion definitions, addressing the tripartite mission of racism on clinical care, research and medical education, and lastly, ending with strategies by which we can reduce disparities.

And so we'll move on to our first segment, On Definitions. And I like to start with definitions because, as in all areas in medicine, all learners are on different levels. Some of us have deep experience with the topic we're discussing today. Others are new to it, but I believe that, just as it's important for us to learn in the early parts of our medical careers, we have to start with some key definitions here as well. Including the fact that race is a created social construct and not biological fact, and that the designations of race have really changed over time, based on commonly held inherited physical traits and behavioral differences between individuals and groups.

Next is a definition for racism, which involves one group having the power to carry out discrimination or judgment or bias over another group through policies and practices, and ultimately shaping the cultural beliefs that support these policies and practices. And I highlight those two words here, policies and practices, to emphasize that racism is not just the individual interactions or well-known symbols of antiquity that are baked into our society. But it's actually part of everyday policy and practice for centuries, including in the practice of medicine.

I also believe it's important to understand what racism is not. You know, all of the words on your screen here have commonly been used interchangeably with race and racism, but it's important to remember that, just as we specify the cellular and clinical differences between a squamous cell lung carcinoma or a small cell lung cancer, we also have to be distinct and appropriate when talking about race and racism, and not use words like culture, ethnicity, diversity, or even disparities, as we'll be talking about today, to potentially explain away the discriminatory practices and policies that drive the unequal care we see in our health system.

And so on to that topic of clinical care, we move into our second segment of the talk. And so I often like starting with a reminder that health disparities are not just something that happens over there, but that it's happening in our very own backyards. And so that's why I show this likely familiar graph to some of you, from the Pittsburgh Gender Equity commission a couple of years ago now. That represents the average life expectancy here in our city.

While these numbers alone are quite alarming-- they show that white men in the city, for example, live about seven years longer than Black men, White women over eight years longer than Black women. The actual fact and unfortunate fact about this figure is that if I was to show you a graph from the large urban metropolis of New York City, where I grew up, or a smaller city of Chelsea, Massachusetts, just outside of Boston where I trained, that those numbers would be strikingly similar.

And so I think it's really critical again to remind ourselves that disparities are happening right within our communities. And that the fact is, despite really significant improvements over time-- in particular, as this graph demonstrates, in cardiovascular death in terms of reducing disparities. Unfortunately there still are significant gaps, including up to 122 and 1/2 per 100,000 deaths more in Black individuals in the country, compared to other racial groups.

And so how did we get here? What actually explains this history of racism and clinical care? Well, we know that one of the very first things we learn as docs and health professionals, is to take a good history. We spend hours before we ever put in our first order developing this skill. And I think it's the same approach that we have to take when thinking about race and medicine.

And so I wanted to share a brief history here and throughout our talk, to remind us about how we got to where we are today, so we can better address the future of this topic. And so while the word race was first used in the English language in 1508 to denote family lineage, its history actually even goes further back to the way zoologists were differentiating between animal species in the 13th and 14th century. But if we fast forward to the 1700s, at the height of European colonialism, some of the philosophical leaders of the day landed on two theories by which they explained differences in races.

First was the climate theory, which held the belief that extreme heat caused darker-skinned individuals, and that skin color and therefore race could actually change with milder climates. Then there was the curse theory, which held the belief that Black individuals were the children of Ham, one of the sons of the biblical Noah. And that they were singled out to be Black due to a result of a curse that Noah placed on this child of his, and that this resulted in the slavery that was inflicted upon those descendants.

As we move through time and into, some may argue, a more scientific origin of race, some of the leading theories of the 1800s were polygenesis, the suggestion that African people descended from different ancestors than Europeans, one that they reported was closer to primates. And monogenesis, which argued that, no, no, there's one ancestral line for all humans. But that there is a significant racial hierarchy, with Europeans at the top and Africans at the bottom.

So despite leaders of the day like Voltaire and Carl Linnaeus-- folks we may remember from our undergraduate studies-- promoting some of these theories, they ultimately did fade away over time. And the science of race, including here in the US, largely focused on Black inferiority and legal codifications of racial law. That was up until around the late 1800s into the early 1900s, when Sir Francis Galton of England coined the phrase eugenics, promoting the importance of extinction of quote, "naturally unselected people," either through reproductive limits or other more violent methods that we're all too familiar with.

Nevertheless, when President Clinton announced one summer afternoon in the year 2000 that quote, "we are all, regardless of race, genetically 99.9% the same," in response to the completion of the first survey of the human genome. You would have thought that we were finally moved beyond the story of race in medicine, and beyond that history of pseudoscience and into a brand new era. However, I would caution that there actually is some risk in downplaying some of those well-described theories of the past as pseudoscience. As so many leaders in the field of medicine and public health, leaders who inform the way we take care of patients today, ascribed to them.

Some of those individuals are on your screen here, including Dr. Benjamin Rush, who believed that quote, "the black color of the Negro is the effect of the disease of the skin," in which case he was referring to leprosy. To Dr. Edward Jarvis, whose 1841 publication in the New England Journal of Medicine reported higher rates of insanity in Black individuals who lived in Northern compared to Southern states, data with which he concluded that quote, "slavery must have had a wonderful influence upon the development of the intellectual powers of people."

And so again, I believe this history is so critical because it really helps set the stage for how we take care of patients today. In a recent publication from Dr. Vyas and her colleagues, they decided to describe several clinical algorithms that we still use today, including the well-known racial adjustments for kidney function, or the estimated glomerular filtration rate, which we know is under heavy debate today. And as some recent analyses from the New England Journal of Medicine suggest, actually there is a new calculator that we all should be taking on to actually identify renal function in individuals, Black or white.

But again as we go back, Dr. Vyas reported on that calculator as well as, for example, the pulmonary function test, which suggested that there are racial differences between lung function of Black individuals compared to white individuals, tests that date all the way back to the early 1800s, and Dr. Samuel Cartwright, a former physician and slave owner in the day. And so I think again it's important to appreciate that history. I don't want to spend our whole time together giving a history lesson, but it really does inform how we've gotten to where we are today.

And while that historical perspective influences our health, I think it's also important to understand that racism itself has been shown to have a direct and deleterious effect on our physical health. Racism results in higher stress hormone levels, elevated heart rate, chronic inflammation, and even higher blood pressure, as a study from Dr. Hicken and her colleagues in 2013 suggested. That Black individuals, as represented in the dashed line on your screen, had a higher likelihood of hypertension compared to white individuals, who are represented in the solid line, depending on what their racism related vigilant score was.

And this score was created by the study authors to ask individuals, in your day to day life, how often do you do the following things? How often do you try to prepare for possible insults from other people before leaving your home? How often do you feel you always have to be careful about your appearance to get good service or avoid being harassed? And how often do you try to avoid certain social situations and places? And so for Black individuals, for each unit increase in that vigilant score, they had an increase of 4% odds in a diagnosis of hypertension.

And so again, this captures that our very physical health can be affected by experiences with racism. Obviously, we know that these associated clinical symptoms of racism do extend beyond individual slights, and extend to the experiences of a neighborhood, a community, and even a nation, as this past year and a half has especially brought to the forefront. Over the last several months, we've seen the call to treat racism as a public health issue grow louder than ever by patients, by public health scientists, and by physicians alike.

And I have to say again, as an update in medicine, that those calls were not always loud, even back just a few years ago, when I was in my medical training. And that's despite there being significant and important amounts of data to support them. One such analysis was led by Dr. Bor and his colleagues, who studying police killings of unarmed Black men, found deaths by police not only have immediate consequences for the families involved, but that there's a mental health spillover effect in black Americans who live in the same state of the event. And they characterize this by two additional poor mental health days, or over 55 million additional poor mental health days per year among Black Americans exposed to a police killing.

Along with racism's direct effects on our physical and mental health, it's also been closely tied to the social determinants of health. These social determinants that I think we're all now far too familiar with, describe the places where individuals live, work, or play, and how they greatly influence our health care and health outcomes. These factors include the ones illustrated on your screen here, and they've been shown to be strongly associated with race and discrimination, including racial and ethnic minorities experiencing higher rates of homelessness, incarceration, and unemployment, all of which down the line are linked to poorer health outcomes, and the health disparities that we know too well in our health systems.

You know, while the world we live in today is, in so many ways, different from the black and white picture on your screen, it wasn't too long ago that hospitals themselves were key drivers of health disparities, and specifically through racial segregation. And while this scene was from over 50 years ago now, the repercussions of that legacy do continue to play out in our health system today. We know that Black patients for example, are more likely to receive their health care at low quality, high cost hospitals compared to white patients, as this study from 2011 shows.

Dr. Jha and his colleagues in this study demonstrated that as you move from left to right and across the x-axis, and hospital quality decreases, that Black patients-- and in this case older Black individuals-- were more likely to receive their medical care at these lower quality hospitals, which we know has significant implications for the type of care they receive. By the time a patient makes it to us in the health care system, racism unfortunately can tend to rear its head, as prior research has shown.

In a landmark 1999 study, Dr. Shulman and his colleagues presented cardiologists with the faces that you see on your screen, and asked, with the same clinical story of substernal chest pain, would you recommend this patient for cardiac catheterization? Their findings-- again, one of the first to use such an analysis-- demonstrated that Black patients, and in particular Black women, were less likely to be referred for that potentially life-saving procedure.

Beyond this study, research has shown, including my colleagues' and I's work in atrial fibrillation, that Black patients are less likely to receive novel cardiac therapy such as direct oral anticoagulants, less likely to receive newer or traditional cancer treatment, pain treatment, substance use treatment, and even less likely to be referred to hospice care at the end of life. All of these data suggest that there are racial biases that play an important role even when individuals are able to engage with us in the health care system. And that some of the factors that we often bring up, such as socioeconomic status, class, and insurance, may not alone be responsible for the health disparities that we see.

Of course, I would be remiss if I did not discuss the role of race and disparities in our global pandemic, which has truly laid bare the inequities that have always been present within our health system, but again, have been especially amplified over the past year and a half. These inequities have resulted in racial and ethnic minorities having poor access to testing earlier on in the pandemic, higher rates of infection and hospitalization from COVID-19, and higher rates of death, as some of our colleagues and I published early last year. Noting that Black patients were three times more likely to die from COVID-19, and Hispanic individuals were about two times more likely to die in the early stages of the pandemic.

Nonetheless, these twin pandemics-- as they've been referred to-- of racism and COVID-19, have really provided us with an opportunity to finally start to think about how we can thoughtfully address racism in our clinical care and beyond, and including in our research. And that brings us to our next segment of the talk, On Racism and Research. And I think that this segment again, is a bit removed from clinical care. But we all know just how critical research is to the health that we provide for our patients. And so I did want to provide a little bit of an update here as well.

So here I share with you, as promised, a brief but by no means comprehensive timeline of the history of racism and medical research-- a timeline that was provided by one of our colleagues, Dr. Bonifacino here. And that leans on the work of Harriet Washington in the book *Medical Apartheid.* And this is a history that's important to appreciate, that extends far beyond the commonly discussed US public health service syphilis study at Tuskegee, Alabama.

And it's a history that includes the story of Dr. James Marion Sims, the father of gynecology who operated on dozens of Black women, often without consent, often without anesthesia, to develop techniques in gynecological surgery that till today remained named after him. It's a history that includes the 19th century acquisition of medical school cadavers through the robbing of graves of predominantly Black communities, with one example coming from the Medical College of Georgia down in Augusta. A history that includes the Holmesberg Prison here in Pennsylvania, which from 1951 to 1974 was the site of research studies, where predominantly Black inmates were experimented on with radiation to determine its long term health effects. And a similarly federally funded study took place not too far from us here in Pittsburgh in Cincinnati, Ohio back in the 1960s.

This history is disturbing. It's often obviously disappointing, but it's also so critical for us to know where we've come from, so we can better determine where we're going. The role of race and racism in research does extend beyond that history and into clinical trial representation. We know, as the pandemic has especially highlighted, just how important it's been to get folks into clinical trials to help inform the life-saving treatments and vaccines that we are now so privileged to be able to give to our patients, and experience for ourselves.

And we saw a common theme come up even with the COVID-19 trials, of underrepresentation of racial and ethnic minorities in these studies. This underrepresentation though, really did exist far before the pandemic, as my colleagues and I demonstrate in this figure. Where we reviewed the past year-- or the past decade, excuse me-- of atrial fibrillation and anticoagulation studies, and found significant disparities in the representation of racial and ethnic minorities in these trials. Including some of the studies that were the first to suggest that we use newer anticoagulant medications for atrial fibrillation. To just over the past couple of years, the Cabana trial, which was the catheter ablation and atrial fibrillation trial, that recruited as few as 2% of Black participants in 2019.

And while the legacy that we just reviewed on the previous slide of medical experimentation has likely resulted in significant distrust in certain communities of color, the time really is now for us to move beyond trust as a primary issue, and move towards adapting policies by which we can improve more equitable representation. It's time for us to start thinking about the transportation costs, for our patients to be able to make it to engage in clinical trials, or what it means to take time off of work to come in for a long clinical trial day. And again, how critical it is and important it is for clinical trial representation to match that of our nation and the patients and communities we care for.

Another key area where race has come up in research-- and one that I wanted to highlight as a key update this year-- is around race as a research study variable. Again, many of you are taking care of patients every single day using data from clinical trials and from clinical research to apply to our patients. And so I think it's really important that we examine this new publication that came out last summer, from Health Affairs by Dr. Rita Boyd and her colleagues, which called for a new standard for publishing on racial health disparities.

In their article, they reviewed a number of recent studies that had been published, reporting possible biologic explanations for racial differences, including in COVID-19. And they provide us with a number of recommendations for how we ought to think about race in our clinical trial and research study design. Their recommendations included-- defining race early in the study design process, and the reasons for using race as a study variable, avoiding offering biologic and genetic interpretations of race, especially without providing the social context that we've already previously described in this talk, and lastly, actually naming racism as a cause for health disparities.

I have the opportunity to sit on an editorial board for a journal, and we were really highlighting some of the key work that we've done around health disparities over the last decade. And specifically noted that of all of those papers-- hundreds of papers that have been published on racial disparities-- that only four of them had actually named and used the word racism as a driver of health disparities. As this talk is showing, it's such an important key to the disparities that we see, and we have to pay far more attention than we already are to this issue.

And that brings us to our next segment of the talk, On Racism and Medical Education. One of the key things that we do as health professions is training the generations of the future. And I wanted to share a little bit on why it's so important, and how racism has played an important role in this theme as well.

As you'll be used to by now, we'll start with a brief history which is important to help realize just how recent the racism, discrimination, and segregation in medical education existed. For example, the first Black medical school graduate was in the US in 1847, graduating from Rush Medical School, named after Dr. Benjamin Rush, who we highlighted earlier today. There's the story of Martin Delany, a Pittsburgh native, grew up in East Liberty area, who was one of the first three black medical students to be accepted into Harvard Medical School. And shortly after arriving on campus in the Brookline area of Boston, was dismissed along with his two colleagues, due to petitions from their classmates, that they were not interested in studying with these individuals.

The first Black medical school, Meharry Medical College in Tennessee, was founded in 1876. And about 20 years later was the creation of the National Medical Association, created primarily because the American Medical Association had barred black physicians from joining their ranks, a decision they wouldn't fully revoke until 1968. But one of the most important notes on the history of racism and medical education actually took place in the year 1910. That year one of the leading educators in the country, Abraham Flexner, penned what seemed to be a pretty colorblind report, providing the criteria by which medical schools were standardized across the country.

This new standardization resulted in the closing of dozens of medical schools around the country that were deemed to be not up to snuff, including five of the seven Black medical schools at the time. In his report, Abraham Flexner noted that quote, "African-Americans should be trained in hygiene rather than surgery, and should primarily serve as sanitarians, whose purpose was protecting Whites from common diseases such as tuberculosis." Abraham Flexner, 1910.

And so it's with that backdrop that we embark on the current state of our medical education. Despite advances in diversity efforts across the country, including here at the University of Pittsburgh and UPMC, there continues to be really significant disparities in training of health care professionals of color. For example, Black physicians make up about 5% of the US workforce, Latinx physicians about 5.3%, American Indian and Alaska Native individuals, less than 1 and 1/2 % of the workforce. This figure on the right of your screen is a publication from the AAMC, the Association of American Medical Colleges, that demonstrated that fewer Black men matriculated medical school in 2014, a year after I graduated, than in 1978, just 10 years after the signing of the Civil Rights Act.

And so, why are there such disappointing numbers and underrepresented in medicine, or URiM physicians in this country? Well the answer to that question often goes back to the well discussed leaky pathway of medicine, where students of color often move through the process from K-12 education, that can often be in segregated, underfunded schools, to pre-medical school training with limited role models and mentorship, all the way on through to faculty and fellowship. As you can see, the numbers just continue to dwindle along the way.

And one of the really important things to highlight here-- and again, a little bit removed from our day to day lives and taking care of patients-- but something we have to think about, especially as we evaluate trainees along our work, are some of the obstacles that these individuals face in their training. Whether it's the challenges of literally being able to afford the medical school journey, from the hidden costs of private test prep courses and tutors and placement exams such as the MCAT or GRE, or all the way through to the board exam process. And in an article that my colleagues and I published last summer, we highlighted the recent pass fail decision that the National Board of Medical Examiners made. Highlighting that yes, this is actually going to be key and critical in actually diversifying our workforce, where we take a more holistic approach to evaluating our trainees, and no longer focus on scores and testing that actually have a somewhat racist legacy based on the hierarchy of intelligence, that many have alluded to here in the US.

Unfortunately, we know that racism doesn't stop once you exit medical school and throw on your long white coat, as some of my colleagues have published in their work in the past. Sometimes it also is experienced when you are on the job, training to do what you've worked so hard to do, to take care of patients. Sadly, an experience like this is far too common, as researchers at the UCSF discovered in a qualitative analysis of 50 attendings, residents, and medical students at their institution.

In their survey, they found significant rates of bias behavior, from patient refusal of care due to race or sex, to explicit comments experienced on the wards or in the clinic, to even seemingly tame or microaggressions, these belittling compliments such as, oh, you speak English so well. Or, where are you really from? Each of these daily threats are experienced by many of our colleagues, and they continue to contribute to the additional challenges that physicians of color have within our health care system.

And lastly on the area of medical education, I wanted to touch on the actual teaching, and how there does tend to be racial bias coming up here as well. And it's critical to talk about this really important study, one that I think is the most critical in this area. It's back from 2016, and many may be familiar with, but it's been gaining a lot of traction over this past year.

And in this study, researchers interviewed over 200 medical students and residents. And what they observed was significant percentages of these individuals holding false beliefs about differences between Black and white patients. This included a fifth of these trainees believing that black nerve endings are less sensitive than white nerve endings, nearly 40% believing that Black people's blood is thicker than white people's, and over half of these individuals, 58%, believing that black skin is thicker than white skin.

These findings are not just concerning for the educators in the room. But the researchers also found that those who held these false beliefs were also less likely to be willing to offer pain treatment to Black patients in follow-up vignette studies. Obviously, we know that just addressing individual specific biases will be helpful to reducing the disparities in health care, whether it's with pain treatment or with cardiovascular disease.

But we also know that there are far more strategies and approaches that we can take to addressing these racial disparities. And that's what brings us to our final segment of the talk, on reducing strategies. And so before I present my strategies, I'll submit that there have been several colleagues over the last year that have published solutions, strategies, ideas, for how our academic medical centers, and how we as health care providers, can actually help to be anti-racist, but also specifically to reduce disparities in the care that we provide. And I would encourage you all to take a look at some of these references when you have a chance.

But I'll present on the next few slides what I propose as a five-step approach for academic medical centers to address some of these disparities that we've just discussed. And so some of these strategies, or the five D's, will include desegregating health care in the US, divesting from racist practice and policy, diversifying our medical workforce, developing and strengthening anti-racist medical curricula, and lastly, deepening our investments in the community. And in the last few moments we have, I'll touch on a bit more of what I mean by these steps.

So first, we have to desegregate health care in our country. These data on your screen are from an analysis that my colleagues and I led a couple of years ago now, that found that patients cared for by resident physicians and primary care, patients who are more likely to be racial and ethnic minorities, non-English speaking, reside in lower income neighborhoods, and insured by Medicaid insurance, had poorer outcomes across the board in some of the quality metrics that we examined, including diabetes and hyperlipidemia levels, as well as lower cancer screening rates. And this was compared to patients who are cared for by attending patients.

And these findings and others like it, including this citation you see on your screen by Dr. Eberly and her colleagues, suggest that even in patients who have access to health care, there are still deep divisions in who receives care, the type of care that they receive, and even where that care is provided. A persistent segregation that, again, we have to address in order to be able to reduce the racial disparities in our health system.

Next, we have to divest from racist practice and policy. And throughout the talk I described some of these colorblind practices, colorblind reports, that on the face may have seemed like they were going to help better all of our health systems. But in the surface, and when you actually dug into the details, you actually saw that they were affecting certain communities more so than others. My colleagues and I earlier this year published a piece on the disparate impact of colorblind policies, and how policies such as, having to have sufficient caregiver support before getting a transplantation, or the decisions that we made be about age cut-offs for folks being vaccinated in COVID-19, did have disparate impacts on Black communities. And if we don't specifically think about those policies earlier on, we will continue to perpetuate some of the disparities that we know far too well.

Next, we have to diversify our medical workforce. Here at the University of Pittsburgh and UPMC, we have a number of strategies including the Conrad Smith Leadership Council, through which we are hoping to diversify, not just the medical workforce, but also our research workforce, which as we saw, has certain impacts on the health we provide to our patients. And there's been several studies, for those of us who work in the health equity space, to show and demonstrate just how important a diverse medical workforce is.

From the Oakland barbershop study in 2018, that showed that Black patients were more likely to receive preventative care if offered by a Black physician, to a more recent study in the Journal of General Internal Medicine last year by Dr. Som Saha that showed that Black patients who were presented with a video vignette of a Black physician were more likely to perceive that the recommended procedures that that doctor described were medically necessary for them, and were more likely to consider undergoing that procedure. Again, the pandemic has even far more highlighted the importance of a diverse workforce, as we've seen myriad patients from diverse backgrounds experiencing this new disease, and have really sought trusted resources from their community to be able to gain critical information.

Our next step here was to develop curricula that can actually address all levels of our medical training specifically around anti-racism. We've seen that over the last decade, there have only been 17 published curricula on anti-racism as reported by the AAMC. And that's why my colleagues and I took the opportunity to create a new podcast series, which I'll highlight here for folks who are looking for a different resource and tool. Where every month, we put out another topic on how we can address some of the inequities in our health care system. Again, just another resource that I think that we can use in order to address this topic.

And lastly but certainly not least, we must deepen our investments in the community. I mentioned today that the talk was going to focus on the tripartite mission of academic medical centers, from clinical research, clinical care research, and medical education. However, we know that several academic medical centers, including our own, are moving towards a more quadruple mission, the fourth leg of which engages the community. And it's been really great to see, for example, this new homeless shelter initiative taking place here between UPMC and the City of Pittsburgh and PNC. And I'm hopeful that further initiatives will be taking place in our region down the line.

And so in this talk, I hoped to touch on these three objectives. First we discussed the history of racism in medicine. We examined the impact of racism on clinical care, research and medical education. And we identified strategies, the five D's, by which we could actually reduce disparities in health care.

And I often close by highlighting that in this talk, we did describe some sobering truths about our nation's past, truths that existed for hundreds of years, including over 50 years ago when Dr. King shared this quote. That "in this unfolding conundrum of life and history, there is such a thing as being too late. And that we are now faced with the urgency of now." An urgency that the pandemic has really brought on us, to address these racial disparities.

I appreciate your time and attention this talk. Thank you for listening. Please feel free to reach out with any questions about some of the content. Thanks so much.