

UNNATURAL CAUSES ...is inequality making us sick?

A four-hour series as seen on PBS and a national public engagement campaign

Nancy Krieger, Harvard School of Public Health Edited Interview Transcript

Biology Happens within a Context

There's one view of us as biological creatures, that we are determined by our genes, that our genes dictate our lives, that what we see in our biology is somehow innately us, who we are, because of who we were born to be. What that misses is that we grow up and develop. We grow up as children, we grow up as adults and continue. We interact constantly with the world in which we are engaged. That's the way in which our biology actually happens.

We carry our histories in our bodies. How would we not? We carry with us the conditions under which we were being conceived, under which we grew as a fetus. If we were born a low birth weight, that has implications for our health as an adult.

So when you measure things like people's cholesterol levels, for example, it's not just an innate property of people. It's a function of who people are and what they're exposed to in the world, what their opportunities are. You start to see biology as a biological expression of the social conditions in which we live.

It's a very different way than seeing us as being these fundamentally only biological creatures, who have a health profile that's independent of our social context. In fact, there's a very strong claim to the contrary, that the only way we can understand population patterns of health, disease, and wellbeing is to see them as the embodied expression of the social conditions under which people live, and how we as biological creatures embody that literally every day and integrate the multiple exposures that we have, whether social or physical or otherwise.

Life Course Epidemiology

There's a trend now in social epidemiology called "life course epidemiology," but this is not a new notion. The idea that the conditions in early life affect conditions in later life is being shown more and more to be the case.

But it's not just that early life determines everything, and then you have later life and that doesn't matter. Rather, the view that's being articulated more and more, and shown by epidemiologic research, is the cumulative effect of exposures across the life course. So it matters if you are born low birth weight and then continue to live in a poor environment, versus you're low birth weight and you may have a better environment. What does that mean?

I did one study recently that was published last summer that looked in part at this question of the contribution of early life and later conditions to health by looking at identical twins.

And what was important is that among twins who lived together until 18, who basically grew up in the same households, so had at least a relatively similar exposure, well, if they diverged later in life in their class trajectory, if one became professional and the other working-class, they ended up with different health statuses as adults. This is among identical twins.

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So that's saying that whatever their early life experiences were, later experiences mattered also.

At the same time, twins who were born working-class and stayed working-class, had worse health than twins who were born in professional families and remained professionals. So the early life matters as well. Both matter, is the point. You can't divorce your history from your body. It's in there, biologically.

Why Does the Social Gradient Exist?

There is popularized now in social epidemiology, and in public health to some extent, the idea of the social gradient in disease. It's not just that somehow people below a certain level of particularly income have bad health and everybody else is okay, but rather that it's a graded relationship.

When we go to look at the literature there are rather few empirical studies that have actually tried to assess the linearity and non-linearity and threshold nature of social gradients in health. In fact, I have a doctoral student who's been looking at that. And life is complicated, as usual. There aren't just always clear, simple linear gradients, as some might like to suggest is the case.

But then, where I think that there's a lot of controversy is: Why do the social gradients exist? There have been studies that have been done, chiefly among employed populations, which lend themselves to an interpretation (in part because they are of employed populations) that it's not just material factors, it's got to be predominantly psychosocial factors. I am not of a camp that says it's all one or all the other. Economic poverty does matter a lot, and it matters for the material resources as well. It's not just a matter of status and perceived rank in a social hierarchy.

That's very helpful when you think about what you actually need money for--and what you need to have as income [depends on] what your social wage is as a country. It's not surprising that in United States, which has less of a social wage, you see sharper income differences in health than you would in some of the Scandinavian countries that have more of a social wage. That means they have better provisions around childcare, educational benefits, health benefits, old age pensions, all the rest--meaning that your earned income matters less for some of the basic needs than here.

So you have to ask [questions] about income in any society in relation to what earned individual income means, where inherited wealth fits into the picture, and also fundamentally, where social provisions fit into the picture in terms of what the social wage is. But that's a way of thinking that's fairly alien in the U.S.

That said, we have a social gradient. And it matters to understand what makes that.

Introducing SES into the Picture

One of the big things about many US public health data systems is that while they do collect data on race/ethnicity (often poorly, but there to some extent), the vast majority (74% actually) don't have any socioeconomic information whatsoever.

So we end up repeatedly in the United States with a racialized picture of health that misses the socioeconomic aspects. That means we can't see the socioeconomic inequalities amongst racial/ethnic groups, whether amongst Hispanics, amongst Asian/Pacific Islanders, amongst

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American Indians, amongst African Americans, or among white Americans. We also can't see the contribution of socioeconomic inequity to racial/ethnic disparities in health

So this Public Health Disparities Geo-Coding project that I've been doing now for quite a number of years has been a way of saying: How can we try to add some socioeconomic data to US public health data systems, to the surveillance systems, so that any public health department anywhere could do this?

And that brings us back to notions of place. Because while we may not know the exact socioeconomic position of an individual, people who are in those health records have addresses. We can say something about the areas in which they live. We can say something about the rates of disease in people who live in poor census tracts, versus people who live in more affluent census tracts. These become important as social statistics and also as spatial statistics, for us to see the social and the spatial patterning of burdens of disease and illness. And that becomes part of this larger picture as well.

How Racism Impacts Health

There's a very long tradition of saying that racial/ethnic disparities exist because races exist biologically and are somehow very different. We have had a long history of scientific racism in this country, which [say] that the problem is that there are innately different groups who differ genetically, and that's why they differ in their achievements in society, and why they differ in their health status. But there's an equally long tradition that goes back, including to James S. Rock, who was one of the first credentialed African American physicians in the mid-1800's in the United States, who argued very clearly that it's social context that's shaping what we see of racial/ethnic disparities in health.

Racism is a very complicated idea. But it does boil down essentially to the notion that there are structured inequities in society which are based on a false presumption of some racial / ethnic groups are biologically superior to others. This presumes that they exist as biological entities, and that they are differentially endowed with the capacity to excel or to fail. So that was the fundamental biological notion of racism. But it's also had variants that are cultural. Those accept that people may be biologically "equal," but somehow there are some cultures that are deficient compared to others.

Now, that's the view of the people that promulgate the system. But the fact is that it translates to social and structural inequities in employment, in living conditions, in health, and many other aspects of life. Obviously education. The list goes on and on.

What that means for how racism can harm health is that it will do so institutionally and interpersonally. And all these things matter. It's not going to be one or the other. It's not like one day we happen to interact with institutions, and another day we interact with individuals. But it is important to understand the different pathways.

So one piece of it will be the economic discrimination that occurs, and what that means about the likelihood of being hired, what that means about the likelihood of having a good and safe job that pays well, what that means for being able to live off that job. So you think about a job in terms of both the occupational toll that is associated with the actual nature of the work itself, but also the living standard that it affords, what that-that means if you're raising a family, what that means for the chances of the kids in that family, etc. So there's economic ways in which-which racial discrimination can matter.

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There will be ways in terms of physical exposures: who lives near toxic waste dumps, or who's more likely to live in areas that have lots of small businesses that emit various and sundry fumes, versus who lives in pristine residential neighborhoods that have none of the above who lives in neighborhoods that are more likely to be targeted for tobacco advertising, also for the sale of alcohol; who has smaller sidewalks on their streets, what that means for traffic [injuries]; all those kinds of things. So there will be a lot of ways in which there will be physical exposures that matter.

There will also be matters of healthcare inequities, both access to care and also quality of care and differential treatment in care. And there also will be social trauma associated. And that may be what people often refer to as interpersonal issues of racism, in terms of the stress (so called) of racism.

And here, I think it's really important to understand that there are very different kinds of "stressors" in the world. You can have a bad day and somebody else can have a bad day. They can cut you out of a parking space. It's an occasion but it's not premised on the idea of second-class citizenship. It's not something that is a repeated and reactivated insult that occurs.

But I think that we make a fatal error to assume that the only way that racism affects health is through interpersonal interactions that are consciously perceived and reported on as such by individuals as being stressful. Because that will miss the other pathways around economic discrimination, around inadequate or degrading medical care, around exposure to environmental toxins or other pathogens, and other dangers that are also distributed differentially by race/ethnicity because of structural inequity.

Racial / Ethnic Disparities

Black women on average are much more likely to have a preterm delivery than white women. And that's even true within class strata. So even relatively poor black and white populations, you'll still see a higher risk [among the African American population]. And even among better educated populations and wealthier populations, you'll still see a black-white disparity in risk of preterm delivery.

Preterm delivery carries with it many risks for later disease, immediately later in terms of risk of mortality of the infant itself, but then being low birth weight (having less developed kidneys, for example) when you're born, has implications for our cardiovascular health when you grow up. Because if you have littler kidneys than you should, and fewer nephrons in your kidneys than you should, you end up with possibly higher risk of hypertension.

Many people have looked at a lot of the traditional risk factors for that, including questions of smoking, depression, bacterial infections, and they don't explain the difference. In a study that I was involved in, when you started to add other important questions, for example, people's self-reported experiences of racial discrimination, what you were able to do is substantially account for the black-white difference in risk of preterm delivery. So that's telling you that something is going on that is affecting the mother that then affects the likelihood of the infant being born early.

There continues to be marked racial/ethnic disparities, particularly black-white as a major comparison, for infant mortality in this country. Infant mortality has declined in all groups enormously over the 20th century. It hasn't gotten equally better, and there continue to be racial/ethnic and class disparities in infant mortality. And that's wrong. But the change historically in what the rates are, what the rates were if you are poor now versus poor 50 years

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ago, we're much better off now. And that's important, because it says that we actually can change, that it's not innate. And that's really, really important.

Infant mortality has always been an important signal of population health. It's about vulnerabilities that play out very early in life. It's about the wellbeing of women who are pregnant, and what their value is and place is in society as well. So infant mortality has built into it not only the infant but the whole structure in which people are actually making kids happen in the world.

Why you have higher rates among African American compared to white women with the same socioeconomic circumstances, partly that's going to depend how you measure the circumstances. A lot of people will look only, for example, at education as a measure. Education is one part of our socioeconomic position. It doesn't tell you necessarily about income. It certainly doesn't tell you about wealth.

So one question is: when you make these black-white comparisons, how well have they actually been measured, both at the time at which the infant is born, but also the life history of the mother, and probably also the father as well: Did they grow up under poverty or not? When you think about who are college-educated African American women now, you know that they likely have had a very different educational trajectory and economic trajectory than their white counterparts, because they're proportionally a smaller portion of African Americans and because it's less likely that their parents were also college-educated. So when you're looking at the contemporary experiences that are linked to a particular pregnancy, you have to think again about the history of the bodies that went into making that pregnancy happen.

That said, there's also reasons to believe that adverse experiences, stress during the course of pregnancy, also could perhaps lead to increased risk of preterm delivery, which by itself is the main contributor to low birth weight, which contributes enormously to risk of infant mortality.

But that would be one pathway of several, because you could also come up with other pathways that matter . . . discrimination based on the job and where one lives and what access one has to adequate food, for example. Well known fact that in poorer neighborhoods, particularly African American neighborhoods, you're less likely to have good supermarkets and good produce at affordable prices and good food at affordable prices. Better food tends to cost less in richer neighborhoods than it does in poor neighborhoods. So if you don't have good jobs, or you have lack of access to jobs, that's going to affect the conditions, and that will manifest in birth outcomes as well.

So the psychosocial part is a piece of the picture, and it's a very important piece of the picture that has not been looked at as it ought to be. But that's not to say that it necessarily eclipses the other very important pathways by which racism can harm health.

The Big Picture

What are the questions that we're actually asking about who bears the burden of disease and why? For example: Why [is it that we see] high cholesterol here, smoking there, high body weight here, all these different things? Why is it that we see the social patterning that we do, and particularly social inequities in health? What are the ideas that will help us with that? What are those broad social determinants of health? And how do they actually then translate specifically, physiologically, bodily, mentally, into the kinds of health outcomes that we're concerned about?

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What motivated me to write the paper “Epidemiology and the Web of Causation: “Has Anybody Seen the Spider” was actually arguments [that I] was having (in the good sense of the term) with colleagues about why people will be looking at one risk factor after another after another but not linking them to what was driving common sets of risk factors to move together.

The web of causation was introduced in 1960 to epidemiology as a way of thinking about multiple variables affecting health. It introduced this idea that there were “distal” variables, the social ones, but the real causes were “proximate” ones, the ones that were somehow in or near our bodies. But if you take seriously the idea of embodiment, then you realize that our bodies daily integrate our experiences, from in utero onwards. Therefore the distal is within us. It’s not just outside. That’s a very different view, a way of looking to our health to understand in part our place in society.

So that’s what that paper did. It began to address what structures this “web of causation.”

The Role of Public Health

Public health has always had a split persona. One part has been very much about the control of the state, and control of the state over people’s lives. But another part has been about the expression of people’s desire to live better lives. So in public health you have conservative traditions but you also have a deep-rooted public health tradition that is profoundly rooted in concerns of social justice, and understanding that the capacity to live healthy lives depends on having a society that’s premised on equity, not inequality and economic exploitation and oppression.

I fell in love with epidemiology as a field because here, looking at population health, you could see people in context. You could see where the burden of disease lay. You could see what was preventable. You could see changes across history. You could see that change could happen. You could see and learn that the history of the field was rooted actually in concerns around social justice.

It’s not as if we won’t die. We all will die. But the question is: At what age? With what degree of suffering? With what degree of preventable illness?

If one takes seriously the notion of human dignity and human equality, the fact that there are structured conditions that make it impossible for some people to live healthy lives is absolutely offensive.

The Political Economy of Health

If you have a social justice perspective on public health, it means that you have to seriously engage with the political economy of health. And what I mean by the political economy of health, or the social production of disease, is that you have to ask: Why is it that we have inequitable conditions, and why is it that [those conditions] have the health consequences that they do?

Consider for example, tobacco litigation. The tobacco companies are doing their best to sell what is still a legal product. And that product happens to cause an awful lot of damage, and it’s also understandable why a lot of people who smoke, smoke, because it also has very nice psychoactive properties for people that smoke. If you could have the psychoactive properties and not have all the lung and cardiovascular damage and all the other disease damage that goes

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with it, it would be another story. But the fact is, it's a harmful product. And it's also a legal product, and marketed aggressively (and it's being moved out of the US increasingly).

So there's a political economy of tobacco. It's not just a personal smoking habit. If you don't understand the political economy of that, you're not understanding important drivers of population health.

I was first introduced to this through occupational health. There's a very long history of debates about how one has occupational hazards. Are they just a necessary cost of the job? Can they be regulated? If they're regulated, it costs somebody money. Who does it cost? It costs the people who are benefiting from the fact that there are these different exposures that are part of the products that are being created, and other people are being exposed to the risk. So some people are being asked in their work to bear the burden of risk of exposures in order to make whatever the product is.

If this were the completely just and equitable society we would have those workers well protected in their jobs. But the fact that almost every single occupational health struggle has been exactly that, a struggle, has pitted the interests of those who are employing against those who are employed. And to miss that basic fundamental point is rather key.

Occupational health just gives you one very vivid example. But you can extend that example to questions about a living wage and a minimum wage. Whose interest does it benefit? It may help certain employers to have a lower wage. But what does that do for the community as a whole? Where does that get brought forward as a perspective?

These are questions that normally get dealt with in terms of politics and economics. But my point is, from a standpoint of social epidemiology, is to understand what the health consequences are of these inequities. But to do that, I also need to understand not just broadly how politics affects health; I also need to understand the specific pathways of embodiment by which that occurs. Because that matters for regulation and legislation. It matters to me to know what are the particular pathways by which work is harming health, not just in general. Because if you want to actually improve people's real conditions, or what is happening with regard to lead, and lead abatement and paint, and soil exposure around lead, you have to know the specific pathways by which people are being exposed, to make a difference for their health. Simply redistributing income is not enough, but it's absolutely huge in the picture.

Thinking Broadly and Deeply

If you really care about public health problems, you end up having to think broadly as well as deeply. You end up having to look at urban planning issues, as well as occupational health issues, as well as residential segregation issues, as well as particular marketing campaigns that happen in neighborhoods. All these things come together.

And I think one really important part about the idea of embodiment is that our bodies don't divide up and say: Today I will be a body that's concerned only about things that urban planners talk about. Tomorrow I'll be a body that's concerned only with things that people in industry think about. I'm actually a body that's living in, working in, moving through these spaces all the time, integrating all of the above. So if we understand that fundamental integrity of our bodies, and the ways in which it can be in fact assaulted, we have to take embodiment seriously and look across these different domains. So in my work I'm using, for example, area-based socioeconomic measures, having to learn about the history of census tracts, having to understand

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something about zoning and how zoning even happens. I'm no expert in all those different areas, but I started to learn more and know who to ask questions of.

And what was very apparent in reading some of the literature on urban planning and on zoning was that a key fundamental issue, in the United States at least about zoning, has been protection of property values. And the idea of creating residential places that are exclusively for single-family homes was very much about keeping certain people out of those neighborhoods, as much as defining the nature of those neighborhoods themselves. So not wanting to have multiple apartments, multi-family units, was very much tied to histories also of residential racial segregation. That benefited people who owned property. If they were the single-family homeowners, they didn't want those "other" kinds of people moving into their neighborhood and ruining their property values.

So you have big real estate in-interests; you have the interests of the individual property owners. These things have to be understood in how zoning ordinances get passed. Well, this would have an impact on how people get to live where they get to live, what kind of stores are in the area or not; what kind of industry is in the area or not, what's good mixed-use and what's not good mixed-use. When industry gets settled somewhere, [does it] choose to be in areas where there are poor people, and that's why it goes there, there's the least opposition (this is true about the toxic waste dumps)? Or is this where people can afford to live? And there's work that shows both are relevant.

There's lots of debates, and I think one thing that's really encouraging to see is there's now lots more dialog among people who do urban planning, urban health, and public health. And they're actually beginning to talk to each other more. And there're people who have far more expertise to understand this than I. I have not focused on those. But I know enough to know again that it's not random. It's not equally distributed. If you have less economic resources, you end up living in less safe areas, whether they're less safe because of interpersonal violence, whether they're less safe because of physical exposures. If you have money, you can buy your way out of that. But you have to ask: Who is producing the risk?

The other thing to keep in mind is that over the 20th century, for example, health status absolutely of all groups has improved. It's just that it's improved unequally. And it's improved faster for people who are better off.

The Historical Context of Public Health

I think it's always important when looking at what public health is doing, like any other sector of society, one needs to look at the political and historical context. So we have had different waves of the dominance of individualized, moralistic, punitive, state-controlled approaches to public health; and we have had some other waves (partly in the 1930's, partly in the 1960's and seventies even) of public health that's been more premised on a social justice perspective.

There is widespread sanitation, for example, in this country. You don't have, like you had in the early 1900's, many tenement houses with still no private bathroom. You still have abysmal conditions for a lot of people that are temporary workers, farm workers and otherwise. You still have incredible overcrowding in lots of areas, and particularly in Los Angeles, and the data are quite stunning about the amount of overcrowding that you have in households. But it's important to keep in mind the things that people have been able to accomplish in public health as well, to lead to better health, the sharp decline that happened actually in infant mortality following passage of the Civil Rights Act, following the desegregation of hospitals.

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That's an inherent tension in the field. But it's an inherent tension in urban planning; it's an inherent tension in transportation; it's an inherent tension in education. You see these same conflicts play out in every sector of society, because they're part of what is our social strife in this country. There are different views to be had.

What is true is that we have had in the United States a move of some to be more concerned now about the social determinants of health, and that's produced some backlash, which to me is probably a good sign, in the sense that if you were having no impact at all there would be no backlash. But at the same time, for example, under the Bush administration, the Centers for Disease Control has moved to a corporate model of public health in which the public are "consumers" of public health, and public health becomes a commodity like any other. That's, to me, absolutely against the history of what is effective public health. And so there are real fights in public health right now.

You see that in the fights that play out now, for example, on "abstinence only" education, around sex education. You see that play out in the fights around harm reduction. What is going to be a public health perspective? You will see that you will have conservatives- socially conservatives (whether or not they're economically conservatives is another question entirely) say that we should not be having any funding for programs that have anything to do with condoms; and also lead to distortions of evidence about the efficacy of condoms, with regard to prevention of sexually transmitted diseases. That's political ideology, flat out. And that's playing a role. So that's a fight in public health. And it's being fought in public health.

There's a very strong trend now in the United States—there has been (Reagan onwards, in particular)—of saying that you want minimalist government and maximum play of the private sector. That's behind a lot of the debates that go on now, in terms of neoliberal and/or neoconservative thought, and ways in which you have world trade organized and all the rest, that the market will solve problems. But what we see again and again and again in public health and other aspects of society is that an untrammled market is a market that trammels on people. And what it means is that you have systematic inequities produced. And that a role of government is in fact to help enable people to be able to live healthy lives, among other things.

First and foremost, we need universalistic systems that don't stigmatize and set up parts of the population as being the "undeserving" poor who should somehow be penalized for structural poverty in our society. We need to have universalistic systems so that everyone has, for example in the United States, access to appropriate healthcare. But we also need to say that we recognize that because of inequity in our society, not all needs are equal. Some people are in worse shape than others, and do actually need additional programming that is targeted to people who are worse off.

Health is not the only thing that's important. There's other aspects of our lives that matter too, and one wouldn't want to live life only around the principles of being healthy as the first command. You want to have an engaged life, and you can have people who are disabled to lead very, very happy and important and fulfilled lives. So it's not like health is the only thing that matters here. But you have to have government be able to step in and help structure what the conditions are that [will able] people to do that, and therefore does call for a more active role of government, and an engaged role of government.

But it's also not just government in the abstract, it's government by what political philosophy? And that's what matters fundamentally. There's work that's being done doing comparative analyses across different kinds of governments in Europe, for example, showing the effects of having social democratic policies versus other kinds of policies on population health. So it's not

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just government it's what kind of government. And it's what are the philosophical principles and political priorities and economic priorities of government that matter.