

# UNNATURAL CAUSES...is inequality making us sick?

A four-hour series airing on PBS and a national public impact campaign

## ASK THE EXPERTS FORUM – DIVIDED WE FALL

Camara Jones, Nancy Krieger, and Donald Warne speak to racism, hope, diabetes, infant mortality and industry-driven health care.

**QUESTION #1: If I understood your premise correctly, low birth weight / prematurity in African American infants is linked to stress in their mothers caused by racism. Is there any biomedical evidence for this during pregnancy? For example higher rates of pre-eclampsia?**

**NANCY KRIEGER:** The research shows that there are many different pathways that can lead to low birth weight and prematurity. So while stress and, particularly, adverse, chronic, cumulative stress may be one pathway, it's important to remember that exposure to lead, and having poor dental health and exposure to infections from poor dental health, for example, may be problematic, as may other kinds of exposure<sup>(1)</sup>. So people shouldn't think that stress is the one magic answer for all the problems that are expressed in the gross inequities in health status between, in this case, African American women and other women in the U.S.

That's not to say that issues of racism and the kinds of stress related to that are not important, but to remember that people live in a real life context, with lots of different kinds of exposures, and with problems that range from lack of access to dental care to exposure to lead to other conditions that can also increase risk of premature birth and low birth rate. So stress isn't the main or only pathway that's relevant.

In terms of pre-eclampsia and the risk of premature birth in relation to adverse stress conditions in humans and other primates, there is some evidence that placental corticotropin-releasing hormone (CRH), which is involved in the stress response, may be linked to the likelihood of having a premature birth. Although there's still new research going on in this area and it's not definitive, the evidence suggests that if you have high levels of CRH at a certain early point in the pregnancy, it is predictive of later higher likelihood of having a premature birth<sup>(2)</sup>.

One explanation is that essentially there's communication going on between the fetus and the woman as to the safety, condition, and quality of life within the womb. So if the woman is under very adverse circumstances it may be beneficial to the fetus to get out of those circumstances sooner rather than later. But there's a trade-off, which is that you may end up being born too early to have a viable birth and survive. So, this is in the context of saying that there are a lot of other hormones and a lot of other pathways that are at play, but there is a plausible case to be made, as a hypothesis, that chronic stress – at the time of pregnancy and in the conditions in life before pregnancy – linked to racism, can increase risk of premature birth.

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<sup>1</sup> Goldenberg RL, Culhane JF, Iams JD, Romero R. Epidemiology and causes of preterm birth. *Lancet* 2008; 371:75-84.

<sup>2</sup> Pike IL. Maternal stress and fetal responses: evolutionary perspectives on preterm delivery. *Am J Human Biol* 2005; 17:55-65.

I was a co-investigator in a study <sup>(3)</sup> with my colleague Dr. Sarah Mustillo, using data from the CARDIA data set, which is a longitudinal study to investigate the risk of cardio-vascular disease in young Black and white Americans in four different cities in the U.S. In that study we were able to show that the over two-fold elevated risk of pre-term delivery among Black women, compared to the white women in this cohort – and that’s usually what you see as an excess risk – could be explained and eliminated if you controlled not only for standard risk factors for premature birth but also additionally controlled for self-reported experiences of racial discrimination over the life course.

**CAMARA JONES:** I think the point that Nancy started with is very important, that it’s not just acute nor even chronic or cumulative stress as experienced by the individual that’s important, but the way that neighborhoods and opportunities are structured by racism. So when we talk about racism it’s not just prejudice and discrimination or something that happens at the individual level, but it’s also institutionalized or structural racism. The way we fund public schools unequally, the history of slavery and its present-day legacies (including the differential accumulation of wealth by “race”), discriminatory laws and policies – all of these things are part of the racism that then makes it so that an individual woman may find herself poorly educated, in a household with peeling leaded paint, and experiencing a lot of interpersonal stress.

It’s not just the stress. Racism operates on a much larger, and to many people invisible, level because it’s through inherited disadvantage with no identifiable perpetrators. It’s in our structures and policies and practices, in our norms and even in our values, how we value the lives of people differently depending on their race, seen for example in criminal sentencing laws. All of these things are manifestations of racism, so we have to be very careful when we talk about racism that people don’t just think, “Well, somebody did something to somebody,” or even “She THINKS that they did something to her and that’s why she’s stressed, so why doesn’t she just learn yoga or take an antidepressant?”

It’s not just about stress like that, it’s about how opportunity is structured and how value is assigned and communicated in our society. Those are the bigger influences of how racism can impact all kinds of health outcomes, including birth outcomes.

**DON WARNE:** A related issue that we face in Indian country is high birth weights. That’s something that’s largely neglected in the public health literature, and it’s due to maternal obesity and gestational diabetes. We have the highest rates of gestational diabetes and therefore we’re having very large babies, which is also dangerous. There’s really a bimodal distribution of low birth weight for multiple reasons but also high birth weight for other reasons, both of which are detrimental to health outcomes.

**QUESTION #2: What role do family structure and apparent lack of respect for women within some segments of Black culture play in the stresses that African American women face?**

**CAMARA JONES:** I think this question and the following one are interesting because at least they’re trying to think about mechanisms. It’s important that we don’t just look at differences in

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<sup>3</sup> Mustillo S, Krieger N, Gunderson EP, Sidney S, McCreath H, Kiefe CI. Self-reported experiences of racial discrimination and black-white differences in preterm and low-birthweight deliveries: The CARDIA Study. *Am J Public Health* 2004; 94:2125-2131. PMID: PMC1448602

birth outcomes or hypertension rates or diabetes rates between “Blacks,” “Whites,” Native Americans, and others and think that there’s some kind of innate biological reason.

I have to say that this is not my area of expertise but when you look at family structure, particularly differential family structure, there are more single heads of households among African American women than “White” women the last time I looked in this country. Well, those things are not just happenstance. There are root causes which are not intrinsic cultural patterns nor African American preferences, but are the result of policies that differentially jail African American men more, that differentially undereducate African American men, that deprive African American men of real opportunities to participate in the formal economy. Then, with the drugs that some would say are poured into African American communities and the alternate economy that has emerged, you get a lot of the violence, so the family structure that we see may be related. But it’s not a matter of choice or anything like that. So rather than say, “Oh, well, why don’t they get married and stay married,” we might try to look at what’s going on in the society that’s creating different family structures by so-called race.

Here I would also note that the notion of race is something that includes folks with different histories and cultures and ethnicities. So when you talk about the “Black race” in this country you’re talking about multiple generations of African Americans but you’re also talking about people who just came from the Caribbean or Africa or even people who are interpreted as “Black” but may be aboriginal from Australia. So the whole notion of race, especially thinking about it as something monolithic – one cultural thing, one pattern, one kind of family structure – is problematic. “Race” is based on the social interpretation of how we look and the rules we have for making racial assignments differ from place to place and even in one place across time.

But getting back to this question about apparent lack of respect for women within some segments of “Black” culture, I guess what they’re referring to is some of the rap stuff but again, there’s not just one “Black” culture; lack of respect is not characteristic of “Black” culture nor only within “Black” culture; and ultimately, it’s important to figure out the historical and present-day roots of problems and not get into a kind of cultural blaming stance.

**NANCY KRIEGER:** I think there’s actually a different angle that’s important to look at as well. It’s not as if racism is in any way a unitary phenomenon, and among other things, it’s very gendered. So how you watch racism play out by gender, how it affects Black men and Black women, recognizing the diversity of who’s included under “Black,” is important.

We’ve just done a study, for example, on low-income, unionized workers in the greater Boston area, where we were looking at both social and occupational hazards affecting people at work<sup>(4)</sup>. The study population included Black, white, and Latino workers, and we were able to ask questions about not only experiences of racism, but also workplace abuse and also sexual harassment. What we found was that the African American women in the study were at the highest risk of being subjected to sexual harassment on the job.

A small body of literature would suggest that part of the racism directed against women of color – Black women in particular, but it plays out across all the different groups – stems from the ways

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<sup>4</sup> Krieger N, Waterman PD, Hartman C, Bates LM, Stoddard AM, Quinn MM, Sorensen G, Barbeau EM. Social hazards on the job: workplace abuse, sexual harassment, and racial discrimination -- a study of black, Latino, and white low-income women and men workers (US). *Int J Health Services* 2006; 36:51-85.

in which they are sexualized in certain ways by the dominant norms of white men and how they get treated. It's important to bring out this aspect of what becomes particular forms of disrespect, bound up with gender inequity and sexism as well as racism, and the harms they impose. The Black women not only reported more incidents of sexual harassment but this harassment was also more likely to be experienced along with workplace abuse and racial discrimination.

So when we're talking about experiences of disrespect and inequitable treatment, it's important to keep in mind the conditions that shape how people are treated on account of being assigned to a certain race/ethnicity and gender category by the dominant social norms of the most powerful group. People consequently get treated in harmful ways that are very problematic for health.

**DON WARNE:** In American Indian populations, there is a strong movement toward domestic violence prevention and awareness and even talking about it, because in many ways it's a taboo subject. I certainly see in my own patients, the women who are dealing with violence issues and added discrimination at home are having worse health outcomes – missing doctor's appointments and not getting their medications. Unfortunately, the medical system simply labels them as non-compliant patients when in truth there are numerous social factors that are gender based, culturally based, and discrimination based that have a direct impact.

**QUESTION #3: Is it possible that long-term chemical exposure - specifically to the chemicals African-American women use to relax their hair every 6 weeks - is the root cause of the statistics related to low-birth weight and premature deliveries for African-American women?**

**CAMARA JONES:** I don't know of any research on this but it's something that I'm interested in looking up. The prevalence of the use of lye-based permanent chemicals probably varies by region of the country. I would also add that there are many different phases of hair care so a lot of people aren't using chemicals anymore. The people you see walking around with straightened hair now often have it blow-dried and then hot-combed but without the use of harsh lye chemicals, so there's been a generational shift. It's an interesting question, and it's a good question, because a lot of times studies are done comparing "Black" women to "White" women, and it's very important to look among "Black" women and see what are the predictors of the patterns we observe, so it's a very good question.

**NANCY KRIEGER:** I would add that there is some work being done on the toxic effects, at least dermatologically, of skin-whitening creams. Particularly in different African and Asian populations, these products have been widely sold, often with mercury, maybe other heavy metals, and also other chemicals that can be harmful at high doses, such as hydroquinone and corticosteroids<sup>5</sup>. The larger question this raises is how, because of our racialized views of what constitutes norms and "beauty," people have deformed their bodies. In terms of affecting health, that becomes another example of different ways that racism can harm health.

**QUESTION #4: Have there been any comparative studies that have examined at the high rates of diabetes among marginalized worldwide populations through the lens of hope and control?**

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<sup>5</sup> Olumide YM, Akinkugbe AO, Altraide D, Mohammed T, Ahomefule N, Ayanlowo S, Onyekowonu C, Essen N. Complications of chronic use of skin lightening cosmetics. *Int J Dermatol* 2008; 47:344-353.

**DON WARNE:** First of all, just looking within the population of people with diabetes there's a much higher rate of depression and hopelessness and there's plenty of studies that show the linkage between diabetes and depression, plenty of studies that show the linkage between depression, hopelessness and subsequent medication compliance and also self-destructive behaviors, so I think the linkage to a sense of hopelessness or hopefulness has a clear impact on diabetes.

There's also plenty of studies that show how one's sense of control has an impact on health outcomes and things like medication compliance. There have been studies showing that marginalized populations have higher rates of suicide and depression and other psychological and psychosocial problems as a result of that. And we know that those issues are linked to higher rates of diabetes and higher rates of complications in those who have diabetes because of medication compliance. But what's missing in the literature is a study that would connect all of those dots.

So it's a fair question in terms of where's the evidence linking marginalized populations with higher rates of diabetes. There's plenty of evidence at each step along the way but there's not a comprehensive study that looks at the sociology of being a marginalized population and how that affects health behavior.

On a more practical level, a sense of control isn't the only thing that matters; you need actual control. Do people have control over their income? In many cases they do not. Do people have control over their access to healthy foods? In many cases we do not. Or even control over the safety of the neighborhood in which they live? For example, can you go for a 30-minute walk after dinner every night or do you live in a very dangerous neighborhood? We know this is a problem of course in inner cities but even on reservations we have gang problems. And we have methamphetamines and other substance abuse-related violence where people who are living on a reservation with Type 2 diabetes do not feel safe to walk outside their door after work or after dinner to go for a walk, so that's not just about sense of control but actual control.

**CAMARA JONES:** It would be interesting to do an intervention study, wouldn't it, based on the historical evidence that Indian nations were healthier when they had self-determination. In the study we would give Indian nations back that self-determination, which is the power to decide, the power to act, and the control of resources, and then see what happens to their health.

**DON WARNE:** There's already a policy framework for that in the form of self-determination laws that allow tribes to take over health care systems from federal management and put them into local control. We've seen tremendous improvements in things like third-party revenue for the health system when the tribe is controlling it as opposed to the federal government, and we've seen expansion of services to community members but we haven't seen that linked yet to health outcomes.

**QUESTION #5: Health outcomes are based on so many factors that it seems irresponsible to pin it all on racism, especially if one can "perceive" racism that isn't necessarily there? Isn't the program doing a disservice by lulling people into thinking the problem is "out there" rather than focusing on the way we react to situations?**

**NANCY KRIEGER:** The way this question was asked has many different problematic aspects to it. First, it makes the false assumption that racism is only about perception, and is only a psychosocial phenomenon. To understand the legacies of the different aspects and time periods of

racism in this country, you have to understand that it's about power, it's about property, it's about privilege, it's about control, it's about whether people are restricted to living under conditions that are inadequate for living a healthy, dignified life (<sup>6</sup>). It's many things: job exposures, neighborhood exposures, the exposures that your parents had that then get passed on to subsequent generations, not necessarily genetically but in the ways we've already discussed with regard to adversity and birth outcomes.

So, first, "racism" may be a relatively short word but it encompasses a whole lot, and it can't be understood as simply about interpersonal reactions, so that's point number one. Point number two is that when you think about the many different pathways by which racial inequity can be embodied, the psychosocial is only one part of that. How people are engaged with and being treated by others isn't just something happening in one person's head atomistically, it's a social relationship.

Regarding the issue of interpretation, if you think about the research on self-reported experiences of racial discrimination being linked to health, one criticism is that people are likely to over-report their experiences. Now, if this claim were correct – and that's a big "if" I'll back to in a moment – that is, if people were over-reporting their experiences, claiming that they've been exposed to racism when in fact they haven't, it's important to realize that the actual impact of that kind of misclassification would be to undercut the likelihood of racial discrimination having an impact on health. This is because the high-exposure category presumably contains people who are not highly exposed to racial discrimination (and hence whose health is presumably better than those who have truly been exposed). This kind of misclassification would dilute the impact of the effects of racial discrimination on health. The fact that studies are still finding an association between self-reported experiences of racial discrimination and health is interesting, because if the suggested bias exists, that would lead to less strong findings than are currently in the literature.

A second point is there is a lot of social psychology work showing that people who belong to groups subjected to racial discrimination or other forms of inequity are actually more likely to under-report those experiences than over-report them. That's because there's a psychological cost to seeing oneself as a "victim" – people have a very strong tendency to want to see themselves in strong terms, not as victims. So it takes an awful lot to get to the point where people are willing to say they have experienced racial discrimination and deal with it and the issues this raises. There's very interesting literature that looks, for example, at what happens to different immigrants' understandings of racial discrimination, showing that the longer they are here in this country, if they are immigrants of color, the more they and their children understand the realities of U.S. racism. It gets very complicated and confusing if you haven't been raised from birth to know what "expectations" are and how racism plays out in this country.

Look, no one is saying that racism explains all health status of all people of color. In any population you look at, whether it's defined as white, Black, American Indian, Alaska Native, Asian Pacific Islander, you will find enormous variation in health status, with different individuals at higher and lower risk of different diseases or exhibiting different diseases at different points in time. What we're trying to explain here is not a particular health outcome in a particular individual but rather group differences, meaning the different rates of different health

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<sup>6</sup> Krieger N. Does racism harm health? did child abuse exist before 1962?—on explicit questions, critical science, and current controversies: an ecosocial perspective. *Am J Public Health* 2003; 93:194-199. PMID: PMC1447716

outcomes across these different groups. When we see that we have consistent inequities in the incidence or prevalence of certain kinds of outcomes – whether it’s cardiovascular disease mortality, low birth weight, or diabetes – and we look at the many ways in which racial inequality can feed into those different racial/ethnic inequities in health, that’s what we’re talking about. Some of those pathways may again be structural; they have to do with economic resources and the ability to have a healthy nutritious diet. They may have to do also with some of the psychosocial pathways. It’s not either-or; the body doesn’t say one day I’m going to have an opinion about not having fresh fruits and vegetables and another day I’m going to have an opinion about being treated in a disrespectful manner. These different experience are embodied together; our bodies integrate these experience (<sup>7</sup>). The point is: when we try to explain the differences between groups and their health status, what do we ask and what do we conclude?

Now there’s a “simple” explanation that many people have resorted to, which is a racialized understanding of biology, based on assuming that there are innate biological differences. When you measure some of the different biological and physiological characteristics in groups, you sometimes will get differences between groups defined by race and ethnicity that can’t be explained by the current conventional risk factors such as smoking, being impoverished, etc. But you can additionally start to ask questions about self-reported experiences of racial discrimination and find that it does contribute to explaining observed differences in groups.

So, in summary, I would say that racism is a multi-faceted, complex, historical, and contemporary phenomenon that can adversely affect health in many ways. Some of the pathways involve physical exposures to dangerous chemicals, to hazardous workplaces, to dangerous environments and neighborhoods. Some involve lack of access to appropriate medical and dental care. But there can also be psychosocial pathways that are relevant.

The last point to add is that the point of doing the science is to test ideas. It’s not that we know we are right *a priori*; it’s that we come up with hypotheses that are theoretically grounded – for example, we would expect racism to have adverse health effects – and then we go and test these hypotheses. And we find in some studies, they don’t work out, they don’t come out the way that we thought they would and then we have to go back and think some more, to understand the many reasons we could get unexpected results. That said, there are a growing number of studies now that suggest that self-reported experiences of racial discrimination are linked to not only mental health outcomes but also to somatic health outcomes. Not to look at this question – does racism harm health? – is therefore irresponsible.

**CAMARA JONES:** It’s been my experience that many so-called “White” people in this country do find it hard to believe that racism still exists, that it’s alive and well. Nobody’s pinning it all on racism, but it’s important to name racism and acknowledge that our society, our country was basically founded on the killing of native peoples and the appropriation of their land, the importation of Africans as slaves, and the use of Chinese laborers to build the railroads. All of racism is at the core of this country and its wealth. Yet many people have been raised in this country to be blind to that. This program is not doing anybody a disservice; it’s starting a necessary conversation.

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<sup>7</sup> Krieger N. Embodying inequality: a review of concepts, measures, and methods for studying health consequences of discrimination. *Int J Health Services* 1999; 29:295-352.

I'd also like to say that racism is not some miasma, some cloud, and "Oh my god, it's racism! What can I do? Let's hunker down and maybe I'll eat five to nine fruits or vegetables a day, or go out and walk," something like that. Racism is an actual system of power. It's made up of structures, policies, practices, norms, and values – the *who, what, when, where*, and *how* of decision-making. The mechanisms of racism are knowable, they're identifiable, and they're addressable. So when you start naming racism, then you can ask, "How is racism operating here?" When you ask that question, then you start to identify some of the mechanisms and then you have targets for action.

What's really needed to address racism and other systems of power is collective action. It's not just people trying to reflect on how they're personally reacting to situations and what they can do individually, but starting to think about joining with others, identifying the problems and trying to create solutions together.

I want to be explicit about how racism and class structure and class disadvantage are related. Racism explains why we see an association between so-called race and socio-economic position or socio-economic status or class in this country. You have the initial historical insult, which varies from group to group. For people of African descent, that initial historical insult was the kidnapping of West African people, their importation across the Atlantic with tremendous loss of life, and then the coerced usury of their unpaid labor for centuries to build this country. Then you have contemporary structural factors in our structures, laws, practices, all of which perpetuate the initial historical insult. An example might be the redlining policies of banks, or the way that in many parts of the country public schools are funded based on local property taxes, so that poor communities have poorly funded schools, which often result in poor educational outcomes and the perpetuation of poor life opportunities. So it's not just a happenstance that, for example, we see people of color overrepresented in poverty in this country while "White" people in this country are overrepresented in wealth. That's not a happenstance; it's because of the initial historical insult and then the contemporary stuff that's keeping it going.

So if we were to take just a social class analysis and not acknowledge racism then we might try to fix something and we might fix everything today – we might give everybody the same income, the same education today – but if we don't deal with the forces that are differentially shunting people into poverty or poor education or wealth and good education, then 20 years from now we would find ourselves back in the same situation from which we started.

The last thing I want to say is for those people who haven't experienced disadvantage due to racism, know that you are experiencing unfair advantage, even though you can't see it. For those who want to understand more about the different levels of racism and how they impact health, you can listen to my Gardener's Tale on the CityMatCH Web site. (<sup>8</sup>)

**NANCY KRIEGER:** One thing I want to add is that there is plenty of empirical evidence showing the continued existence of racial discrimination as it plays out in employment and housing, for example. A recent audit study showed that white men who had a history as felons were more likely to be called in for a job interview than Black men who had no history of being felons whatsoever (<sup>9</sup>). The two sets of resumes sent to employers were identical except for these

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<sup>8</sup> [Camara Jones answers the question, "How is the experience of racism comparable to the proper care and feeding of flowers?"](#)

<sup>9</sup> Pager D. The use of field experiments for studies of employment discrimination: contributions, critiques, and directions for the future. *Annals American Acad Pol Soc Sci* 2007; 609:104-133.



particular salient characteristics that were changed. So when people say discrimination doesn't exist, I think it's very important to cite actual evidence, empirical studies that show this is in fact still happening. Similar kinds of audit studies are being done in housing, where testers are sent out with identical job histories, identical clothing, similar physical build, sometimes even having people wear the exact same glasses, etc. This is all summarized in the National Academy of Sciences book *Measuring Racial Discrimination*. (<sup>10</sup>) So in addition to conceptualizing the current realities of differential treatment, there's hard empirical evidence that shows it's still playing out in the U.S.

**DON WARNE:** If you just look, for example, at an online newspaper in Arizona and other places where there's an article about American Indians, no matter what the article is about, if you read the online comments it is remarkable how much racism there is against American Indians. There's backlash against the idea of casinos, there's backlash and complete misunderstanding of the federal government's responsibilities to provide services and all of these things that lead to misunderstanding and discrimination against American Indians.

And that certainly frames my response in settings where the question comes up, "Am I being treated this way because I'm American Indian?" So there is a tremendous misunderstanding of the impact of racism. And whatever an individual's motivations, it doesn't take away from the fact that racism is alive and well and thriving in this country, and has an impact on how we feel and react and behave in society, as well as our opportunities.

**QUESTION #6: If genes have nothing to do with the high rates of diabetes found among the Pima and other Native American peoples, what about the "thrifty gene" that helped the Pima survive earlier periods of famine by slowing their metabolism?**

**DON WARNE:** I don't think anyone said that genes have nothing to do with disease. It's an interesting take on the discussion. Certainly there is evidence that there's genetic predisposition to things like obesity and diabetes. However, we've never identified those genes. Just looking at the pattern of diabetes in American Indians in the Southwest, for example, a century ago there was essentially no diabetes and within half a century of damming rivers and changing lifestyles and becoming dependent on government commodity foods and other tremendous changes in lifestyle, we had among the highest rates of Type 2 diabetes in the world.

Certainly there was not a genetic shift in 50 years that would explain that change in diabetes rates. Is it to say that genes have nothing to do with it? Well, of course not, because there is likely a genetic predisposition. But the most compelling and most obvious cause for increasing rates of Type 2 diabetes is changing circumstances and lifestyle. That's true among the O'odham, that's true among American Indians in general, but it's true among all populations – diabetes rates are increasing everywhere. So, genetics certainly plays a role but I think lifestyle is much more important than something like the thrifty gene theory.

Thrifty gene is actually an interesting theory: it suggests that the people who were able to survive in environments with periods of feast and famine are the ones who had slower metabolisms and therefore could store fat more readily during feast and therefore survive during famine. It's a

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<sup>10</sup> National Research Council. *Measuring Racial Discrimination*. Panel on Methods for Assessing Discrimination. Blank RM, Dabady M, Citro CF (eds). Committee on National Statistics, Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press, 2004.

logical theory, but it's never been proven. There's never been a gene identified and even though several studies have looked at basal metabolic rates of Pima Indians and other communities, there's never been a significantly different basal metabolic rate shown in populations with higher rates of Type 2 diabetes. So although the thrifty gene theory may seem like a logical idea it has not yet been proven.

**NANCY KRIEGER:** I would like to add a few comments. First, there are very confused ways that people talk about genetics. Usually when people are raising these questions about genes, it's because they think there are innate genetic differences that account for observed differences in health status. And they think that this genetic difference somehow matters regardless of the context in which people live.

All of biology involves genetics, just as it involves proteins, just as it involves many other constituents of our bodies. I mean, that's the nature of being alive. But you can have people with very similar genetics – identical, in fact, as per the monozygotic twin study I did <sup>(11)</sup> – who end up with different health status, precisely because gene expression is very strongly determined by the conditions in which people live. So I think people use *genetic* as shorthand for innate difference, while the work that's actually moving forward in genetics undercuts such simplistic notions. For example, even chromosomal abnormalities such as Down's Syndrome show a whole variety of different levels of extremity and manifestation, from not very severe to quite severe.

So when we're taking on the genetics argument, we first need to reframe the questions so people understand it's not about intrinsic difference but about the different conditions in which we have gene expression that are relevant to our health status – and how racism affects gene expression <sup>(12)</sup>.

The second thing about thrifty gene hypothesis is that Neel – who was the person who first articulated the hypothesis – in fact retracted it. It went from thrifty gene to thrifty phenotype, then it moved to talking about the need to identify still unidentified particular SNPs (segments in the DNA), so we should be clear that no “thrifty genotype” has yet been shown to exist. Another big problem with the theory, which has been acknowledged in the literature, is that the populations experiencing high rates of diabetes, such as American Indians, are not the only group to have experienced feast and famine. In fact, periods of feast and famine were common in early pre-industrial European agriculture. So it gets very confused, and I think the hypothesis was put out there in a way that was both decontextualized and also disregarded the very important histories that Don was just mentioning. If you take a population, suddenly make them sedentary and make them essentially eat lard, which is what a commodity food translates to, the results are not surprising. You do the same studies with different animals and you'll wind up with very high rates of diabetes.

We have in this country a long history of using science to promulgate racism and to promulgate the idea that there are innate, intrinsic, genetic differences (now understood as gene frequencies) between different groups. But this is a very lazy way of thinking to explain differences between

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<sup>11</sup> Krieger N, Chen JT, Coull BA, Selby JV. Lifetime socioeconomic position and twins' health: an analysis of 308 pairs of United States women twins. *PLoS Med* 2005; 2(7): e162. DOI: 10.1371/journal.pmed.0020162. PMID: PMC1181870 Available at: <http://medicine.plosjournals.org/perlserv/?request=get-document&doi=10.1371/journal.pmed.0020162>

<sup>12</sup> Krieger N. Stormy weather: “race,” gene expression, and the science of health disparities. *Am J Public Health* 2005; 95:2155-2160. doi:10.2105/AJPH.2005.067108. PMID: PMC1449500

health states in populations. Again, when we do studies – like the one I did on identical twins who had different class trajectories and ended up with very different health status – we have to have a much more sophisticated understanding that actually matches what we know in the 21<sup>st</sup> century and acknowledges how much we don't know about genetics. We have to move to a whole other level of conversation and awareness – one that gets away from simplistic, at best 18<sup>th</sup> century, understandings of genetics as it applies to population health, and deals with rapid advances in epigenetics and sciences concerned with gene expression.

**CAMARA JONES:** I'd like to jump in here for a moment. Even if something is entirely genetically determined, the social environment is still hugely important for how people live. There are diseases like phenylketonuria (PKU), which are entirely genetically determined, that can be managed effectively through controlling the environment. So we should not think of genes as totally deterministic of health.

Also, I want to reiterate the notion that race is not about genes. What we call “race” is a social interpretation of physical appearance tied to a given place and time. We acknowledge that there is genetic variability on the planet. Indeed, there is genetic variability in our families. It is just that the “pie slicer” that we call race does not capture that genetic variability. Within every so-called race there is a mixture of genes from different geographic stocks, and there is tremendous genetic overlap between the so-called races.

Although it's interesting to look at genes when you're trying to explain patterns of disease and health, if you are interested in patterns by so-called race, you should not be thinking genes because race does not measure genes. Instead, you should be thinking about things associated with race – or more precisely racism – which include the ways that our race-conscious society structures wealth and other opportunities and exposures.

**QUESTION #7: What about Vitamin D levels in persons with darker skin explaining some health disparities? The Vitamin D Council (<http://www.vitamindcouncil.org>) notes severe Vitamin D deficiencies in African-American women of childbearing age and in pregnant African-American women.**

**NANCY KRIEGER:** I'm not saying that I agree with the hypothesis, and disagree when it's framed in purely “racial” terms, but there's actually a lot of research in cancer right now showing problems with differences in bio-available vitamin D, risk of colon cancer and more (<sup>13</sup>). There are questions that are rightly being raised about Vitamin D that merit some attention but they need to be understood in relation to skin tone and in relation to who's indoors and outdoors, safe ways of being in sunlight and also having jobs that allow you to be outside at times and get sun.

There are some diseases that do differ by skin color. One, for example, is melanoma. For example, people who have very light skins, particularly those who get very bad sunburns before puberty, are at a much higher risk of having melanoma. But that doesn't mean that people with dark skins don't get melanoma, so there's an underdiagnosis happening of melanoma among people who have dark skin, because of implicit assumptions.

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<sup>13</sup> Giovannucci E. The epidemiology of vitamin D and cancer incidence and mortality: a review (United States). *Cancer Causes Control* 2005; 16:83-95.

While it's important to realize that aspects of skin color are relevant to health status, it's problematic when that understanding becomes a racialized aspect of biology. The problem I see with some of the Vitamin D research is that it's not looking at some of the other things that travel with having skin of various tones, including, for example, experiences of racial discrimination, and levels of poverty. It's excluding other kinds of exposures, and being done in a very simplistic way that assumes the only thing that matters is skin color and not the social conditions that go along with having skin color in societies that are stratified by race.

**QUESTION #8: What tools are available to health care administrators to monitor access, outcomes, and costs associated with the effectiveness of various intervention strategies to reduce disparities? What strategies can be employed to show racism's collective costs to the provider of care as opposed to the service recipient - since racism is embedded?**

**NANCY KRIEGER:** There have been in fact very few cost-benefit analyses of the added toll of racism in terms of what it costs insurance companies. What's happening with the US insurance industry now is more about their not wanting to pay for people's needs for medical care, rather than actually paying for coverage, since that costs more (<sup>14</sup>). The issue of cost is complicated anyway, because who's paying what cost? In many ways the real cost, in human and not just monetary terms, is borne by the people who experience the health problem, and the people around them who are affected. So, when you're thinking about cost, you have to start first and foremost with the people who are affected.

Second, one of the big problems with how people discuss health costs in our society is if a disease is prevented and somebody doesn't go to the hospital it's a "saving," but it doesn't show up anywhere in somebody's budget as a saving. Some of the workplace health promotion schema that are trying to reduce costs by having people live healthier lives is showing success in terms of management of current existing diseases, but this is not the case for preventing the onset of disease in the first place. So this is a question that is understandable but at the same time not directly answerable in terms of clear ways to show that somebody is truly saving money by not having adverse exposure. There are global statements that get made that society would save x y and z if this many kids didn't have asthma, or this many kids were not born premature, or this many people did not have these kinds of diseases. But when you really try to see, well, where do those savings lie, it's a much more complicated situation because it's money that's not expended as opposed to saved.

Obviously we want a healthier population because people can live lives more freely doing what they want to do in the world if they are healthy. But I think it's important not to get too caught up in cost benefit or cost risk analyses, even as they are important for certain kinds of specific health care system planning. We don't want to reduce being healthy to something that costs less. I mean, you can get into some very dangerous slippery arguments along those lines. For example, what do we want to do about really sick people? That can lead some to say they're costing too much, they're a burden on society, even to flat-out eugenics, so I would be very cautious about framing arguments in these ways.

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<sup>14</sup> Lasser KE, Himmelstein DU, Woolhandler S. Access to care, health status, and health disparities in the United States and Canada: results of a cross-national population-based survey. *Am J Public Health* 2006; 96:1300-1307.

**CAMARA JONES:** I want to quickly add a note about the cost of racism, not in terms of measuring at a provider level, but for society as a whole. When we think about the impacts of racism we usually think about how it unfairly disadvantages individuals and certain communities. Then if we think a little further, we'll say, "Well, okay, that unfair disadvantage has its reciprocal unfair advantage for other individuals and communities," which is the whole issue of unearned "White" privilege. But rarely do we go to the next step of understanding that racism is sapping the strength of our whole society. It's a huge cost because of the loss of human potential.

This happens when we don't invest in the full, excellent education of all of our children because we don't even think that there's genius there on the reservations or in the ghettos or in the barrios. It happens when we "warehouse" so many of our "Black" and "Brown" men in our jails and prisons and don't even recognize that we are taking human potential out of our society that could be solving our problems. So one of the big cost assessments I wish we would spend some time thinking about and highlighting is measuring the cost of racism in terms of how it's sapping the strength of society through the waste of human resources.

So I put that out as a challenge to people. But we can't even conceptualize the cost because our system is undervaluing "those people" anyway. In fact, I'm always wary of cost-benefit analyses when it comes to race and racism because we place a different value on different people's lives. When you think about how they valued the lives of people lost on 9/11 at the World Trade Center, it was dependent on projected future income. I mean, because of structural racism we put different values on premature mortality and say, "Well, this one was poorly educated so that life is only such and such a loss." The formula that we apply reflects the racist system we have now, instead of valuing everybody equally.

**QUESTION #9: Doesn't the profit-before-people paradigm of industry-driven health care create a disincentive for hospitals and health professionals to invest in prevention and addressing social determinants? What can be done to change this dynamic?**

**DON WARNE:** One of the things that we have to keep in mind is that the role of hospitals and clinics is not to prevent disease, it's to treat disease. In truth, the prevention arena is public health. And public health is predominantly in the public sector, funded by agencies through governmental resources, whereas the medical side of things is primarily in the private sector, and it is industry driven. The medical industry relies, like any industry, on customers, and the customers for the medical industry are sick people. So there is an inherent market disadvantage for public health in that the driving force for the medical industry is having a constant supply of a customer base, essentially, and money – a great deal of money – changes hands when we're treating disease.

If we look at some of the bigger entities in our health care systems, whether it's hospital groups or pharmaceutical companies or biotechnology companies, just imagine if one day we got very, very good at public health and primary prevention of diabetes for example. Let's say that over the next five years we were to prevent 90% of Type 2 diabetes. That would be wonderful for public health, but it would actually be a disaster for the medical industry. Imagine all of the pharmaceutical companies that depend on diabetes medication sales or the technology companies that sell glucometers and test strips or even the specialists in diabetes and subsequent complications like kidney failure, not to mention all the dialysis centers that would potentially close down. So we have to recognize there is a market disadvantage to public health in this country because we've privatized medicine while public health remains public.

In terms of what can be done to change it, there really has to be a way to find profitability within prevention. The current system, especially under a fee-for-service system, will not work because under fee for service we're paying for health care when people who are sick utilize the system so there's not much financial incentive to invest in prevention. So we really need new approaches from policymakers that acknowledge that we have to invest in primary prevention for public health. There are some potentially creative systems in managed care where if we keep populations healthy, we can actually reduce health care expenditures, but it's a very complex issue and it's something that certainly won't be done very quickly.

I think one advantage that we have in Indian health is that we have a smaller system that we can get our arms around in a better way. If we have tribal control of those health care resources and health care dollars, then the policymakers become tribal leaders, who can then invest in primary prevention and subsequently save dollars and improve quality of life.

**QUESTION #10: As a woman of color, I am affected by many of the disparities you mention. Given that so much of what I see and experience is beyond my individual control, what can I do on a personal level to improve my life chances and preserve my health?**

**CAMARA JONES:** A lot of people feel that this stuff is beyond our control, so that's why it's continuing to go on. Of course people can do things at the personal level like don't smoke, don't drink, eat better, walk a lot, exercise, all of that. But then you can also gather with others to improve your social environment, your neighborhood context, the hazards to which you're exposed and all of that. What a person can do on a personal level is not just take individual action, but also take collective action.

As a woman of color right now, some of what we have to deal with is internalized racism. So what I am personally doing for my kids is giving them a history about people of African descent before we were brought to this country and our contributions even after we've been here: exposing them to lots of different kinds of role models and different kinds of books and art. It costs a lot of energy to do this, but I think it's important to put positive messages around you to cancel out the negative messages that are in the media including on TV.

Also, don't think that you have to do this on your own or that things can't be changed. It's possible to affect the bigger structures and by joining with others, you can find the strength to do so. So, for people who are oppressed in this system, it's important to acknowledge that you're in the system – name where you are and understand your situation – then strategize around it. And don't just think in terms of individual action; think about collective action.

**NANCY KRIEGER:** In the CARDIA study we did, among professional African American women and men, there was a linear relationship between self-reported racial discrimination and blood pressure (<sup>15</sup>). The more reports of racial discrimination, the higher the blood pressure. Among working-class African American women and men, there was evidence of a J-shaped curve, which means that those who reported no discrimination had slightly higher blood pressure than those who reported some; however, people who reported lots of racial discrimination still had the highest blood pressure of all. This finding has been replicated in other studies, including a

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<sup>15</sup> Krieger N, Sidney S. Racial discrimination and blood pressure: The CARDIA study of young black and white adults. *Am J Public Health* 1996; 86:1370-1378. PMID: PMC1380646

recent study that looked at mental health among gay men. Again, there was a J-shaped curve among the working class, less educated men that didn't appear among the professionals.

I think this is really important, because it tells you something about social position and lack of power and resources combining with what people will or will not report. What people do or don't report is partly a result of conscious decisions but it's also about unconscious realities; it's about what you are able to say to yourself, let alone say to somebody else on a survey.

So it's really important to bring out these distinctions because it's not uniform and the experiences of how people are treated varies by class, including within race and ethnicity. You will find very strong socio-economic gradients in health within every single racial/ethnic group in our society. And that's a very important point to make because in this country racial/ethnic disparities in health are given more attention than population distributions of health in relation to income. You will nevertheless see strong socioeconomic gradients in health within every single racial/ethnic group. And we can also bring in nativity and immigration, legal status for tribes, reservations vs. cities – all these different kinds of issues really do matter.

Secondly, with regard to a collective response, there's some data showing the importance of changing policies and of people changing the world around them. We recently published a study on trends in premature mortality in the United States from 1960 through 2002 (<sup>16</sup>). When we look at the results in relation to both socioeconomic position and race/ethnicity, we see that the sharpest decline in premature mortality rates and also in infant death rates occurred between the mid-1960s and 1980, particularly with populations of color living in the two poorest ranks of counties in this country. After that, the decline began to stagnate, and you begin to see a widening inequity compared to the shrinking inequity of the earlier period.

So what does this tell us? The magnitude of the health inequities that we see are not fixed. They're a function of what's going on historically, and a function of what's going on politically. During the mid-'60s to 1980, we had the consequences and realities of the Civil Rights Movement, including various legal acts such as the 1964 Civil Rights Act, the voting rights act, and the fair housing amendment. We also had the implementation of the War on Poverty and programs such as Medicare and Medicaid, which required, among other things, desegregating health facilities that were receiving federal funds. We also had the Clean Air Act, first passed in 1963, and the establishment of both the Occupational Safety and Health Administration and the Environmental Protection Agency in 1970.

So you had many things that happened because people advocated for them, and it's not just about advocating on only one issue, but many different aspects of our society. Whether it's about a sustainable economy, about reducing health inequities, about reducing social inequities in many forms, these add together to change the health of the population. We do what we can within the constraints and control we have, and as Camara said, work collectively with others to change what's going on in terms of our priorities and the enormous resources that exist in society.

#### **QUESTION #11: Should doctors take race into account when treating patients?**

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<sup>16</sup> Krieger N, Rehkopf DH, Chen JT, Waterman PD, Marcelli E, Kennedy M. The fall and rise of US inequities in premature mortality: 1960-2002. *PLoS Med* 2008; 5(2): e46.  
doi:10.1371/journal.pmed.0050046. PMID: PMC2253609 Available (open access) at:  
<http://medicine.plosjournals.org/perlserv/?request=get-document&doi=10.1371/journal.pmed.0050046>

**NANCY KRIEGER:** Well, it depends on what is meant by taking “race” into account. If what’s being asked is, “I see somebody, I think they belong to a certain racial/ethnic group, I will treat them differently because I assume there are certain gene frequencies at play,” then that’s a very problematic approach. It focuses on maybe the extremes of the distribution of reaction, rather than the much larger shared overlap. For example, if you see a particular individual, you don’t know how she or he will react to a specific drug, unless you’ve done a genome scan on that person to ascertain what their genotype is and whether they are a person who would or would not respond better or not to one drug or another.

One of the things that you hear about in this country is the promise of “personalized” medicine. People think that means they’ll get highly individualized care based on their exact genetic type and appropriate drugs. Whether or not that’s the case, the underlying point is that there is extraordinary variation amongst people, vastly more within racial/ethnic groups than between them. So, while there may be some different classes of drugs that work better for some individuals who have some similar genetic traits, you can’t base identifying who these people are on race/ethnicity, particularly when the classification is based on self-identification and not actually parsing through very carefully people’s ancestry, let alone genome typing.

On the other hand, if you understand a patient’s “race” as a social category and take into account the experiences they have in life as a consequence of that, and consider and talk with people about what’s going on in their lives, not just in terms of “lifestyle” risk factors, but actually look at context, ask about constraints, be aware that there may be differential constraints on different patients by virtue of their position in a race-stratified society – then by all means take into account “race” in that way. But that’s taking into account racism, not “race.”

So you can get different answers to this question depending on what you mean by “race.” And I don’t think health providers should shy away from the social group aspects that may well be meaningful. For example, domestic violence used to be seen as something off the table, not relevant because “we can’t do anything about that.” But when providers were encouraged to finally ask about experiences of domestic violence, they found that many women were talking about these things for the first time – things going on in their lives that were absolutely harmful and affecting them as well as obviously their children and families. So to avoid social questions as “off topic” is really problematic, because it’s the first step in identifying problems and taking solutions, rather than keeping things bottled up and not dealing with reality.

**DON WARNE:** I think the question is better framed, “Should doctors take culture into account when treating patients?” I think that cultural factors have a huge impact on language, on health-related beliefs, health-related activities, and even communication styles, you know – things like eye contact or the rate at which people speak. So those things need to be taken into account in order to provide culturally competent and culturally appropriate care. But one of the things I always discuss when I’m working with other health care providers on cultural competency is that we’re not just talking about Indian and non-Indian culture. There’s actually all kinds of cultures at work here.

For example, if a community has been immersed in and devastated by diabetes, then there really is a culture of diabetes. It frames people’s hope for the future and their perception of the future. I’ve had dozens of patients over the years say things like “I don’t have diabetes yet.” And what they’re telling me is that they’re planning to get diabetes. That really is a cultural context, the culture of diabetes. If someone believes they’re going to get diabetes, then you need a completely



different approach to that patient than someone who doesn't believe that they will get diabetes. So culture's an important component.

Also, there really is a culture of poverty as well, and living within poverty frames our world view. It frames our sense of hope for the future and our belief systems and value systems. So I think that there's a great deal of dynamic to this. Race really isn't the right term in terms of how to approach a patient who may be different than the doctor. I think it's really more cultural factors and, again, we're saying race isn't genetics; it's a whole cultural milieu that has an impact on health-related beliefs and activities.

**CAMARA JONES:** I would agree with both Don and Nancy by saying that physicians should not include so-called race as part of the Chief Complaint, but should include it as part of the Social History. In fact, a lot of my work started when I was a physician in training and I was noticing the routine use of race in the Chief Complaint, so I would challenge my colleagues, "Why are you including race in the Chief Complaint?"

The Chief Complaint is the little telegraphic message that one physician communicates to another with the most salient aspects of a case. So if I have just seen somebody in the emergency room, and I want to tell another physician to get their advice or whatever, then I might say something like, "Mrs. Jones is a 26-year-old 'Black' female who presents with a two day history of cramping abdominal pain." And I would ask, why is it so important to include race along with age and gender in the Chief Complaint? The long and the short of it is, that's how people were trained. They never thought about it before.

But then some also admit that they think race might be a biological predictor, and that's because of the way that the epidemiology is presented to physicians. I mean, some doctors still think about race as a biologic risk factor because of how the studies are done. The studies document race-associated differences and then adjust for race, but they don't ask, "Well, why would we see these differences?" So, many of us on the research side are trying to investigate exposure to racism and other socioeconomic and cultural components to provide more details to physicians.

My last point is that race IS a very potent social marker. But it's a risk **MARKER**, not a risk **FACTOR**. It doesn't cause diseases but it marks all of the other things around it that can contribute to disease. It's important to know about those things, so the Social History part of the medical record, where you talk about where that person is coming from and their experiences, including racial-, ethnic- and class- based experiences, is an appropriate place to mention race.

**QUESTION #12: If you could pick one thing to change in order to improve health outcomes, what would it be?**

**CAMARA JONES:** Excellent educational opportunities for all.

**NANCY KRIEGER:** I find myself very resistant to answering this kind of question, but if I had to say one thing over all, it would be establishing equitable and sustainable economies. What I mean by that is a society that has no discrimination and has equity in all aspects of policy, including everything from housing to education to transportation to environment. By sustainable economy I mean one that is not only ecologically sustainable in a global commerce sense but also sustainable for people, meaning you have a living wage within the formal economy. But I think it's important to bring it back to the political frame, because everything else flows from that.

We're seeing very sophisticated discussions happening among advocates, activists, grassroots groups and others who are trying to bring together these different concerns.

But if we're talking strictly about an immediate concrete doable action now, I'd say that implementing and enforcing living wage laws with guarantees of civil rights and enforcement of civil rights and anti-discrimination laws and policies would go a long ways to helping alleviate some of the health inequities right now.

**DON WARNE:** If you approach it from improved health outcomes for American Indians then that's very easy, I would say appropriate and equitable funding of Indian Health Service. Currently federal health programs are funded as follows: Medicare gets \$7,600 dollars per person per year, Medicaid gets well over \$5,000 per person per year, Veterans Health Administration also well over \$5,000, but the Indian Health Service gets only \$2,000 per person per year. So we wind up limiting health care, and Indian Health Service is not able to fulfill its role on public health simply because of a lack of resources. So I would start with appropriately funding Indian Health Service.

More generally speaking, again it's hard to point to one thing but socioeconomic measures are incredibly important and income and educational attainment are both independent predictors of health, so I would say we need equity.

**QUESTION #13: Name three things that every person can do to work towards health equity.**

**NANCY KRIEGER:** Individuals by themselves can engage with the people in their society, whether they choose to work at the local level or the national level. At each and every level, the three things that people need to do is (1) get engaged and get active: find out what's going on with their local health department and with their state and county health department, (2) find out information about health inequities, and (3) figure out which one of the many different things they feel passionately about, that taps into their desire for social justice, that would help them engage in making a difference for a better world

**DON WARNE:** Within families and within closer social structures and units of support, I think having discussions about discrimination – that it does occur and that we all play a part – will have a positive impact on health and society. At the more global level, I think political activity is very important. If we're concerned about public health, we cannot be apolitical because the political arena is where policy is developed, which affects investment in health promotion, disease prevention, wellness and all of these things. Also, the people we elect to office are the ones making those decisions. If people don't have the time or resources to be directly involved in politics, then it's important for each of us to understand the positions on health care, education, economy, and equality and ensure that the people we're electing into office support those positions. So we all have to be involved at that level as well.

**CAMARA JONES:** My three points are: (1) get active politically; (2) name racism and other systems of power which create uneven playing fields – in other words, don't be in denial; and (3) understand and act on our interconnectedness – know that we are all in this together, and act upon that knowledge.