

ORIGINAL RESEARCH



Primary Care Physicians' Attitudes Regarding Race-Based Therapies

Danielle Frank, MD, MPH⁷, Thomas H. Gallagher, MD¹, Sherrill L. Sellers, PhD²,
 Lisa A. Cooper, MD, MPH³, Eboni G. Price, MD, MPH⁴, Adebola O. Odunlami, MPH⁵,
 and Vence L. Bonham, JD⁶

¹Department of Medicine, University of Washington, Seattle, WA, USA; ²School of Social Work, University of Wisconsin, Madison, WI, USA; ³Department of Medicine Johns Hopkins University School of Medicine, Baltimore, MD, USA; ⁴Department of Medicine, Tulane University, New Orleans, LA, USA; ⁵School of Public Health, Harvard University, Boston, MA, USA; ⁶National Human Genome Research Institute, National Institutes of Health, Bethesda, MD, USA; ⁷(152); VA Ann Arbor Healthcare System, Ambulatory Care 11A, Ann Arbor, MI, USA.

BACKGROUND: There is little to no information on whether race should be considered in the exam room by those who care for and treat patients. How primary care physicians understand the relationship between genes, race and drugs has the potential to influence both individual care and racial and ethnic health disparities.

OBJECTIVE: To describe physicians' use of race-based therapies, with specific attention to the case of BiDil (isosorbide dinitrate/hydralazine), the first drug approved by the FDA for a race-specific indication, and angiotensin-converting enzyme (ace) inhibitors in their black and white patients.

DESIGN: Qualitative study involving 10 focus groups with 90 general internists.

PARTICIPANTS: Black and white general internists recruited from community and academic internal medicine practices participated in the focus groups. Of the participants 64% were less than 45 years of age, and 73% were male.

APPROACH: The focus groups were transcribed verbatim, and the data were analyzed using template analysis.

RESULTS: There was a range of opinions relating to the practice of race-based therapies. Physicians who were supportive of race-based therapies cited several potential benefits including motivating patients to comply with medical therapy and promoting changes in health behaviors by creating the perception that the medication and therapies were tailored specifically for them. Physicians acknowledged that in clinical practice some

medications vary in their effectiveness across different racial groups, with some physicians citing the example of ace inhibitors. However, physicians voiced concern that black patients who could benefit from ace inhibitors may not be receiving them. They were also wary that the category of race reflected meaningful differences on a genetic level. In the case of BiDil, physicians were vocal in their concern that commercial interests were the primary impetus behind its creation.

CONCLUSIONS: Primary care physicians' opinions regarding race-based therapy reveal a nuanced understanding of race-based therapies and a wariness of their use by physicians.

KEY WORDS: race-based therapies; race; BiDil; ACE-inhibitors; personalized medicine; genetics.

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Personalized medicine—in which treatments are based on an individual's or group's genetic make-up—has been envisioned as an important medical advancement.^{1,2} Yet the clinical application of such technology has been limited, in part due to its slow translation into clinical practice.^{3,4} One proposed avenue to realizing the promise of personalized medicine is through race-based prescribing, i.e., using racial identification to predict drug response.^{1,5,6} There is little to no information on the attitudes of primary care physicians regarding the relationship, if any, between race and drug response or regarding physicians' attitudes about race-based prescribing.

How primary care physicians understand the relationship among genes, race and personalized medicine has the potential to influence both individual care and racial and ethnic health-care disparities. To better understand primary care physicians' perspectives, we conducted a series of ten race-concordant focus groups with black and white physicians. The research questions for these analyses were: (1) how do physicians describe the use of race-based therapies in general and specifically the use of BiDil⁵ (the first drug approved by the FDA for a race-specific indication to treat heart failure in self-identified black patients⁷) and ace inhibitors in their black and white patients? (2) How do physicians characterize the implications of race-based therapies?

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METHODS

Study Design and Setting

The data used in the analysis are part of a larger study with the objective of developing a survey instrument for measuring physicians' knowledge and beliefs on biological and genetic differences based upon their patients' race and ethnicity.⁸ This paper will focus on the physicians' discussions regarding race-based therapies. The Discussion Guide is available from the author upon request.

We conducted ten focus groups in five geographic areas between October 2005 and March 2006. Five of the groups were made up of self-identified black physicians, and the other 5 groups consisted of self-identified white physicians with an average of 9 participants per group (range 7–12). Physicians that participated in the focus group received \$250.00. The two facilitators were general internists with experience moderating focus groups, members of the research team, and were the same race as their participants. Study sites were selected to reflect a range of geographical regions and included the following cities: Atlanta, Baltimore, Detroit, Los Angeles, and Philadelphia.

Participants

We sent invitational letters to general internists listed in the American Medical Association Physician Masterfile Database and faculty lists from the Department of Medicine at the medical schools in each metropolitan area. We used snowball sampling to recruit additional black physicians to participate in the study due to small number of black physicians practicing in the US. Eligible physicians were board-certified/board-eligible in Internal Medicine.

Analysis

The focus groups were transcribed verbatim, and the data were analyzed using template analysis.^{9–11} A core team of researchers created an initial code list based on two pilot groups in Washington, DC, and a priori hypotheses about themes expected to be relevant in the analysis. Two team members independently coded all the focus groups. The entire research team resolved any inconsistencies between the two coders to create a final dataset for analyses. The pilot groups were re-coded with the final code list. We analyzed all themes pertaining to race-specific or race-targeted drugs.

RESULTS

A total of 90 physicians participated in the focus groups (Table 1). Analysis revealed a spectrum of opinions relating to the practice of race-based pharmaceutical treatment, but there were no consistent differences in opinions between black and white focus groups. Physicians expressed both positive and negative attitudes towards race-based therapies (Table 2).

Positive Attitudes Towards Race-Based Therapies

Physicians discussed several positive aspects of using a patient's race to tailor prescribing. Several groups reported that some medications varied in their effectiveness across

Table 1. Characteristics of Physicians

	Black ^a (n=40) %	White ^a (n=50) %	Total (n=90) %
Age in years			
29–40	23	22	22
41–50	44	32	37
51–79	33	46	40
Gender			
Male	60	84	73
Female	40	16	27
Practice in university teaching or residency training environment	55	45	49
Years in practice (median)	14	17	15
Exposure to genetics in practice			
Low	70	80	75
Medium	28	16	21
High	3	4	3
Racial/ethnic distribution of patient panel			
>50% White	10	64	40
>50% Black	73	20	43
>50% Latino/other	18	16	17

^aRacial self-identification was based on physicians' response to the focus group screener and a demographic question

different racial groups, with many physicians citing the example of ace inhibitors. The majority of the groups voiced an opinion that black patients with hypertension do not respond to ace inhibitors to the same extent that white patients respond to the drug. One proposed mechanism for the observed differential effect of ace inhibitors between racial groups was suggested to be differences at the genetic level. Several physicians admitted they were less likely to start black patients on an ace inhibitor as first-line treatment of hypertension in the absence of a compelling reason such as proteinuria.

Physicians who were supportive of race-based therapies hypothesized that a race-specific drug may motivate patients to comply with medical therapy and promote changes in health behaviors by creating the perception that the medication is tailored specifically for them.

Negative Attitudes About Race-Based Therapies

Physicians also expressed negative attitudes towards the practice of prescribing medicines based on race. Although both black and white physicians reported that hypertensive whites respond better to ace inhibitors as compared to hypertensive blacks, physicians often recognized the potential renoprotective effects and post myocardial infarction benefits of ace inhibitors in black patients and voiced concern that black patients who may benefit from ace inhibitors may not be receiving them.

Concerns of race-based prescribing focused around skepticism of the underlying premise of race-based therapies. Many physicians voiced concern that prescribing medications based on race presumes that some inherent patient factor influencing drug responses differs in meaningful ways by racial group. They were wary that the category of race would be able to capture differences at the genetic level.

The physicians' skepticism of race-based therapies was based, in part, on their belief that the link between race and genetics is inexact because racial inter-mixing has resulted in a sharing of clinically meaningful genotypes. Instead of using race as a placeholder for genetic variation, physicians advo-

Table 2. Qualitative Analysis

Research question	Themes	Quotes
What are physicians' attitudes towards race-based therapies?	Positive attitudes	I'm sure all of us see it. Whites will respond much quicker to ace-1 at lower doses than black patients will Atlanta, Black focus group I will not deny a black person using an ace. But at the molecular level, there is a response that is muted compared to Caucasians L.A., White focus group
	Physicians observed that medications varied in their effectiveness across racial groups	There are products that...go in and then it's broken down to something else, metabolites that are processed differently by African Americans that specifically have a genetic code. So they are processed differently, and that is known to be the case for many other drugs L.A., Black focus group
Physicians contended that differences between races exist on a genetic level	Physicians contended that differences between races exist on a genetic level	It would improve compliance in [a] black patient. They're going to take it because they've somehow perceived that it's for them more so than it would be for the general population Detroit, White focus group
	The cited benefits included increased compliance and streamlining therapies	How can you not tailor a particular drug to a particular population when it gives you superior outcomes? Especially when you are looking at a particular population or if it's directed towards a specific disease that wrecks havoc. I think it is hypocritical not to bring a drug to market if it's going to address a need that has very specific outcomes Atlanta, Black focus group
Negative attitudes	Negative attitudes	African Americans...have four times greater risk of end-stage renal disease than the general white population...So, to me that means that you're dealing with an African American who's at risk, and one of the important drugs for African Americans would be ace inhibitors. Use what you want, but make sure an ace inhibitor is there, because of the risk that they carry Philadelphia, Black focus group
	There was concern that black patients do not receive the benefits of drugs such as ace inhibitors	What are we doing now? We went around the table—ace inhibitors are the best medicine for hypertension as far as I'm concerned, and most of the doctors here are not even offering ace inhibitors to black patients Los Angeles, White focus group
Physicians expressed a skepticism of the underlying premise of race-based therapies	Physicians expressed a skepticism of the underlying premise of race-based therapies	You look at any specific patient, and it's very hard to tailor treatment based on such a broad classification [race]...and I think it's going to be very difficult for us to change a medication just by studying them based on race Baltimore, White focus group
	Physicians cited a weak link between race and genetics	Unless you're going to show me that the African American enzyme for xyz is shaped or works differently than some other race, that makes no sense to approach it from that perspective Detroit, Black focus group
Physicians advocated using a genetic test to predict drug response instead of race	Physicians advocated using a genetic test to predict drug response instead of race	I think everyone would agree there is a relationship, but it's such a tangled mess...It is very hard to tailor a treatment based on such a broad classification. I think it is a weak association, and it is going to be very difficult for us to change a medicine just by studying them based on race. There is so much mixing of these migrated populations now in modern society Baltimore, White focus group
	Physicians contended that differences between races exist on a genetic level	I think it's just as important to know the difference between two white people's genetic makeup in terms of drug response as it is to know the difference between a white person and a black person Detroit, Black focus group I think we need to know the genetics because...there's a lot of crossover racially. And I think we need to know the genetics because I may have some gene that makes me work better for this drug than that drug. And why shouldn't I get that drug because my skin is white if it's made for blacks? Why shouldn't I be able to be tested to see if I have that gene to see if I would benefit from that drug? Detroit, White focus group

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Table 2. (continued)

Research question	Themes	Quotes
Physicians were concerned about the medical and social implications of race-based therapies		<p>What I don't want to happen is that race is used as an excuse for why there are differences or disparities. "Well, there [are] more blacks in renal failure because they have uncontrolled hypertension because they are made up that way which allows us to dismiss all the environmental issues. That is my fear with the way we are moving toward development of race-specific drugs</p> <p>Atlanta, Black focus group</p> <p>The point that I'm saying is that people could use it to promote their ideas as being more legitimate. In Nazi Germany, everything was masked in terms of the science showing that the Nazis were like this; the Germans were like this. But if you save a couple hundred people from dying from heart failure could that potentially be outweighed down the road by people using those facts to cause some problems? I think it's a possibility—how do you weigh one against the other? I don't know</p> <p>Atlanta, White focus group</p>
<p>What are physicians' attitudes about BiDil?</p> <p>Physicians cited market forces as the impetus behind the development of BiDil</p>		<p>[Isosorbide dinitrate and hydralazine] were used a long time ago for heart failure before newer medications came along. So, I agree with you in terms of marketing gimmickry. It is eye-catching and appealing and only serves to enrich the particular drug company</p> <p>Philadelphia, White focus group</p> <p>It is really simply about money, and it is simply a drug that failed. Now they need to recoup their research dollars, and okay, we are going after the black market. I think who really let us down was the FDA and our research institutions. I think they really did a very very poor job</p> <p>Detroit, Black focus group</p>
Physicians did not think BiDil represented the future of medicine		<p>I think prescribing will continue to be driven by phenotype rather than genotype. It will always be easier and cheaper to just test the medication on the person to see what happens rather than sequencing their whole genome and hoping that genetic markers are linked tightly enough to the actual function of the gene</p> <p>L.A., White focus group</p> <p>If BiDil is a model for what may happen in the future, I don't like it. You're saying that African Americans have the same genetic make-up, which I can't believe. The entire continent of Africa is coming from a large variety of genetic pools. If the BiDil study is a model for what may be down the future, I don't think a lot ultimately is going to come of it</p> <p>Atlanta, White focus group</p>

cated examining the genetic polymorphism that may account for differential responses to drug therapy.

Both white and black physicians voiced concern about the medical and social implications of race-based therapies. Many discussed the idea of a "slippery slope" with race-based medicine giving legitimacy to the notion of distinct genetic differences between racial groups. Another drawback expressed in the focus groups was the possibility that race-based therapies' focus on purported biologic differences between racial groups might be used to undermine society's responsibilities to resolve health disparities.

Physicians' Attitudes About BiDiI

While there was a range of attitudes about race-based therapies in general, physician attitudes toward BiDiI were significantly more critical. Black and white physicians cited market forces as the primary impetus behind its creation. Physicians overwhelmingly voiced concern that commercial considerations shaped the development of the first drug approved for a race-specific indication. Most physicians did not feel that BiDiI represented the future direction of race-based therapies.

DISCUSSION

The attitudes of primary care physicians are important factors in the debate over race-based pharmaceutical treatments. A concern voiced by researchers in this area is that physicians are unaware of the nuances of these debates and could simply become uncritical consumers of the race-based therapeutics marketed to them.¹²⁻¹⁵ Our study, the first to our knowledge to investigate primary care physicians' opinions regarding race-based therapy, reveals a nuanced understanding of race-based therapies and a wariness of their use by physicians.

Both black and white physicians in our focus groups reported being skeptical about the underlying premise of race-based therapies and uncertain that physicians could use race to identify patients who would be the most likely to benefit from a drug. In general, the physicians included in these focus groups did not believe that race was an adequate proxy for genetic variation in populations, with many citing the "mixing" of racial groups. Physicians' appreciation of the challenges of applying race-based therapies in the exam room means physicians are not likely to be uncritical acceptors of race-based drugs that are marketed to them.

Many physicians expressed dismay at what they perceived to be the primary aim of race-specific pharmaceutical trials, namely to get physicians' attention for marketing purposes. Future medications that capitalize on single race-based clinical trials may be met with resistance in the medical community in large part due to their concerns of the underlying premise of drugs designed for specific racial groups, i.e., that race is a good proxy for predicting drug response.

The black and white physicians in these focus groups shared largely similar attitudes across the key themes. One possibility for the apparent homogeneity could be that all the participating physicians received a US medical education and trained in US residency programs. Another is that our sample was not large or diverse enough to detect differences between the black and white focus groups. Future studies including a

large representative sample of physicians should be conducted to confirm our findings.

Our study has a number of limitations. First, we studied a group of internal medicine physicians who may not be representative of all primary care physicians. Many of the black physicians in particular were recruited through snow-ball sampling due to the low number of black physicians practicing in the US. Black physicians in some geographic areas in our study suggested black colleagues to contact for the study. Snow-ball sampling may lead to biases due to nonrandom selection procedures.¹⁶ Second, physicians were recruited from racially diverse cities. Physicians who practice in diverse settings may be more aware of the complexity of race-based prescribing than those practicing in homogenous environments. Third, the study revealed a multitude of perspectives and diverse experiences but did not lend itself to making generalizations. A large nationally representative study of physicians is the next step in this research.

In summary, we found that primary care physicians, who are on the forefront of providing care to racially and ethnically diverse patient populations, are not uncritical consumers of race-based therapies. Physicians share a complex understanding of the issues involved in the ongoing debate over race, genetics and medicine in the larger scientific community. The continued study of race and medicine is essential to help inform physicians of the appropriateness of using race in treatment decisions.

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Corresponding Author: Danielle Frank, MD, MPH; (152); VA Ann Arbor Healthcare System, Ambulatory Care 11A, 2215 Fuller Road, Ann Arbor, MI 48105, USA (e-mail: djf@u.mich.edu).

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