

**DECONSTRUCTING MEDICINE: THE INTERSECTIONS OF RACISM AND  
HEALTH DISPARITIES WITHIN  
PRE-MEDICAL EDUCATION**

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2017



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APPROVAL PAGE

TITLE: Deconstructing Medicine: the intersections of Racism and Health Disparities within Pre-Medical Education

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DATE SUBMITTED: June 12, 2017

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# Deconstructing Medicine: the intersections of Racism and Health Disparities within Pre-Medical Education

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## **Abstract**

The purpose of this project is to evaluate ways in which historical racism and lack of it in pre-medical curriculum shapes future health professionals and results in negative medical treatment of under-represented groups. Research found in the literature review reveals a strong history of racism within medical practice and medical research, as well as unconscious bias that follows knowledge taught during undergraduate education and onwards. An intersectionality approach is used to show the affect of race and class on health disparities and unethical abuse. This research includes data analyzing the pre-medical curriculums of the ten pre-medical universities that produce the most medical school applicants. Through this analysis and a thorough review of literature, there is evidence that there is a lack of interdisciplinary coursework included in pre-medical curriculums and an absence of initiative by these top schools to promote coursework including humanities, or topics regarding class, race, ethnicity, and social factors affecting health. This research done compares similarly to the pre-medical curriculum recommended to students at Cal Poly San Luis Obispo. From this research, possible programs and changes to Cal Poly pre-medical curriculum can be incorporated to include interdisciplinary coursework. Through this suggestion there is hope that it will allow pre-medical students to become aware of social constructs, intersections between race, class, and health, as well as their influence in resolving health disparities and racism within the medical practice.

Keywords: Racism, Racism in Medicine, Pre-medical Education

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## NOTES ON TERMINOLOGY

**Disproportionality:** refers to the ratio between the percentage of persons in a particular racial or ethnic group at a particular decision point or experiencing an event compared to the percentage of the same racial or ethnic group in the overall population, which can suggest underrepresentation, proportional representation, or overrepresentation of a population experiencing a particular phenomenon (Fung, Ruth, Alan).

**Eugenic Movement:** movement built up after Mendelian genetics with the purpose of improving the genetics of the human race, but ultimately lead to long-standing medical and cultural prejudices toward under-represented groups.

**Health Disparities:** refers to differences in access to or availability of facilities and services (Health Services Research Information Central: Health Disparities)

**Health status disparities:** refers to the variation in rates of disease occurrence and disabilities between socioeconomic and/or geographically defined populations (Health Services Research Information Central: Health Disparities)

**AAMC** = Association of American Medical Colleges

**Cal Poly SLO** = California Polytechnic University of San Luis Obispo

**WC4BL** = White Coats for Black Lives

## **Preface: Note from the Researcher**

The start of my tenth grade year was filled with everything a 15-year-old high school student could hope for: I was healthy, discovering my passions, and feeling like I had everything in the palm of my hand. I still remember sitting in the front seat of the car, chattering into my mom's ear about my day, looking into her eyes, as the edge of her eye brows bent down. For the next ten minutes as we drove through the suburbs of Granada Hills, in the valley of Los Angeles, I remember her hesitant smile, and the silence that filled the car.

My dad had lost his job in the midst of the recession and my tenth grade year changed in an instant. Just a year earlier, my mom had quite her job at her beauty salon and with no income coming in, my home was always in distress. This was the year my mom was diagnosed with Diabetes, high blood pressure, and high cholesterol. Without health insurance, she found the closest free clinic in Los Angeles to pick up her medications and talk with the doctor about any medical issues she was experiencing.

After standing in line for 4 hours she was unable to see a doctor. She tried again and when she was given her 15 minutes with the doctor, who had a room of over 30 patients waiting, the doctor rushed through her concerns and found her issues to be so common with other Hispanics, that he then preceded to tell her not to eat any more "tortillas." This was the moment I learned how health care worked when you did not have insurance. This was the moment I realized that the problem lies within the system, and that she was not alone in her experience. When there are so few doctors helping underserved groups, and when there is such a lack of doctors in low income areas, the problem lies within the institutions that train doctors to take on only certain responsibilities and obligations. When there are assumptions made about foods or diseases most common to a patient's ethnicity or race, we must question: where does this



knowledge come from? When thinking of my mom's experience and my own yearning to help, I felt disconnected to the realities of the health care system in the U.S and the vast health disparities. I began to wonder why there was this large gap in health outcomes, and why race is at the forefront, yet the causes are not addressed adequately.

Today, I am a pre-medical student with hopes of becoming a primary care physician. Everything I experienced, that my mom has experienced, and that I have learned in my Ethnic Studies courses as an Ethnic Studies major at Cal Poly San Luis Obispo has shaped where I will work and how I will consider and approach patients that differ in race, ethnicity and gender. As a patient myself, who has experienced the problems within the free clinic, as a daughter of immigrants who have struggled through the health care system, as a free clinic volunteer, as an Ethnic Studies and a premedical student, my life outside and within health care has given me the perspective to now ask questions I could not as a 15-year-old high school student. I now think about who a doctor is, their responsibilities, how their identity affects who they are as doctors and how this translates into patient care.

Stemming from my personal experiences, my research asks: how does premedical undergraduate education affect the medical treatment of underrepresented groups? How has historic and present-day racism allowed for the reproduction of racist knowledge and practices? With these questions, I want to explore the effects of racism on knowledge produced and taught to medical students from medical institutions, as well as how this knowledge continues to perpetuate racist knowledge leading to diagnoses based on race and unethical research.

## **Chapter I: Introduction**

This project addresses research questions that challenge the current pre-medical curriculum in place by expanding the conversation on the impact of historic and present-day racism on medical practice and research. Along with the driving research questions, this project explores the education of medical students in order to understand the importance racism has played in the United States healthcare system and the lasting consequences it has had on minorities in this country. By doing this analysis of pre-medical education and the implications of ignoring racism in the medical field, I hope I may be able to shed light into the lacking coursework within pre-medical curriculums.

By studying the effects of historical racism and forms of class discrimination, along with socioeconomic status, it may be possible to analyze ways to form better patient care, not just among white health professionals, but among people of color as well. Identifying the ways racism affects medicine and its origins to historical racism has allowed health disparities and racism in the medical field to persist. These include reasons for the occurrence of cases such as the Tuskegee Syphilis Study and the unwillingness of medical institutions to acknowledge the impact of unethical practices and results of racial oppression in our institutions. Using intersectional analysis in the curriculum of premedical undergraduate education and understanding the role of historic and present racism on the reproduction of racist knowledge can allow current premedical education to be reformed to integrate intersectional education of race and class to form a better understanding and intervention to social factors affecting health disparities.

### Overview of Project Contents

This project is separated into five chapters with chapters two through five covering the

literature review, methods, results and discussion and the conclusions, which includes suggestions to the current pre-medical curriculum at Cal Poly SLO. Chapter two includes an in-depth literature review that attempts to analyze and describe the following, 1) forms of knowledge produced in undergraduate institutions, 2) the influence of historical racism, 3) the kinds of unethical research and poor patient care that has resulted from historical racism, and 4) the different forms of pre-medical curriculums effective in producing well-versed health care professionals. The literature review is broken up by subtopics including, historical racism, ethical abuse in medicine, health disparities, undergraduate pre-med education, intersections of race and class, white bodies as the “normal” bodies, conducting research, and lastly interventions to racial bias and health disparities. From the literature reviewed, the next two chapters focus on a set method to test the validity of pre-med programs initiative to introduce humanities courses and is discussed in the research methods, results and conclusion section. Through my data analysis, I found a lack of initiative by institutions to promote the need of humanities classes within pre-med curriculum. As a result, pre-medical students lack an understanding of the intersections of race and class in scientific research and current effects on health disparities. Without institutional reinforcement, these students disregard the need for humanities courses and, if they are science majors, they can go without it throughout their academic experience. The preliminary research discussed in the methods, results and discussion are then reinforced in the suggestions as part of my concluding statements. This section details the ways in which students can benefit from different knowledge and the ways in which changing knowledge production can allow for better patient care. This concluding chapter will evaluate the project’s conclusions obtained through the preliminary research.

## **Chapter II: Literature Review**

This review of literature presents various key points for exploring the importance of an interdisciplinary premedical curriculum and the necessity of knowledge of past unethical research of patient care by medical professionals. It is necessary to examine several aspects that are essential to premedical and medical student education through the use of an intersectional approach. By examining health as a site of structural oppression, the necessity to include discussions on race and class into premedical education becomes apparent. Different factors of structural oppression contribute to health disparities. This includes, but is not limited to, the impact of past abusive medical practices and experimentations on current biomedical research, the influence of socioeconomic status, and the impact of social constructs to the normalization of medical practices of certain racial groups. An examination of these topics will facilitate an understanding of the potential role of racism in medicine, stemming from a history of racism in the practice, that may continue to be reproduced by academic institutions today.

This literature review explores the effects of racism on knowledge produced and taught to premedical and medical students from institutions, as well as how this knowledge continues to perpetuate racist knowledge and can influence health disparities. Lack of pre-medical coursework on racial oppression in U.S medical and institutional practices only furthers a knowledge based on biological understandings of race, rather than disprove social constructs that have a long history of racism. For medical professionals to intervene and take action against health disparities, they need to have an understanding of the history of racism in medicine and the reasons that attribute to race-bias patient care and racialized health disparities.

### ***Historical Racism***

W.E.B Dubois said, “we can only understand the present by continually referring to and

studying the past; when any one of the intricate phenomena of our daily puzzles us; when there are religious problems, political problems, race problems, we must always remember that while their solution lies in the present, their cause and their explanation lie in the past” (Fong 183). In order to study current patient care based on the medical curriculum in place, it is important to first understand medical practices that have been guided from historical racism. These practices and forms of racism continue to affect the medical practice and biomedical research today.

The medical and science fields are not sheltered from the impact of systemic racism and discrimination that has, in ways, plagued the United States. Between slavery, the mass genocide of Native Americans, racial segregation, and the continued marginalization and discrimination toward minorities, the U.S has accumulated a rich history of racism that has not failed to perpetuate into the medical field. For instance, the medical treatment of Black women in the U.S has been shaped by the racist history of medical experimentation. In the 19<sup>th</sup> century medicine set its priorities on finding technologies and treatments that would be beneficial to Whites, while using Black Americans as the main source of test subjects (Feagin and Bennefield 9). This resulted in doctors performing dangerous experiments on Black women, that they would not perform on Whites, resulting in the deaths of Black women. This biomedical research approach set the precedent that Black women could be used, as Feagin and Bennefield state, “guinea pigs for medical progress” (9). It also allowed Black women to be thought of as less than medically and un-deserving of treatment that would be equally as good as those given to White patients. This perception of Black women as less valued and inferior persisted into the 20<sup>th</sup> century alongside the fight for civil rights and the Eugenics Movement.

While the Eugenics Movement stood as a scientific vehicle to use knowledge from Mendelian genetics to attempt to improve human qualities, it unfortunately did so on the basis of

racial assumptions and the long standing history of discrimination towards minorities. To get rid of “undesirable” traits meant to get rid of those that we had attributed these poor traits to through decades of oppression. At a time of racial segregation and the Jim Crow era, the eugenics theory provided the scientific justifications for political actions and through the “science” of eugenics, it provided the basis of biological race distinctions that would then continue into present day academics. Joe Feagin and Zinobia Bennefield illustrate the ways in which the perception of Black women was shaped in medicine through beliefs spewed by eugenicists. Feagin and Bennefield describe the labeling of Black women “as sexually indiscriminate and as bad mothers who were constrained by biology to give birth to defective children” (9). As a product of slavery, Black mothers had this stereotype or misconceived notion about them previously, however the label then became justified through scientific means. As a result of the Eugenics movement minorities became subject to legal and illegal medical mistreatment and abuse based on their socioeconomic status and the color of their skin.

The Eugenics movement provided the basis for sterilizations in the U.S, targeting people of color and those with low socioeconomic status, which subsequently was used as a form of population control in the prison system. Historically, we can look back to the Pennsylvania Holmesburg Prison between the early 1950’s to early 1970s, in which incarcerated blacks and Latinos were disproportionately subjected to medical abuse and experimentation. Alondra Nelson notes that articles at the time had published that poor and black communities were more often than not treated like “animals, experimented on, and made to wait long hours in waiting rooms” (15). This was reinforced with knowledge of the Tuskegee experiment. While eugenics was disproven, the lives of people of color and low-income communities remained damaged.

In her book, *Body and Soul - The Black Panther Party and the Fight against Medical*

*Discrimination (2011)*, Nelson discusses the long history of unequal medical treatment for low-income communities and communities of color in the U.S. and how these conditions stood at the forefront of the Black Panther Movement. Nelson describes advocates in the 1960's who fought, like the Black Panthers, against the medical inequalities of people of color. One advocate, Fannie Lou Hammer, used her experience as a Black woman from the South who had been secretly sterilized by an abusive physician while seeking medical treatment for other concerns. Fannie Lou Hammer used the phrase "Mississippi appendectomy" to explain her experience, as well as the overall medical oppression and mistreatment of poor black women in the South (Nelson 8). Her experience fueled her desire to advocate against the intersecting system of race, class, gender, and health inequality that was infringing on the lives of people of color in the South. Narratives such as Hammer's gives details into the mistreatment of African Americans that may go forgotten within medical education, yet are necessary to encourage students to take a stance in social justice within medicine. Nelson's book gives insight into the motivations and origin of the Black Panther Movement, but also sheds light onto the importance of experiences and narratives of those affected by abusive medical practices as they have been persisted throughout U.S history.

### ***Ethical Abuse in Medicine***

Past abuses of the medical experimentation and unethical practices sets an example for present-day discriminatory medical practices, mistreatment of patients, and current research methods. For example, in 1932 the U.S. Public Health Service and the Tuskegee Institute began the research for the Tuskegee Syphilis Study to research "syphilis in the untreated male." In search for the cure of syphilis and its origins, White study directors put forward the argument as a fact that syphilis affected the neurological systems of White men, but only the sexual organs of

Black men. The basis of this was that Blacks had primitive brains and enhanced sexual desires (Feagin and Bennefield 10). Such assumption can be traced back to the emergence of racism. The study had several aspects that sparked controversy, but it was mainly due to the fact that White physicians withheld the treatment of syphilis, once discovered, from Black patients in order to see the effects of undertreated syphilis of Blacks. As a result, many Black patients died from the disease, in a large part from the lack of available treatment. While this form of medical treatment is viewed today an infamous case of ethical abuse, the reasons for its occurring are much more important to how it has impacted current medical and scientific research.

Paul A. Lombardo and Gregory M. Dorr examined the educational and professional linkages between the three leading physicians that started and directed the 1932 Syphilis study on the Black male. In the article, “Eugenics, Medical Education, and the Public Health Service: Another Perspective on the Tuskegee Syphilis Experiment,” Lombardo and Dorr seek to answer two main questions, 1) why was the study created, and 2) why did it continue for forty years (292). Lombardo and Dorr identify three main linkages between the physicians involved, including, their study of “racial medicine,” their education at University of Virginia’s medical school, and lastly, all three of them were associated with the American eugenics movement (292). As briefly described, the eugenics movement had a large impact in the academics of many physicians, as well as their perception of minorities. It justified the study itself by confirming pre-existing beliefs of the inferiority of minorities. The eugenics theory stated that “people of different races inherited not only differences in appearance, moral character, and sexual behavior, but also differential susceptibility to disease” (Lombardo and Dorr 294). This was a leading factor to the reason these male doctors decided to pursue the syphilis study and stood as the common belief amongst science academics of the time. This allowed “racial medicine” to be



engrained within medical curriculums and has since left an imprint in medical academics today. The knowledge these physicians were taught was essential to the type of research they performed. In the case of the three main physicians who began the syphilis study, Virginia University students were given an education that did not just highlight what was known to be true medically, but they were also highly exposed to their professor's social views, which were then integrated into their medical education. When they were taught of diseases, they were taught this in respect to "inferior" racial groups that were more likely to obtain these diseases. The authors reference the founder of the eugenics, Davenport, who would encourage educators to "demonstrate the heredity of such matters as serve to differentiate the two races; such as the alleged difference in resistance to cancer; to tuberculosis; to carries of the teeth; to immunity from fevers; to educability; to sex control" (quoted in Lombardo and Dorr 301). While proven untrue, the racial biases and stereotypes have persisted far past the end of the Syphilis study in 1972.

The research abuse of American Indians follows a similar history to the African American men targeted and abused in the Tuskegee Syphilis Study, as well as government sanctioned sterilizations within the prison system. Beginning at the start of European colonization of American Indian land, there have been several instances of medical abuse of American Indians. During the French and Indian War of 1756 to 1763 British military took advantage of American Indians lack of immunity to diseases by purposefully spreading smallpox to American Indian communities (Hodge 432). Europeans then continued to diminish American Indian health by sabotaging their food and water supply. As a result of this initial attack on American Indian health, by the 1900's the population declined to 120,000 from millions (Hodge 432). In her article "No Meaningful Apology for American Indian Unethical

Research Abuses,” Felicia Schanche Hodge describes the abusive medical practices that were taken by doctors in the U.S. military towards American Indians. With so many diseases spread throughout their regions, American Indian communities became sites of high rates of infections. Doctors on military sites used American Indians as sources to practice with little regard to the health risks that would later occur. An example of this was displayed in the early 1900’s with high rates of trachoma, an infectious eye disease, infesting 90% of the American Indian reservations between Virginia to Oklahoma, as well as other populations throughout these areas (Hodge 433). Government doctors who were apart of the Indian Health Service (IHS) were given the authority to surgically removes the top and bottom eyelids of men and women adults and children. After performing the procedure patients were not given a second look at and were sent away regardless of the success of the treatment. This medical procedure reveals the disregard for the health and wellbeing of American Indians.

Decades after these instances of genocide and medical abuse, American Indian women and girls became targets to sterilization in the 1970’s. Hodge states that between 1973 and 1976 the “General Accounting Office reported that 3,406 American Indian females between the ages of 15 and 44 who received healthcare services in four of the 12 IHS regions were sterilized by IHS doctors or IHS “contract” doctors” outside of legal IHS regulations and without consent (Hodge 433). The viewpoints of these doctors at the time however provide evidence of the type of assumptions and understandings of discrimination that these doctors held to be true. Hodge provides the four major reasons physicians used to justify the sterilizations, including 1) helped society through population control, 2) reduced racial/ethnic tensions, 3) reduced financial burden on government social programs, and 4) reduced personal tax burden that support social programs (Hodge 433-434). These types of perspectives get reinforced by these government institutions

and may become common assumptions that then persist in medical education and practice if not addressed.

There is a high importance to how educators go about teaching students about medicine in relation to race. If institutions can take action to provide knowledge against the racist ideologies of the past, then just as the eugenic theory was incorporated into the curriculum at Virginia University as well as many others across the U.S, institutions will be able to change the knowledge base of medical students. With occurrences such as the sterilizations and secrecy of abusive medical experimentation and research on minority groups, there is an urgency to educate future doctors on unacceptable forms of medical research and practice. Without addressing previous assumptions on these different minority groups students are unable to easily identify and correct the way they go about ethical research and patient care. Pre-medical students will be able to reformulate how to approach research ideas and will be able to consider ethical problems, without relying on racist knowledge or a background that has ignored racism.

### ***Unconscious and racial bias***

Race also plays a large role in genomics and subconscious racism that doctors may not explicitly think they are doing. While physicians may not be actively racist or are unaware of racial bias in the medical field, this does not mean it doesn't have a large influence over their own patient care. Students and medical professionals may feel unaware of racism due to lack of acknowledgement and education on how the two relate. People may be more likely to notice active racism, "blatant, intentional acts of racial bigotry and discrimination" and are less likely to notice or acknowledge passive racism, presented through subtle acts of racism (Tatum 128). Institutions reinforce passive racism by avoiding hard to talk about race-related topics and by the lack of integration of race discussions in science coursework.

In the article “Defining Racism: ‘Can We Talk?’” author Beverly Daniel Tatum discusses how prejudice is an integral part of our socialization, as well as the different forms of racism. In describing prejudice and who holds it, Tatum states, “prejudice is one of the inescapable consequences of living in a racist society... [Cultural racism] is like smog in the air. Sometimes it is so thick it is visible, other times it is less apparent, but always day in and day out, we are breathing it in” (125). This inability to escape the consequences of living in a society shaped by racism provides a counterargument that medical professionals can be without bias. Medical students are not exempt from these racial prejudices that build up throughout each of our lives. We are socialized with these prejudices building up through the stereotypical images from the media and then reinforced by the attitudes of those around us that we all then begin to develop negative categorizations and images of those groups. This forms each of our own biases and more often than not it impacts decisions of medical professionals. This applies to biomedical researchers as well, since preconceived notions can also allow students to pursue different research areas.

Additionally, Tatum argues that people of color cannot be racist because they do not adhere to the definition of racism as a “system of advantage based on race” (128). While I hold this statement as true, I do want to reiterate her point that people of color can still have racial prejudice and the distinction between the two are important. While people of color may not systematically benefit from racism, thus unable to be racist, as doctors people of color, like white doctors, can still hold racial prejudices that affect the kind of patient care given, including diagnoses that can be bias due to the race or ethnicity of the patient. These prejudices can also affect the kind of research questions and methods they pursue and utilize. While whites may be the ones to be called “racist,” groups within the white racial group also succumb to different

forms of inequality as well, depending on factors such as socioeconomic status, gender, age, religion, sexual orientation, and mental and physical ability (Tatum 129). Race, ethnicity, and socioeconomic status are driving factors of health disparities in the U.S.

In the *The Book of Life: A Personal and Ethical Guide to Race, Normality, and the Implications of the Human Genome Project*, Rothman Rothman states, “we grow up in systems of domination, in systems of classification that serve for domination, and we take their codes for granted. ... [W]e’d like to think that race exists but that racism doesn’t have to. But it doesn’t work that way: to see race is to construct the system in which it exists; to construct the system is to learn to see race” (Rothman 50-51). By learning race, we begin to learn dominant races which then gives rise to racism. For medical students learning and growing up with social constructs and prejudice already around them, they can form these constructs medically as well, subsequently influencing their medical decisions, and produce bias towards patients. While biological theories of race have been disproven, we still see the impact of it as a central part of the genome project and genomic research. Through scientific research that places race as a component as a category it continues to reinforce biological differences based on race. As Rothman argues, “just because there aren’t ‘races’ doesn’t mean there isn’t racism” (Rothman 84). While races are a social construct, these constructs have a large impact on differences between where people live, and health risks associated with ethnicity. By considering race involvement in health disparities, we can begin to form a different knowledge base for those going into research and going into the medical practice.

While racial health disparities have been documented in association to socioeconomic status, there are also factors aside from this that have led racial health disparities. In the book, *Fatal Invention*, author Dorothy Roberts discusses the 2002 report, *Unequal Treatment*:

*Confronting Racial and Ethnic Disparities in Healthcare*, in which the Institute of Medicine stated that the majority of its studies surveyed “find that racial and ethnic disparities remain even after the adjustment for socioeconomic differences and other healthcare access related factors.” These factors can include lack of health insurance and access to health care facilities, medical stereotyping, and inequality in testing and research. In the article “Silent Curriculum” published in 2015, author Katherine C. Brooks reveals how medical students are taught that diabetes and STD’s are in high rates among African Americans, and are only presented with images of rashes on Caucasian, or white skin color in their medical textbooks. This causes racial disparities in healthcare when being treated, along with stereotypes that may lead to Whites in the ER to be treated with drugs for mild pain, while African Americans get sent away for possible “narcotic seeking behavior” (Brooks 1909).

Bias diagnoses can affect treatment of minorities in the U.S and can be rooted in systemic racism that has evaded into the medical field. In the article "Systemic Racism and U.S. Health Care," Joe Feagin and Zinobia Bennefield analyze the history of racially exploitative medical and public health practices that have created and maintained structural discrimination against people of color in the U.S. Feagin and Bennefield examine recent medical research on White physician racial framing and perceptions of physicians and patients of color in order to make the argument that there is systemic racism within health care and public health institutions. Feagin and Bennefield apply the research to the systemic racism theory, specifically looking at (1) the dominant racial hierarchy, (2) comprehensive white racial framing, (3) individual and collective discrimination, (4) social reproduction of racial-material in- equalities, and (5) racist institutions integral to white domination of Americans of color (7). These authors emphasize that without addressing the impact of systemic racism, society is unlikely to address the causes and thus

instead, society will continue to perpetuate racist knowledge.

As of 2010 the Association of American Medical Colleges (AAMC) reported 75% of those practicing medicine were White (Feagin and Bennefield 8). The data obtained by the AAMC suggests that the majority of White healthcare, public health personnel, and researchers operate from a “white framing”. Feagin and Bennefield describe white framing to include normalized notions (such as stereotypes, images, narratives) of biologically and culturally distinct groups (8). The authors also indicated links between white framing and discriminatory practices that make up institutionalized inequalities in health care and health outcomes. Feagin and Bennefield take a structural approach to find a complete explanation of U.S racism and health inequalities, which provide evidence of an ongoing connection between individual experiences and the actions of doctors and patients to the shared white racial frame learned in society. Historically, the biological studying of “race” has played a role in this framing, and yet medical institutions have generally failed to examine the impacts of past racial oppression and unethical practices in U.S. medical institutions.

While medical schools continue to not address the role of racism within medicine, racial bias continues to be a public health problem. In the article, “Racial-Ethnic Disparities in Opioid Prescriptions at Emergency Department Visits for Conditions Commonly Associated with Prescription Drug Abuse,” Astha Singhal and her colleagues presented the issue of racial bias in the medical field through their research of racial-ethnic disparities in association to opioid prescriptions given to patients in emergency rooms. Their research examined emergency department (ED) data from the National Hospital Ambulatory Medical Care Survey for 5 years between 2007 and 2011, which they concluded that there were significant racial-ethnic disparities in opioid prescriptions given during ED visits by non-elderly adults between the ages

of 18 and 65. Singhal et.al found that non-Hispanic Blacks were less likely to receive opioid prescriptions when exiting their Emergency Department visit for back pain and abdominal pain, but, Singhal stated, “[they did not receive opioid prescriptions] for toothache, fractures and kidney stones, compared to non-Hispanic whites after adjusting for other covariates” (1). This becomes a public health issue as it can lead to disproportionate abuse of pain medications and allows patients to be assessed medically based on pre-existing biases and stereotypical behavior associated to different racial and ethnic groups. Unless acknowledged within medical education, future health professionals are unable to consciously think about their own biases that affect their patient care.

### ***Health Disparities***

In the article, "Eliminating Racial Discrimination in Health Care: A Call for State Health Care Anti-Discrimination Law," Randall Vernellia provides a historical background of racial discrimination that has impacted African American health care as far back as 400 years ago. It consists on racial barriers and several social barriers that have affected and continued to affect the health care of African Americans. Vernellia identifies a list of inequities in health status between racial/ethnic groups, including, to name a few,

infant mortality rate are 2.5 times higher for blacks and 1.5 times higher for American Indians, than for whites; the death rate for heart disease for blacks is higher than for whites; 50 percent of all AIDS cases are among minorities who account for only 25 percent of the U.S. population; the prevalence of diabetes is 70 percent higher among blacks and twice as high among Hispanics as among whites; Asian Americans and Pacific islanders have the highest rate of tuberculosis of any racial/ethnic group. (2)



These statistics reveal the fact that racial minorities in the U.S have a worse health status than White Americans, and have a significantly higher rate of deadly diseases. While these are problems that have penetrated into the lives of Americans today, Vernellia notes that “current issues in health inequities are not isolated to problems in the health system... They are the cumulative result of both past and current racism throughout US culture” (3). Vernellia emphasizes that the poor health status of minorities stems from the institutional racism in place causing minorities to “have less education and fewer educational opportunities” which in effect cause minorities to “disproportionately work in low pay, high health risk occupations“(4).

Vernellia adequately explains policies that have reproduced racist scientific knowledge and continued discrimination as well. As there seems to be a cyclical affect in how minorities end up with poor health, it stems from historic and present racism in land and housing policies that regulate where minorities live, in comparison to White Americans. The results of discriminatory polices is environmental racism. Minorities are more likely to live in places with an “over- concentration of alcohol and tobacco outlets and the legal and illegal dumping of pollutants [which] pose[s] serious health risks to minorities... It is a direct result of discriminatory policies designed to protect white privilege at the expense of minority health” (Vernellia 4). The several institutional discrimination examples provide insight into the factors that ultimately affect health care of minorities.

In "Discrimination and Racial Disparities in Health: Evidence and Needed Research" David William and Selina Mohammed focus on perceived discrimination and the impact on health outcomes. William and Mohammed provide a well known statistic of, “African Americans (or Blacks) have higher death rates than whites (20). The authors highlight these elevated death rates exist across the life-course with African Americans and American Indians having higher

age-specific mortality rates than whites from birth through the retirement years,” but then continues to say that 100,000 Black American would not die if racial disparities did not exist in healthcare (Williams and Selena 20). This suggests that racial disparities are one of the leading factors to disproportionate numbers of Black Americans dying each year in comparison to whites. The research done through the article shows that pathogenic factors are correlated to race and highly affected by socioeconomic status. This can be utilized to resist ideas that different racial groups are inherently built with different genetics and thus their biology is different than the dominant group.

In her 1999 book, *Has Feminism Changed Science?*, Londa Schiebinger describes the community model which acts as a new medical model that challenges the biomedical model that solely focuses on disease management and biochemical processes of the body (118). Instead the community model argues that sex and race are just as important as biological variables. For instance, the cause of depression in women gets attributed mostly with hormonal imbalances, yet it can also be largely effected by social conditions such as discrimination, poverty, abusive partners, and chronic ill health (118). Advocates of this model do not argue against the significance of genetics and biological aspects of disease, however they do argue that health can be largely influenced by one’s ability to access medical care, their socioeconomic status, as well as their gender, sex, and race. These social disparities due to socioeconomic status, race, and ethnicity give rise to health disparities. Schiebinger notes the statistic that while African-American women have lower rates of breast cancer than European-American women, they more often die from it (119). According to Feagin and Bennefield this occurrence is due to black women being less educated on preventative care by White doctors, are not screened as effectively, and are not often referred to “state-of-the-art” treatment center like White women are

with White physicians (9). This phenomenon can be seen through other health disparities such as the disproportionate rates of osteoporosis in non-Hispanic and Hispanic and African American women. According to evidence provided by Schiebinger, non-Hispanic white women have higher rates of osteoporosis than Hispanic or African-American women, however since osteoporosis is considered a white disease in the U.S., African-American and Hispanic women may not be properly tested or educated about it. This is one of the large problems with the way medical knowledge is taught and the influence of racial bias in the U.S medical education. Even though some groups are more likely to have certain diseases, this does not mean that we have to assume from the beginning based solely on race or ethnicity of the patient. This affects patient care by not giving the proper screening or check up of patients who do not fall within the racial or ethnic category that have a prevalence of the disease.

As future medical professionals go through their education, the existence of environmental racism, as a result of historical racism, cannot be ignored. According to Marvella Ford and Kelly P. Adam, race is a multi-dimensional construct and predictor of exposure to external health risks that come from the environment, social and behavioral factors. Connecting the way racism causes certain groups to fall victim to structural discrimination can cause them to live in environmentally damaging areas. The article focuses on classifying patient “race” in relation to their “immediate and broader environment.” Providing this knowledge can allow medical students and health professionals to see patients as more than racial identities. By adapting medical or pre-medical studies to include an understanding social factors and the role a doctor can play in social justice may contribute to better health outcomes and patient care.

### ***Undergraduate Premedical Education***

When trying to understand current undergraduate premedical education and the affect of

curriculum on undergraduate research, it is beneficial to look at how research motivations differ between premed and non-premed students. Lara Brongo Pacifici and Norman Thomson research the different motivations of undergraduate premedical students versus non-premedical students. They use comparative analysis to analyze differing influences on research decisions and expectations for these two groups. For premedical students they are motivated by the competitiveness of medical universities, along with the advantages and high chances of acceptance if students participate in undergraduate research. According to U.S News and World Report of 2009, various top research and primary care medical schools mention research in their admission guidelines (Pacifici and Thomson 199). Top medical schools such as Stanford University promote undergraduate research by stating it “sharpens critical reasoning... [students with research experience] are stimulated to seek a better understanding of disease...making them valued members of any medical field, whether it be academic medicine, community-based practice, health care policy or emerging technologies (Pacifici and Thomson 199-200). Three principal questions addressed in their study are:

1. How do the influences to do undergraduate research compare between premed and non-premed students?
2. How do the expectations of undergraduates doing research in science compare between premed and non-premed students?
3. How do premed and non-premed students explain their experiences in research? (200)

These three principal questions in this study guide the researcher’s search to help undergraduate research programs alter recruitment efforts and research opportunities to best fit students with different future goals. Pacifici and Thompson’s research takes a focus on a semester-long case study of a premed science major, Chris, partaking in undergrad research for the first time

(Pacifici and Thomson 203). This case study however was not sufficient in providing a comparison between premed and non-premed research influence and experiences. They also did not take into account what kind of research he was partaking in, why he had decided to do the research, and how his social identity may have affected his decision. By solely looking at his attitude and behavior while performing research, this case study lacks understanding how social factors also affect the kind of student research done. In their comparisons of student motivation to certain types of research or becoming a doctor, they interviewed or included dialogue that explicitly showed students participating in research with under-represented communities. While this showed intrinsic aptitudes of the students they interviewed, the lack in evidence of students who do not participate in community effort or absence of data from students of higher social background gives a skewed picture of the actual affects of social factors. Their results found that non-premed students took a stronger liking to generally “liking science” and their pursuit was due to affinity for the subject and its content, while premed students would talk about research in terms of what it is and what they do in the lab. These researchers however do not pursue the influence of differing majors and curriculum for premed students compared to non-premed students. Their research also posed the question of whether or not premed students, compared to non-premed students, actually feel that research is of real importance (Pacifici and Thomson 206). This case study of Chris revealed that he felt that the research he was doing would not actually help him as doctor. Although this research primarily stops here, as they were analyzing differences in behavior and influences to do research, they could have gone further to show how a combined intersectional research could benefit premed students in how they approach patient care as medical professionals or how they will conduct patient research in the future, considering that as of 2010 John Hopkins medical school had eighty percent of their medical students

conducting research (Pacifci and Thomson 199). As well as looking to non-science majors as well and their opinion and ideas of what makes “good” scientific research as a part of their comparative analysis, rather than just science major case studies and interviewees.

Despite the creation of medical school requirements in 1930, they remain fairly unchanged eighty years later. It was not until the 1984 report, *Physicians for the Twenty- First Century*, that recommendations to include liberal art education emerged. The General Professional Education of the Physician and College Preparation (GPEP) were the first group of medical school authorities to acknowledge the need of not only “clinical expertise, skills, and knowledge, but also hone and apply humanistic values and attitudes common to a profession dedicated to caring and healing” (Muller and Kase 1378). While Lara Brongo Pacifci and Norman Thomson’s research identified differing motivations to participating in undergraduate research as science majors, differing only in premed verse non-premed students, David Muller and Nathan Kase assess medical school performance through a six-year observational study of humanities and social science majors who avoided traditional premed classes such as organic chemistry, physics and calculus, and did not take the medical school entrance exam, the MCAT. Their six- year observational research presents a medical school program put in place that allowed for an emphasis of humanities and social science in undergraduate curriculum prior to attending medical school. Mount Sinai School of Medicine of New York University in 1987 allowed sophomore and junior humanities and social science majors to get accepted without traditional premed required classes or MCAT scores. Students however had to go through an eight-week program on the basic principles required for all medical students at the university, as well as an optional summer enrichment program to get them adapted to the medical school curriculum and environment. While the majority of medical schools require these science classes

over humanities, their research revealed that even without traditional undergrad premed coursework, students still performed at the same level as traditional premed students. Their research suggested that gains from a liberal arts education include: 1) enhanced communication skills and a more humanistic approach to the patient, 2) greater interest in pursuing broader medical school experiences, and 3) heightened interest in fields that provide greater interpersonal connections between patient and physician (Muller and Kase 1381). The research does not address explicit reasons of how humanities and social science education contributes to premedical education, however results indicate that a liberal arts undergraduate curriculum is beneficial for premedical students, rather than a sole focus on science and math.

Undergraduate premedical education research could benefit from a review of the effects of integrating both a liberal arts education with traditional premedical requirements to examine how research models produced and motivations to be a medical professional differ starting at the undergraduate level. Rather than only analyzing the affects of one or the other, by researching student success and the ability to form research that relates social factors, student's ability to then intervene and form solutions to health problems could be produced, or have the ability to prevent reoccurring problems.

Different models of curriculums can overall tackle racism within the medical field. In the article "The elephant in the room: talking race in medical education" Malika Sharma and Ayelet Kuper provide suggestions to how medical school educators can combat racialized health disparities in clinics and challenges racism in classrooms, educational and research institutions, and in communities (1). Sharma and Kuper argue that educators should focus on the social construction of race, rather than the "biological truth" or biological understanding of race. They highlight that while current medical education discusses race-based health disparities, they do

not learn about patient experiences of racism and thus by relying on a “common sense” understanding of biological truth, students find that there is little to be done about health disparities (Sharma and Kuper 2). However, they argue that by teaching and understanding race as a social construction we can change how educators, practitioners, and researchers conceptualize racialized health disparities (Sharma and Kuper 2). This is a significant method for pre-medical science major students who may lack an understanding of social constructs of race, as they traditionally would not be brought up in science coursework. Sharma and Kuper give suggestions to how this idea can be applied in institutions. For instance, they state that, “in medical education, this means a potentially painful discarding of claims of cultural and racial neutrality both in clinical practice and in education research” (2). We tend to deny differences, as people claim “color-blindness,” yet institutions need to acknowledge racial bias. Sharma and Kuper call for educators to challenge the notion of race studied and teach about racialized disparities (3). If students were to learn early on in their medical education or pathway how race consciousness impacts one’s experience. In their coursework students should be able to reflect on their own privileges and oppressions. The authors explain that this can also be applied to research in which students can “[recognize] ourselves as situated knowers whose racial vantage points influence our ontologies, epistemologies, and methodologies” (Sharma and Kuper 3). By considering how our race may affect our beliefs and ways of going about research, the research questions can change and also allow for reflecting. This can be applied to undergraduate students who gain their real first research experience, before continuing from that knowledge base in graduate school. Lastly, Sharma and Kuper bring up the necessity of an intersectional approach by emphasizing that educating need to stop reinforcing biological difference and take in, as they explain, an “intersectional approach to health that considers race, class, gender, culture, and



sexuality as part of our individual and collective identities” (3). Their research highlights the role institutions in how students address health disparities. Rather than just addressing the ways in which race has affected health disparities, there needs to be change and action taken in how race and racialized health disparities are talked about in classroom and research contexts in order to actually make change.

### ***Intersections of Race and Class***

One of the issues within premedical education is the lack of an intersectional approach to studying the sciences. The intersectionality approach can be useful as a framework for analyzing the affect of class and race on socioeconomic status and its relationship to health disparities and unethical research. The field of intersectionality is framed as representing three main engagements: 1) applications of an intersectional framework or investigations of intersectional dynamics, 2) discursive debates about the scope and content of intersectionality as a theoretical and methodological paradigm, and 3) political interventions employing an intersectional lens (Cho, Crenshaw and McCall 785). In the article, "Toward a Field of Intersectionality Studies: Theory, Applications, and Praxis," Sumi Cho, Kimberlé Williams Crenshaw, and Leslie McCall pose the question: what is intersectionality? These authors then present a template combining these three levels of engagement with intersectionality to develop the field of intersectional studies (787). From this methodology, the authors suggest that by using an intersectional approach we can identify “the ways that some practitioners mobilize intersectionality as a tool to interrogate and intervene in the social plane while others seek to interrogate intersectionality as a theoretical framework through the formal requirements of social theory and methodology” (786). The intersectional approach is significant when looking at knowledge production and ways in which this approach can help inform thinking about scientific and medical research, scholarship,

and action. The approach described does not only “excavate and expose multilayered structures of power and domination by adopting a grounded praxis approach; they also engage the conditions that shape and influence the interpretive lenses through which knowledge is produced and disseminated” (804). This is essentially important when critiquing the kind of knowledge produced in premedical education and the historical context of how this knowledge was created and reasons why it has remained unchanged.

In the article "More Than Culture: Structural Racism, Intersectionality Theory, and Immigrant Health" Edna Viruell-Fuentes, Miranda Patricia, and Abdulrahim Sawsan focus on understanding social determinants of immigrant health and the intersectionality theory. Immigrants are an underrepresented group that tend to get left out of medical research, and so, the work presented in this article serves as a supplement to understand the affects of social factors and structural discrimination on the health status of immigrants. Authors Edna Viruell-Fuentes, Miranda Patricia, and Abdulrahim Sawsan argue that while culture influences social norms and health behaviors like drinking and smoking, which can result in health outcomes, factors outside of cultural aspects can cause poor health outcomes as well. By using the intersectionality approach, research can be done to depict the relationship between race and class, show the ways racism reproduces socioeconomic inequalities leading to health disparities, and intersections with oppression and marginalization that further impacts health outcomes.

### ***White bodies as the “normal” bodies***

As a source to study ways of implementation, it is possible to use current events to form connections to how race should be addressed in the medical practice, especially to relate the significance of past racism on current practices. Amy Garvey, Woode R. Denzel, and Austin S. Charlotte’s article "Reclaiming the White Coat for Black Lives" asks the question: are medical

professionals responsible for combating racism? The article discusses the impact and necessity for groups/movements like White Coats for Black Lives which is coinciding with the Black Lives Matter movement. The group of doctors advocate for injustices within the health care system and fight to get rid of racial bias in practice that has been continually harming people of color receiving health care. By fighting the assumption that has generally been made in the medical field of black people's skin is thicker than white people's," they then combat perceived biological differences. This group shows a clear example of ways to discuss how race intersects into the medical practice and ways to spread awareness that will help combat knowledge on how racism affects health disparities, as well as ways doctors can intervene.

### ***Conducting research***

In the article "Attitudes and Beliefs of African Americans Toward Participation in Medical Research" Corbie-Smith, Giselle, Stephen Thomas, Mark Williams, and Sandra Moody-Ayers conduct a study on the attitudes and beliefs of thirty-three African Americans in order to show concerns about the ethical conduct of physicians towards patients. Their work provides evidence of past exploitation of African Americans that has caused mistrust. The case the researchers focused on was the Tuskegee Syphilis study and how it influenced the attitude of African Americans in their study since it had to do with violation of human rights.

Past examples of poor research set the stage for future ethical standards that should be taken. While the article discusses the influence of attitude of African Americans, it does not expand on how questions should be shaped for scientific research that greatly affects a specific group and the impact of this affect aside from just attitude changes. The article however does give examples of questions and topic areas from the focus group moderators guide. The guide asks questions about what they know about medical research, feelings about it, current medical

treatment, and what they would like to see as improvements to medical research of African Americans after being informed of past research like the Tuskegee Study. The focus group information provided gives informative information to all participants and also allows input of change from those affected by studies such as Tuskegee.

### **Interventions to racial bias and health disparities**

While inequalities in healthcare have persisted throughout the last century, there have been efforts to implement change. Groups such as White Coats for Black Lives (WC4BL) and the efforts of the Black Panther Movement can serve as examples of effective methods to implement change within healthcare. The Black Panther Movement emerged in the midst of the civil rights movement in the 1960's. Even with the monumental civil rights cases such as *Brown v. Board of Education Topeka*, African Americans continued to be subjected to economic and social inequality. African Americans fell in a cycle of oppression that left them in poverty, jobless, suffering from health issues, and unable to change their position in society (Duncan). These conditions led to riots and police brutality that targeted the Black community. These conditions are analogous to the Black Lives Matter movement that was a large factor in the creation of White Coats for Black Lives. In order to provide medical relief to Black communities, the Black Panther Movement established their own free medical facilities/ clinics. They were active in trying to alleviate the struggles many African Americans experienced as a result of housing discrimination and racism. For instance, they provided resources such as vans to take health care services into poor communities (Nelson 6). The Black Panthers placed economic oppression and racism as two components that together restricted African American's life chances (Nelson 7). They used social health as a framework for their movement to explain

the persistence of certain diseases among black populations and reasons black communities were associated with being the cause of some diseases (12).

The WC4BL group is similar to the efforts of the Black Panther Movement. White Coats for Black Lives rose alongside the Black Lives Matter Movement and was created as a national medical student organization on Martin Luther King Jr. Day in 2015 (Garvey et al 1749). As communities all across the United States had begun to take action through protests against violence and injustice against people of color, physicians themselves also found themselves needing to engage in conversations about racial injustice. While racism gets highly talked about in the media in terms of police brutality, the evidence of medical abuse reveals that the medical field is not shielded from the effects of racism. The WC4BL use their organization to advance the role of physicians in social justice and push for medical institutions to promote health equity and support communities of color that are fighting for social justice. Physicians deal with such a diverse range of patients and like the rest of the U.S they are acquainted with social constructions built and maintained by our institutions and have racial biases that are hard to avoid. By having physicians engage and get involved in eliminating racism within the medical practice, the WC4BL wants to rid racial bias in the practice of medicine and bring recognition to the effect of racism on the well-being and health of people of color. Their ultimate goal is to correct this longstanding injustice, while simultaneously attempting to reduce social inequality. They illustrate this goal through their three-part platform, which aims to 1) raise awareness of racism as a public concern, 2) end racial discrimination in medical care, and 3) prepare future physicians to advocate for racial justice (Charles 1007). This multifaceted platform signifies the broad scope of social change that WC4BL hopes to achieve. These students started this movement not only to address the recurrent violence against Black people, but more specifically to address the lack of

protest or dialogue on medical school campuses. This groups efforts can serve as an example for other pre-medical and medical institutions across the country.

## **Chapter II: Research Methods**

### ***Investigating Curriculum with Qualitative Methodology***

To evaluate whether intersectional courses should be integrated into pre-medical curriculum, as medical school required courses, this research explores the influence of historical racism in scientific research and on medical practices, a review of current pre-med curriculum, focusing on top pre-med universities that have the highest number of medical school applicants each year, as well as a review of current data on opiates, pain medication, administered to emergency room patients, categorizing any differences in race, ethnicity, gender, and sex. Each of these topics acts as necessary information to reveal possible patterns of medical abuse towards underrepresented groups in research or practice, as well as identification of a cyclical pattern to knowledge produced in pre-med undergrad to the knowledge and practice of doctors that assist in patient care.

Through this research project, the target community are pre-med students at Cal Poly SLO. The research compared Cal Poly pre-med curriculum to the top ten pre-medical institutions. While college serves as an institution of learning, academic as well as social and cultural learning, student body demographics can largely affect the kind of exposure students receive. As of 2015, the break down of ethnic origin of the student body at Cal Poly San Luis Obispo was 15.6% Hispanic/Latino, 0.8% African American, 0.1% Native American, 0.1% Hawaiian/Pacific Islander, 12.2% Asian American, and 57.3% White students (CSU Mentor). This research is used to inform gaps within pre-med education and to transform the current production of knowledge that has mainly taught that people are different due to race and the biological differences between racial groups.

Qualitative research methods are useful to study case studies in literature and narratives from pre-medical students, as well as from those that have been negatively affected by health professionals or health-related problems, possibly due to racial bias. Qualitative research “provides an understanding of how official figures are created through social process ...[and] excel at identifying statistically significant relationships between variables, such as social class and health status” (Barbour 13). This type of method allows the exploration of how “macro” aspects, like social class and race, affect the “micro,” in this case, everyday patient care by medical professionals. Each of these methods follows those of an ethnography, which is “the art and science of describing a human group- its institutions, interpersonal behaviors, material productions and beliefs” (Barbour 155).

The framework of this research on changes in pre-medical curriculum is derived from the intersectionality theory, by authors such as Kimberlé Krenshaw. The approach described by Krenshaw in her work does not only “excavate and expose multilayered structures of power and domination by adopting a grounded praxis approach; they also engage the conditions that shape and influence the interpretive lenses through which knowledge is produced and disseminated” (Sumi and Kimberlé 804). This is important when critiquing the kind of knowledge produced in pre-medical education, as well as the historical context of how this knowledge was created and reasons why it has remained unchanged. To implement this framework into a suggested, new pre-medical curriculum, document analysis is helpful to offer insight into the root of the problem within medical institutions.

As a case study this project examines, specifically, ten educational institutions in the U.S that have implemented different forms of learning into their pre-medical curriculum. The rationale for this is mentioned by Rosaline Barbour in *Introducing Qualitative Research* as the



diverse rationale. This particular method design rationale allows the researcher to cover a range with regard to a specific feature (Barbour 74). In the context of this project, the case studies chosen differ in what classes are offered in order to see the type of knowledge produced by medical institutions that may vary over different colleges, as well as to understand the central goals of an institution and where these may lie in promoting racial justice. By using these universities as a case study, the curriculum and courses reviewed have provided insight into the lack of or application of course content that present the role of historic and present racism in the medical practice and its influence on health disparities. An analysis of these curriculums helped elaborate a cyclical model of social constructs to scientific practice. This modeling approach follows a pathway rationale as well, by “identify[ing] those key points in a trajectory where specific actions can impact outcomes” (Barbour 75).

### ***Data Collection and Data Analysis***

The context of this study focuses on the pre-medical curriculums of ten pre-medical institutions in the U.S, and how they compared to Cal Poly San Luis Obispo. To find which undergraduate schools were supplying the most applicants to medical school, an undergraduate ranking website Startclass was used as a reference. Startclass used data from the Association of American Medical Colleges (AAMC) to give an overview of undergraduate colleges that produce the highest number of students that go onto medical school as of 2014. In order of decreasing medical school applicants, the universities included are University of California-Los Angeles, University of Michigan- Ann Arbor, University of California-Berkeley, University of Florida, University of Texas at Austin, University of California-San Diego, Cornell University, University of Georgia, Ohio State University- Main Campus, and University of Wisconsin-Madison (Selbe). This website is easily accessible to all students looking to apply to medical

school, but may have limitations for those without a computer. The ten universities selected from Startclass were chosen since they produce the highest number of medical school applicants each year, therefore contributing the most to those who go onto become medical professionals. In order to compare and contrast programs offered at each school, a chart was produced of each school with each premed classes listed and checked off if the school requires the class.

Each of these schools had their demographics compared, as seen in Table 2, included in the appendix. The following five schools were all predominately White institutions, University of Michigan-Ann Arbor, University of Florida, Cornell University, University of Georgia, and the University of Wisconsin-Madison. They each have a White student demographic that is higher than the total combined percent of all the other ethnic categories.

The curriculums taken from the universities are compared to pre-med courses suggested to Cal Poly students. A comparison of courses suggested by the Peer Health Advising Office to Cal Poly students, compared to those of top universities across the U.S helped to demonstrate whether Cal Poly follows a similar or different approach to teaching future medical professionals and if the current approach can be reformed.

Document analysis is an essential method for analyzing historical context and research done in the past. With this, documents can be used as a source of data, and while, as Prior states, “documents are most commonly viewed as containers and carriers of content,” by analyzing the historical context of it and its application to medical practice and health disparities today, they can begin to have “potency as well as capacity” (Barbour 180).

Further research examined were checked if they were chosen for reasons of race, gender, class, and socioeconomic status, or if they are chosen at random. Data collected based on categorization may matter in how students perform based on different backgrounds. Aside from

this, an evaluation of the ethical standards performed in the research was also taken into consideration such as consent, anonymity and confidentiality, and the researcher's own role. To not allow any misconceptions and while trying to facilitate change, a list of terms is defined and interpretations to the language used throughout this project (Barbour 98).

## **Chapter IV: Findings and Discussion**

### ***University Pre-Medical Curriculums (see Table 1)***

The ten universities in this case study were chosen due to their high volume of alumni accepted into medical school. As a result of a large pool of accepted medical school applicants, in this case study these universities are regarded as top pre-medical institutions, with high-valued curriculums. The pre-medical curriculums of each of these institutions can give insight into the principles displayed by these institutions, whether they choose to maintain a racist system of knowledge, or challenge the biological “truth” and promote courses that emphasize the role and intersections of race, class, and socioeconomic status in scientific research, in addition to courses that cover the history of oppression in the medical and science field. Preliminary data gathered showcases course content of each of the pre-medical curriculums offered by each university, as well as any programs currently in place and current demographic statistics.

The charting of the pre-medical curriculums of the ten universities, including Cal Poly SLO, allowed a general curriculum to be constructed by the coursework required for each university and provided a visual representation of differing and similar coursework required by each school. From the exploration of each of the pre-med curriculums offered, available through each of the university websites, the classes that almost every school require are 1 year of biology with lab (required by 10 out of 11 schools), 1 year of general chemistry (required by all schools), 1 year of organic chemistry (required by 10 out of 11 schools), one biochemistry course (required by 9 out of 11 schools), 1 year of physics with lab (10 out of 11 schools), and 1 year of English courses (required by 7 out of 11 schools). These courses align with minimum required pre-medical coursework presented by the Association of American Medical Colleges (Admission Requirements for Medical School). The courses that mainly differ are recommended foreign

language (2 out of 11 schools), interdisciplinary coursework (1 out of 11 schools), recommended humanities and social science (6 out of 11 schools), and required humanities and social science (1 out of 11 schools). Other courses such as Genetics, Anatomy and Physiology also differed. However, these courses could also be categorized inside the 1 year of Biology requirements that each school has. Out of the 5 liberal art coursework categories, including English, recommended foreign language, interdisciplinary coursework, recommended humanities and social science, and required humanities and social science, Cal Poly SLO had 2 out of the 5 categories. For the other universities, UCLA had 3 out of the 5 liberal arts categories checked, Ohio State had 2 out of 5, UC Berkley had 2 out of 5, Wisconsin had 2 out of 5, University of Austin has 0 out of 5, and all of the other universities had 1 out of 5.

While reviewing each school's requirements, most of the schools did not go in depth aside from the course requirements on their pre-medical website. The University of Florida, UC Berkeley, University of Michigan, University of Georgia, and Cornell University only gave sufficient information on the general courses a pre-med student should take and not much more aside from that information. By contrast, the University of California- Los Angeles and Ohio State both gave insight to the role of their coursework in patient care and as a doctor. While the University of California- Los Angeles (UCLA) does not require pre-medical students to take humanities or social science courses, their website emphasizes the necessity of these courses and recommends that students take them. The UCLA pre-med website emphasizes how these courses "form the core of what is known about the macroscopic human existence - history, achievements, ideals, and ambitions" (UCLA Pre-Health Career Services). The approach taken allows students to be able to understand the necessity and availability of such courses, and are at least able to make decisions to take it, as they are aware that social science and humanities classes are also

significant in their pathway to become a doctor. While UCLA makes these classes known, they do not have anything on their pre-medical website to signify that these courses or recommended courses will allow for deeper understanding of biases. This does not match the UCLA principles of community, apart of their mission statement, that states, “We acknowledge that modern societies carry historical and divisive biases based on race, ethnicity, gender, age, disability, sexual orientation and religion, and we seek to promote awareness and understanding through education and research and to mediate and resolve conflicts that arise from these biases in our communities”(UCLA). This school statement does not match the goals of their pre-medical program, which is highly influenced by societal biases, that unless acknowledged or integrated into required coursework, will continue to make up the UCLA community.

Of the ten universities examined, Ohio State University is the only university to require humanities and social science courses, as well as the only school to describe their interdisciplinary approach. Ohio State’s pre-medical curriculum is noted as “Lead.Serve.Insipe curriculum” or LSI, with the leadings purpose to “prepare tomorrow’s physicians to deliver the highest quality care to a diverse population of patients.” The program allows students, regardless of their major, to explore both health and scientific concepts, while also learning how to understand patient needs that may differ through different populations and circumstances. Their approach uses interdisciplinary teamwork and a large portion of clinical patient care to give students experience throughout their four years of undergraduate education. On their website, the school states “as student’s progress through the curriculum, they will begin to focus on gaining an understanding of patients with specialized medical needs, patients with reproductive and surgical needs, and patients within special, vulnerable populations, such as victims of abuse, addiction, poverty, low literacy, etc” (Undergraduate Admissions). Ohio State does a good job of

satisfying their mission statement that includes, the ability “to improve people’s lives through innovation in research, education and patient care” (Mission, Vision and Values). While the program does not explicitly discuss the use of race, ethnicity, or class in the development of student’s learning of patient care, they do further this type of learning with long term projects that will mostly intersect with race, ethnicity and class. This approach allows students to gain a better understanding of patient care and expands their understanding of health systems and disparities.

Ohio State can be used to compare Cal Poly pre-medical information given on their pre-health advising website. While Ohio State implements a variety of social factors as part of the coursework for pre-medical students, Cal Poly SLO is more similar to UCLA, and the other ten schools that only briefly skim over their more “general” program requirements. Cal Poly’s pre-med information mostly consists of “career info,” which gives an overview of differences between an MD (Doctor of Medicine) and a DO (Doctor of Osteopathic Medicine), as well as specialties, desirable medical school applicant GPA’s, and course prerequisites. Through the pre-health website, it can be concluded that Cal Poly gives insufficient information regarding the impact or influence of humanity/ liberal art courses in the medical field. Cal Poly only recommends students to take humanities, rather than having it as a requirement. In comparison to the other universities however Cal Poly follows a similar approach to forming their pre-medical coursework suggestions for pre-medical students. The recommended Cal Poly pre-med program also does not reflect the overall university objectives. By not taking into consideration the necessity of humanities coursework in pre-medical curriculum, Cal Poly lacks in their ability to educate students to “function as members of society and as professionals with people who have ideas, beliefs, attitudes, and behaviors that are different from their own” (University Learning

Objectives). By not having students take important coursework relating racism and medicine, the university is not able to help diminish the presence of racial biases and biological assumptions.

### ***University Demographics (see Table 2)***

A second chart of the eleven universities gives a breakdown of the demographics of each of the undergraduate classes of the 2016 school year. The ethnic categories charted, and presented in the data of each of the schools, are African American/Black, American Indian/Alaska Native, Asian / Pacific Islander, Hispanic /Latino, White/Caucasian, unknown, and internationals. Demographically, Cal Poly SLO is most similar to predominantly White schools such as the University of Michigan-Ann Arbor, University of Florida, Cornell University, University of Georgia, and the University of Wisconsin-Madison. These five schools all have a White student demographic that is higher than the total combined percent of all the other ethnic categories. From the five liberal art categories previously mentioned, these five schools also only fulfilled 1 of the 5 categories within their suggested pre-medical curriculums, with Wisconsin being the only school to have 2 out of 5, which still remains lower than the other more ethnically diverse institutions.

### **Discussion of Findings**

Data collected from university curriculum programs can give insight on inequalities in health care that have persisted. The overall data showed a lack of initiative from schools to require humanities/liberal art courses, in both their pre-med curriculums and pre-med web pages, which serve as main sources of knowledge of curriculums for both attending and potential students. The data supports the main idea behind this project: to reveal the necessity of intersectional studies and therefore, implementation of race, class, and gender studies classes into pre-med curriculum to be able to change knowledge produced and taught to pre-medical



students, and stop the reproduction of racist knowledge that leads to diagnoses based on race and unethical research.

In order for medical professionals to understand their role in health disparities and their contribution to sustaining a racially discriminatory system, they have to have the knowledge base from courses that dive into the intersections of class, race, gender, and ethnicity. Sharma and Kuper highlighted this necessity of the intersectional approach to health and the need to consider “race, class, gender, culture, and sexuality as part of our individual and collective identities” (3). Pre-medical students enter their undergraduate university with preconceived notions of different racial and ethnic groups, however these constructs can be changed by exposing students to a curriculum that is more inclusive and recognizing, as well as able to provide courses that develop an understanding of social constructs of race. Institutions need to take on the role of facilitating social change by challenging the notion of race and, as Sharma and Kuper emphasize, they have to acknowledge racial bias (2).

The undergraduate demographic data of the ten schools demonstrated the large disparities between non-White students and White students. Half of the universities reviewed were shown to be predominately white institutions, which may be problematic without coursework discussing white privilege and racial bias. Sharma and Kuper agree that pre-medical education should include a reflection on their own privileges and racial bias, teaching students to challenge colorblindness and understand implications of their own racial bias in the field and how their race consciousness affects the patients they will eventually work with. In order for change to occur doctors and medical institutions need to take the initiative. While many of these points refers to disadvantages experienced by people of color and underrepresented groups, this does not mean that these are the groups that need to bring the change. By having more doctors of

color, the experiences of the doctors may be different which may bring about different perspectives and thus different research questions and forms of patient care. However, the presence of more people of color in medicine alone will not be the leading factor to change the way race, ethnicity and socioeconomic status is addressed in the medical field. An increase in diversity in medical schools only serves as one component to reforming medical practices and research. Institutions need to begin to acknowledge the impact of historical racism in medical research and practices. There needs to be radical changes in the way people view people of color, including dismantling the social constructs in place. In the article, “Racial-Ethnic Disparities in Opioid Prescriptions at Emergency Department Visits for Conditions Commonly Associated with Prescription Drug Abuse,” Astha Singhal and her colleagues research concluded the apparent racial-ethnic disparities in opioid prescriptions given in Emergency Departments and only further emphasizes the direct impact it can have on patient care. Singhal highlighted the impact of racial bias by stating, “differential prescription of opioids by race-ethnicity could lead to widening of existing disparities in health, and may have implications for disproportionate burden of opioid abuse among whites” (1). Singhal also reiterated that this can be addressed by using sensitization exercises towards common biases to allow them to then consciously avoid those biases when assessing patient behavior (1). Ultimately, there needs to be an institutionalization of academic research on race, ethnicity and socioeconomic status, which will allow medical professionals to acknowledge and take action against the forces contributing to health disparities.

Institutions serve as not only the origin of a large portion of knowledge, but they also have the ability, and have historically, shaped the view points of doctors and then consequently led to discriminatory forms of scientific research, which had been reinforced by knowledge

taught during their medical education. The eugenics movement largely impacted how the medical system is run today and how students are currently taught, therefore there needs to be active change facilitated by the institutions or else this system will continue to be maintained. Schools similar to Cal Poly SLO could benefit from medical clubs that stand to challenge the cause of health disparities and recognizing racism as a threat to the wellbeing of under-represented groups. Current organizations exist such as White Coats for Black Lives. As a medical student run organization, they promote the well-being of patients through the elimination of racism. Organizations and clubs on campus can be prompted by the university to establish parts of the association of American medical colleges (AAMC) club to include goals similar to those of White Coats for Black Lives. Groups such as this reinforce the role of doctors in fighting against social injustice, rather than just providing a basic pre-med curriculum that satisfies the bare minimum that students need to apply to medical school.

While these ten schools served as a good comparison with Cal Poly SLO, the preliminary data does have limitation including the sample size, as it only represents 0.33% (10 out of 3,039 schools) of all the undergraduate four-year universities in the U.S (National Center for Education Statistics). Another limitation of the preliminary data was the lack of access to information regarding majors of pre-medical students and thus data on which general education classes taken depending on the major could not be considered. Future undergraduate students can continue this analysis by collecting additional data to include which majors were pre-medical students and the affect of a mostly math and science content curriculum.

To fully understand unequal treatment in health care first we have to deconstruct the medical knowledge base that is in place. By identifying any gaps included or highlighted in pre-medical education, such as the lack in humanity and liberal art courses presented in the pre-med

curriculum data, a suggested curriculum can be constructed to fill in courses that will benefit patient care to underrepresented groups, mainly affected by historical and present racism. By presenting this, the discussion for talking about racism in medicine may become more available and students may learn more about how differences between racial groups are caused by social inequalities that have resulted in the health disparities. This may also serve as a platform for clubs such as White Coats for Black Lives that can arise within the pre-health clubs on at Cal Poly SLO.

## Conclusion

*“What’s eugenics?” whispered a fourth year pre-medical, Biology student in an upper division Genetics class at Cal Poly SLO.*

I continue to confront students like one of my fellow classmates who had made the comment above. When asked why I think its important to include a discussion on racism in pre-medical curriculums, the answer becomes apparent when I hear future doctors make abrupt comments about race in connection to weight or disease, or have a student unaware of social movements like the Eugenics Movement that changed the lives of people of color, women, and disabled people in the U.S. to this day. To be a doctor should be more than understanding anatomy and physiology, or memorizing chemical reactions and physics equations. The education of future doctors should dismantle previous notions of race and its connection to biology. It should tear apart the ideology of biological determinism. It should educate us on the importance of history that contributes to health disparities. It should serve as tool to let students recognize racial bias and find ways to avoid it. As students we should not simply avoid conversation of race, because it may be uncomfortable, but we need to embrace the past, challenge how data conclusions are drawn, and learn to work better as future researchers and doctors as a result of an expanded knowledge.

This preliminary research was used to answer the following questions: how does premedical undergraduate education affect the medical treatment of underrepresented groups? How has historic and present racism allowed for the reproduction of racist knowledge and practices? While reviewing the literature, there have been several examples of unethical scientific research, abuse, and racial bias that occurs in healthcare. The preliminary research on what I identified as the top ten pre-medical universities revealed a lack in humanities coursework

that provide knowledge on racism in the medical field and the implication of social factors in health disparities and medical research. While Cal Poly San Luis Obispo has a similar pre-medical curriculum to other top universities, this similarity should not act as a solidified model for pre-medical education. The pre-medical curriculum university data revealed the enormous lack of institutional initiative against racism within the medical field and the necessity of coursework to provide students with a wider perspective, aside from purely science courses that reinforce a “biological truth” perspective. An analysis of the student body demographics of each of the eleven schools, Cal Poly SLO included, showed that the majority of students are White. Feagin and Bennefield highlight that “three quarters of those who practice medicine are White” demonstrating how pre-medical students from majority White universities may then continue to make up a White practice (8). White students are subject to white privilege, and, while they may be unaware of this privilege, it does result in different forms of systemic power, both for themselves and future patients. With institutions continuing to ignore aspects of the medical field that have been shamed for being racist and preventing predominantly White students from learning about racial bias, these institutions only maintain a racist system in place.

The literature review and data give light into the necessity of new forms of reform that can be taken. While the data collected is only taken from ten major universities, the lack of schools taking an initiative to implement programs that take a stand against health disparities or even lack of medical schools that require more humanities courses, showcases the demand to challenge this system in place. With Black Lives Matter taking a front stage in the political well-being of people of color, it’s time for universities, or even student led groups, to get involved in protecting the medical well-being as well. Groups such as White Coats for Black Lives that stand to eliminate racial bias in medicine can also serve as a model for goals of the AAMC club.

AAMC is the main source of medical school knowledge for most undergraduates, especially at Cal Poly. If they incorporated a set of goals addressing racial discrimination and awareness of racism in the medical field it can change the perspectives of future doctors and in the process improve future patient care.

Overall, there is an essential need to incorporate interdisciplinary coursework into pre-medical curriculums. By teaching students about the impact of historical and present racism there is hope that future doctors can take it in their hands to help resolve health disparities, misconceptions, and racism within the medical practice.

### *My reflection*

In the next ten years, I hope to be a primary care physician. My decision to go into primary care is heavily influenced by my Ethnic Studies coursework and my desire to use what I know to create change in under-served communities. My passion to be apart of social change, and to perform research that will benefit under-served groups would not be as strong without understanding the intersections between race, class, and medicine. Without understanding the roots of health disparities and the forms of discrimination and racism that occur within the medical field, I would blindly walk into patient rooms and only continue to contribute to a system of oppression and racial injustice. I want to use my knowledge, as well as this project, to challenge racial stereotypes that will be planted onto the face of every patient who walks through the door. While it may be ideal to try to treat everyone with a *one size fits all* mentality, this cannot happen when doctors have subconscious racial bias that permeates into their patient care. As I begin to transition from just working as a volunteer in at the free clinic in San Luis Obispo, to studying to be a primary care physician in medical school, I think this research will allow me to not only serve patients, with a conscious awareness of my own racial biases, but it will also

allow me to form change elsewhere. The medical student run organization, White Coats for Black Lives, has 50 chapters nationwide. As I begin to apply to medical schools, I hope to do more than just research this group, but join them as they fight to eliminate racial bias in the medical field. Alongside other justice-minded physicians, I want to spread the knowledge I have obtained through my undergraduate in Ethnic Studies to advocate for racial justice and encourage other students to be aware of racial bias and the health effects of racism.



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## List of Tables

Table 1: Curriculum Data Collection

Undergraduate College	1 year of Biology with lab	1 year of general chemistry with lab	1 year of organic chemistry	physiology/anatomy	1 biochemistry course
University of California-Los Angeles	✓	✓	✓		✓
University of Michigan- Ann Arbor		✓		✓	
University of California-Berkeley	✓		✓		✓
University of Florida	✓	✓	✓		✓
University of Texas at Austin	✓	✓	✓		✓
University of California-San Diego	✓	✓	✓		✓
Cornell University	✓	✓	✓	✓	✓
University of Georgia	✓	✓	✓	✓	
Ohio State University- Main Campus	✓	✓	✓		✓
University of Wisconsin-Madison	✓	✓	✓		✓
California Polytechnic University- SLO	✓	✓			✓

  

Undergraduate College	1 year of physics with lab	1 year intro math	1 year of english	recommend foreign language	statistics
University of California-Los Angeles	✓	✓	✓	✓	✓
University of Michigan- Ann Arbor	✓				
University of California-Berkeley		✓	✓		
University of Florida	✓	✓	✓		
University of Texas at Austin	✓				✓
University of California-San Diego	✓	✓	✓		✓
Cornell University	✓	✓	✓		✓
University of Georgia	✓		✓		
Ohio State University- Main Campus	✓				
University of Wisconsin-Madison	✓	✓	✓		✓
California Polytechnic University- SLO	✓			✓	

  

Undergraduate College	genetics	interdisciplinary coursework	recommend humanities/social science	required humanities/social science
University of California-Los Angeles			✓	
University of Michigan- Ann Arbor			✓	
University of California-Berkeley	✓		✓	
University of Florida				
University of Texas at Austin				
University of California-San Diego				
Cornell University			✓	
University of Georgia				
Ohio State University- Main Campus		✓		✓
University of Wisconsin-Madison			✓	
California Polytechnic University- SLO			✓	

Table 2: Demographic Data

Undergraduate College	African American/Black	American Indian/Alaska Native	Asian / Pacific Islander	Hispanic /latino	White/Caucasian	unknown	international
University of California-Los Angeles	4.80%	0.50%	32.10%	20.90%	26.30%	3.50%	11.90%
University of Michigan- Ann Arbor	5%	1%	15%	6%	65%	9%	
University of California-Berkeley	2.50%	0.40%	42.50%	10%	24.20%	5.10%	11.90%
University of Florida	6.50%	0.20%	7.90%	21.00%	58.10%	2.80%	
University of Texas at Austin	3.90%	0.20%	17.20%	19.50%	45.10%	1.10%	
University of California-San Diego	2%	0%	46%	16%	20%	9%	
Cornell University	5.80%	0.40%	16.90%	12%	41.30%	9.20%	9.80%
University of Georgia	7.60%	0.10%	9.70%	5.50%	72.40%	0.80%	
Ohio State University- Main Campus	5.75%	0.15%	6%	3.88%	70.46%	3.23%	7.37%
University of Wisconsin-Madison	2%	1%	5%	5%	75%	1%	9%
California Polytechnic University- SLO	0.80%	0.10%	12.30%	16%	57.30%		