

UNNATURAL CAUSES

...is inequality making us sick?

Produced by California Newsreel with Vital Pictures. Presented by the National Minority Consortia.
Public Engagement Campaign in Association with the Joint Center for Political and Economic Studies Health Policy Institute.

In Sickness and In Wealth

TRT 56 min

NANCY KRIEGER: There's one view of us as biological creatures, we are determined by our genes, that what we see in our biology is innately us, because 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 the biology actually happens. We carry our history in our bodies. How else – how can we not?

DVD Chapter 1: Health in America

NARRATOR: Living in America should be a ticket to good health. We have the highest gross national product in the world.

MAN: Very happy to finally have *some* of my cars in one location...some of them.

NARRATOR: We spend two trillion dollars per year on medical care. That's nearly half of all the health dollars spent in the world. But we've seen our statistics. We live shorter, often sicker lives than almost every industrialized nation. We rank 30th in life expectancy.

DAVID WILLIAMS (Sociologist, Harvard School of Public Health): Especially of economically developed countries, we are at the bottom of the list.

NARRATOR: A higher percentage of our babies die in their first year of life than in Malta, Slovenia, Cyprus. How can this be? Is it just because 47 million of us have no health care coverage?

ICHIRO KAWACHI (Epidemiologist, Harvard School of Public Health): Health care can deal with the diseases and illnesses. But a lack of health care is not the cause of illness and disease. It is like saying that since aspirin cures a fever that the lack of aspirin must be the cause of the fever.

NARRATOR: So, why are we getting sick in the first place? Is it our American diet? Individual behaviors?

KAWACHI: Those behaviors themselves are in part determined by economic status. So our ability to avoid smoking and eat a healthy diet depends in turn on our access to income,

education, and what we call the social determinants of health.

NARRATOR: Written into our bodies is a lifetime of experience – shaped by social conditions often even more powerful than our genes.

NANCY KRIEGER (Social Epidemiologist, Harvard School of Public Health): Among twins who lived together until age 18, who basically grew up in the same households, so had at least a relatively similar exposure, if they diverged later in life, if one became professional and the other was working-class, they ended up with different health status as adults. This is among identical twins.

NICHOLAS CHRISTAKIS (Medical Sociologist, Harvard University): There are ways in which our society is organized that are bad for our health. And there's no doubt that we could reconfigure ourselves in ways that would benefit our health.

KID: You're a doctor now?

ADEWALE TROUTMAN: Yes, I'm a doctor now.

NARRATOR: Dr. Adewale Troutman knows this is true in Louisville, Kentucky.

TROUTMAN (to kid): I'm the director of health for Louisville. I'm a physician.

TROUTMAN (Director, Louisville Metro, Public Health & Wellness): I have the primary responsibility of overseeing the public health of over 700,000 people in this community.

TROUTMAN (to kid): ...think about a back up, just in case you don't make the NBA?

TROUTMAN: I do push personal responsibility. I do push self-determination in health. But it has to be seen in the context of the broader issues of social determinants, which are the major forces that shape the health outcomes of people and communities.

TROUTMAN (to kid): ... you did a fantastic job here.

NARRATOR: The details are in the data.

DVD Chapter 2: Louisville

SHEILA ANDERSON: This map shows infant mortality rates, in the east very low infant mortality rates...

TROUTMAN: For Louisville, we've generated data maps to get a clearer picture of what conditions correlate to illness and death across our city.

ANDERSON: Death rates from lung cancer, little bit better outcome in the east...

TROUTMAN: So the lighter shades mean lower rates of death and illness, and the darker shades mean higher rates.

ANDERSON: The highest rates of death from diseases of the heart are in the West End. And that even does extend...

NARRATOR: **Embedded in the data is a somewhat morbid by revealing indicator of population health: “Excess Death.”**

TROUTMAN: The notion of excess death says that you should be able to predict in any one time frame how many people in a population will die. And if the number that actually die is higher than that, that differential is “excess death,” premature death, death that should not have happened.

KRIEGER: 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?

ANDERSON: And then these are death rates from all types of cancer. And you see the same pattern.

NARRATOR: **In some areas, people die three, five, even ten years sooner than in others. Cancer and heart disease are almost twice the rate in some areas as in others. But Louisville has many faces. Its population is spread over 26 neighborhoods, or council districts, each with its own social and economic environment and each with a distinct health profile.**

TROUTMAN: ... and the further east you get the more affluent the communities become.

NARRATOR: **Furthest east and north is Council District 16, home to Jim Taylor. Taylor is a father, grandfather, and a CEO.**

TAYLOR FAMILY MEMBER: So is this going to be like when your Board chairman came and the grill didn’t work?

JIM TAYLOR: I like to think of myself as a pretty healthy person. I’m only 12 months away from the 60th year of my existence and I feel pretty healthy. I can’t do the things I did when I was 20 now that I’m almost 60, but I can do most of them in a little moderation (laughs).

JIM TAYLOR (to grandson): Is James gonna be here too? I like James...

NARRATOR: **Like many residents here, Taylor earns well into the six figures. His income places him in the top 1% of Americans. The wealth of that 1% is greater than that of the bottom 90% combined.**

JIM TAYLOR: We’re fortunate that the choices we have may be greater than people who have

less means than we do. I have a neighborhood where I can be outside and know that I'm safe and that I can exercise and walk. And I know that not every neighborhood in this country or in this city, that's true.

DVD Chapter 3: Jim Taylor / Whitehall

NARRATOR: Excess death doesn't seem to be a health issue in council district 16. Here life expectancy is nearly 80 years – two years longer than the national average.

NICHOLAS CHRISTAKIS: Most people can quite readily appreciate the fact that if you have more money you're going to be healthier. But it also turns out that that observation holds not just at the extremes. So, for example, let's say that there's a ladder. It's not just that the rich differ in some way from the poor in some kind of black-white or yes-no or zero-one kind of way. There's a fine gradation all the way along this ladder, both in wealth and in health.

NARRATOR: Researchers had wondered about this for decades. But in the 1970s, the pioneering Whitehall Studies offered hard data. Sir Michael Marmot has been lead researcher.

SIR MICHAEL MARMOT (Epidemiologist, University College London): I was interested in how social influences affect disease. And so we looked at people's grade in the hierarchy, their employment grade.

NARRATOR: Over more than thirty years, Marmot and his team charted the health of 29,000 British civil servants.

MARMOT: When we did this in the 1970s, the conventional wisdom was that it was the business executive who had a high rate of heart attacks. And what we found in Whitehall was the lower the grade of employment, the higher the risk of heart disease. But not just heart disease – every major cause of death. So if you were second from the top, you had worse health than if you were at the top; if you were third from the top, you had worse health than if you were second from the top ---- all the way from top to bottom.

NARRATOR: In Britain everyone has guaranteed health care. Still, Marmot found that death rates and illness correlated to status, even after he controlled for unhealthy behaviors.

MARMOT: A combination of smoking, blood pressure, cholesterol, overweight, sedentary life style explained no more than about a quarter of the social gradient in mortality. So heart disease among smokers, if a poor person's smoking, he or she has a higher rate of disease than if a wealthy person is smoking.

Then a "classless" country like the United States said we wouldn't find that here, because we don't have social classes like they do in Britain. And of course once people started to look at the United States, they found social gradients in disease of the same order as those we found in

Britain.

NARRATOR: In America, the wealth health gradient looks like this: Over 70% of affluent American report very good to excellent health – almost twice as many as poor Americans. No surprise. But in the middle levels, good health decreases significantly. This translates into a reverse slope for chronic disease. Diabetes: Low-income Americans have twice the rate of disease as the affluent. And for those in the middle, it's *still* almost twice the rate. A similar pattern holds for stroke, heart disease, eventually contributing to excess death, especially for middle and low income Americans.

MARMOT: The conditions that show up in stark form in the poor health of the poor are showing up in somewhat less stark form in people who we don't think of as poor. The large mass in the middle of society are also being affected. We find these social gradients in health everywhere.

TROUTMAN: When I first came to Louisville I was struck by how different the various communities look. And I began to wonder and then understand that there's a direct connection between the health of the population in Louisville and the social conditions that can be seen as you go from one council district to another.

DVD Chapter 4: Gradient / Tondra Young

NARRATOR: South of Jim Taylor's home is Council District 24. Tondra Young lives here. Young is 37, a lab supervisor – and she's just gotten engaged.

TONDRA YOUNG: Financially, I'm comfortable. I'd like to be rich someday, but right now I'm fine. I'm doing a whole lot better than my mom was. Just bought a new home. And I would describe my family as a middle class family now, yeah, I would.

NARRATOR: To get ahead, Tondra went back to college while working full time.

TONDRA YOUNG: I am going to graduate in the spring; I'm very excited about that. I've traveled a long ways to even get to that point.

NARRATOR: Research shows that college graduates live on average two and a half years longer than high school graduates.

TROUTMAN: Education offers a way to move up the wealth gradient, it connects to the type of job; it connects to optimism about the future. But getting it depends on whether you can afford it.

NARRATOR: Tondra's degree has left her \$20,000 in debt, on top of her mortgage. In the last five years, the cost of college has increased 35%. Only 15% of adults in Tondra's council district have a college education, compared with over 63% in Jim Taylor's district. Life expectancy here is 75 years, four years less than in Jim Taylor's.

DVD Chapter 5: Corey Anderson

NARRATOR: Northwest from Tondra Young's district is Council District 21. This is where Corey Anderson lives with his wife Angelique and their two teenagers. Corey's lived in this part of town all his life.

COREY ANDERSON: This is my mother. This is the woman who taught me how to iron my clothes – put my creases in, get the wrinkles out. I give her all her due praise and the glory for teaching me how to keep myself nice and neat.

NARRATOR: When Corey was young, his mom worked full time. And her job was more than just a paycheck.

COREY ANDERSON: She had just purchased the house, everything was great for me – I'm doing good, you know, I'm being blessed. Then all of a sudden the company moved. It took a major toll on her when she lost her job. She got ill, her blood pressure went up, y'know, and had to go to the doctor more often. It was just something that really took a toll on her, y'know, mentally and physically. As well as me and my brother.

NARRATOR: Eventually Corey's mom did find work, but she had to leave her home. For most Americans, home ownership is a way to build financial security.

ANGELIQUE ANDERSON: I always wanted to have a house with a big back yard, with a fence, and my kids could run around, have their own room. A basement.

COREY ANDERSON: A basement, with a pool table... I want to own a house. I want to own a house so that if anything happened to me, she wouldn't be put out on the street.

NARRATOR: Corey and Angelique both work full time. Their combined salaries place them right at the national median income: about \$48,000. Half of all American households live at this income level or below.

COREY ANDERSON: As far as, like, saving, we don't earn enough to say we're going to put away \$250 and don't touch it ...

ANGELIQUE ANDERSON: It's going to have to take to work two jobs to really make it.

COREY ANDERSON: You ain't working two jobs.

ANGELIQUE ANDERSON: I didn't say me!

NARRATOR: At 37, Corey has already been diagnosed with hypertension, joining one third of the resident in Council District 21. Average life expectancy here is two years shorter than in Tondra's council district – six years less than in Jim Taylor's. Troutman sees social conditions change even more markedly as he drives through Louisville city

center, across Ninth Street.

TROUTMAN: There's almost a cultural demarcation in the city where on one side of this particular street, Ninth Street, there's a tremendous amount of new development going on, condos rising up. The downtown business environment is very much alive. And right across the street on Ninth Street, is where the beginnings of the first set of projects are, public housing projects.

Very little business in this area, primarily fast foods, small business, barbershops, beauty salons, pawn brokers, nail parlors, check cashing, liquor stores. 'Payday Cash, Cash when it counts.' And it seems like every city has a Ninth Street. Whether it's 110th Street in Harlem or South Side of Chicago. Or sections of Watts...

ANA DIEZ ROUX (Epidemiologist, University of Michigan): Of course these differences are not a natural thing. It's not the design of nature that these environments are going to be different. They arise as a result of policies or the absence of policies that create these enormous inequalities and resources.

TROUTMAN: Is there adequate access to chain supermarkets in this area? The answer is no. As a matter of fact, why aren't there zoning laws to regulate fast food outlets here? Enterprise zones to build businesses? Better transportation? Why isn't there more mixed income housing? You know, all these things and others are health policy.

DVD Chapter 6: Mary Turner

NARRATOR: How social policies can drive health becomes even more apparent in Council District 5, the home of Mary Turner.

MARY TURNER: This is where we usually come down for shoes, school shoes and school clothes... Up here is Save-A-Lot...

NARRATOR: A third of the residents here have never received a high school diploma. Almost 30% live at or below the poverty line, like Mary. Life expectancy in Mary's council district is more than three years less than in Corey's district, nine years less than in Jim Taylor's.

MARY TURNER: Of course we're dying young, versus 80 in the eastern section of the county. Y'know, because those people are more affluent, and they have things open to them.

NARRATOR: Mary is 49, with three children at home. Her husband is disabled.

MARY TURNER: You have to eat what fits your budget. So when you get these, a family size, and they're a dollar 99, and you can feed four people with it, y'know, versus maybe four with four dollars, I mean, what's your choice going to be? Especially on a \$200 a month budget for food. Food that we buy would last about 2 weeks. We spend cash for part of the month, when we

get SS and SSR. We spend about \$125-175 a month for groceries if not more. About the end of the month, things get real spare. Y'know, I got 3 teenagers, so about the end of the month I'm reducing to one meal a day, so I make sure the kids got everything they need.

NARRATOR: 12% of the residents here are unemployed – more than double the national average. As is Mary for now, so she volunteers at the neighborhood museum she loves.

MARY TURNER: I do feel things are out of control sometimes. Because as soon as you try to better yourself... If I even get a job, you know, then I might lose my medical coverage, and my medical coverage is necessary. You know, because I have to have my medications in order to work. I had a heart attack several years ago. It was mild, but it was still a heart attack. Thyroid problems, you know. And arthritis, you know, a little bit of everything.

TONY ITON (Director, Alameda County, CA Public Health Dept.): We can predict on aggregate, based on where somebody lives, high school graduation rates, and their income, how long they will live and when they will die. Now, obviously there'll be exceptions to that, but for the most part we'll be right. And we should not be able to do that. Your life expectancy, how long you will live, should not be dependent on, essentially, the resources you have accessible to you.

DVD Chapter 7: Biology of Stress

S. LEONARD SYME (Epidemiologist, UC Berkeley): We know that social class is the most important determinant of health above any other risk factor. But what does social class mean? Is it housing, or medical care? Education?

NARRATOR: Or is it power? Confidence? A sense of security?

SYME: Which one of those is most important? Hopeless, they're all inextricably intertwined, can't take them apart. So it's really a challenge.

NARRATOR: But how do we carry social class in our bodies? How does it get under our skin?

SYME: As you go through the alternative explanations, the one that seemed most impressive to me was this idea of control of destiny. I don't like that word. What I mean by it is the ability to influence the events that impinge on your life, even if it means not doing anything, but one way or the other, managing those pressures.

MICHAEL MARMOT: There're all sorts of ways we've devised for depriving people of a sense of control over their lives. Living in a community where it's not safe to go out.

ITON: Middle class families having to work two jobs. Middle class families not being able to spend time with their kids.

MARMOT: Being relatively poor, having job insecurity. All of those things will decrease

control over people's lives, and all of those things are likely to increase risk of illness. And there are good biological reasons why that might be the case.

NARRATOR: When we feel threatened or don't have control in our lives, one critical biological reaction kicks in: the stress response. When the brain perceives and threat, it signals the adrenal glands to release potent stress hormones. Among them, cortisol. They flood your bloodstream with glucose, increase your heart rate, raise blood pressure... They put your body on alert.

BRUCE McEWEN (Neuroscientist, Rockefeller University): Cortisol improves memory, enhances immune function. It helps you re-establish energy supplies. Mother Nature put all of this stuff in there to help us survive.

DAVID WILLIAMS: Stress helps to motivate us. In our society today everybody experiences stress. The person who has no stress is a person who is dead.

NARRATOR: A normal stress response spikes up with needed, then turns off. But what happens when pressures are relentless, and you lack the power and resources to control them? When the stress response stays turned on for months? Or years?

McEWEN: These systems begin to work overtime. We produce too much cortisol. Chronically, cortisol can impair immune function. It can actually inhibit memory and can even cause areas of the brain to shrink.

MARMOT: When you get prolonged activation of these stress pathways, they in turn affect heart rate variability, the ability to handle insulin and glucose, and those in turn, we think, increase risk of diabetes and heart disease.

ICHIRO KAWACHI: Because of the stresses, the wear and tear in the body's systems is reflected ultimately in higher rates of disease and accelerated aging.

NARRATOR: University Hospital, Louisville's major teaching hospital. You'd expect to see the wear and tear of stress in the bodies of the patients. But as a large hierarchical workplace, much like any other, University Hospital reveals more. Stress is everywhere.

KRISTI JACKSON (Administrative Supervisor, University of Louisville Hospital): There are days where the pager that I carry goes off non-stop. And it gives me a horrible headache. And I just think that the next time I hear a page or a beep, I'm going to throw it against the wall.

NARRATOR: Corey Anderson, Floor Technician, is stressed. So is Tondra Young, supervisor of a clinical lab. And Jim Taylor, CEO of the hospital, is stressed. But neither chronic stress nor its health effects are equally distributed on a hierarchy.

DVD Chapter 8: Monkeys and Cold Virus

CAROL SHIVELY: Alright, that's a chase and a flee. That one is dominant over the one that

ran away.

NARRATOR: Consider *this* hierarchy... of macaque monkeys. Primatologist Carol Shively has been studying macaques for almost 30 years.

CAROL SHIVELY (Comparative Psychologist, Wake Forest University): Same thing happened. He can play that game all day long with her, cause he's dominant. It's a very mild sort of harassment. A dominant animal has complete control over his life. He can go wherever he wants in the pen to do whatever he wants. That animal has all the control that it needs to create an optimal environment for himself. In contrast, subordinate animals have almost no control over what happens to them. They have to be watching all the time. With that high-level vigilance comes increases in heart rate.

NARRATOR: Macaques with less power and control are in a state of chronic stress. The evidence is in their stress hormone levels.

SHIVELY: They have higher levels of cortisol circulating in their blood. It's the same chemical that is released in human beings in response to stress. And when it is sustained at high levels it starts having negative effects on cellular function and tissues.

NARRATOR: Shively can actually look into the hearts of macaques to see the damage from chronic stress.

SHIVELY: This is a cross-section of the artery of a dominant monkey. The hole in the center is large and that means that there's lots of room for blood to flow through. This is the artery of a subordinate animal. So what's happened here is that a subordinate monkey has developed a much larger atherosclerotic plaque than a dominant animal, who lived for the same amount of time, ate the same amount of diet and so on and so forth. And that is simply due to the stress of social subordination. Now, if this monkey keeps developing atherosclerosis at this increased rate relative to this monkey, this one is going to end up with an artery that is completely compromised and have a myocardial infarction.

NARRATOR: In other words, a heart attack. Monkey are one thing, humans another. Do we see a similar pattern? That's what psychologist Sheldon Cohen wanted to know. He used the same stress measure Shively used, levels of cortisol.

RESEARCHER: Who's next?

SHELDON COHEN (Psychologist, Carnegie Mellon University): We have people chew on little cotton swabs till they get wet. And take it and analyze it for cortisol.

NARRATOR: He compared their levels with their socio-economic status.

COHEN: And to tell you the truth, I'm always somewhat surprised when I see these data. It turns out the more education you have, the less cortisol you release during the day. The more income you have, the less cortisol you release during the day.

NARRATOR: Then Cohen wanted to test the effect of stress on our bodies. His focus: our immune system.

COHEN: Basically we brought healthy people in and we exposed them to a virus. We actually do this by putting a drop in their nostrils that has a cold virus in it.

NARRATOR: Cohen's finding? Those with less chronic stress caught fewer colds than those with more stress. While a cold virus may seem minor, it could signal more serious health problems.

COHEN: The cold study is a paradigm we can use that allows us to see how effectively the immune system is operating, which has implications for not only colds and other infectious diseases, but autoimmune diseases and some kinds of cancers.

DVD Chapter 10: Demands & Control

NARRATOR: So... higher status, less stress. Less stress, better immune function.

JIM TAYLOR: You still like this place compared to where you were before?

NARRATOR: Being a CEO is a high demand job, but Taylor usually has the power, resources and control to manage that pressure. Tondra Young has a high demand job, but less power and control.

TONDRA YOUNG: Sometimes it can get a little stressful, because I have 50-something employees running around on three different shifts in different buildings. Sometimes it can be tough for me, 'cause they might not like the decisions that I've made for the department, but I'm making the best decisions for the department and for patient care.

COREY'S MANAGER: Looking good in here...

COREY ANDERSON: The control that I have on my job is limited.

NARRATOR: Corey Anderson's job requires him to respond to a lot of demands from above.

COREY ANDERSON (on the phone): Mission complete on the first floor; I want to know what my next project is.

NARRATOR: In one scenario, Corey is first told to clean patient rooms.

COREY ANDERSON: But I got pulled to help out with trash. So I started on the trash and when I pull the trash, I got a page to tell me to go back to the rooms. I was bounced around.

Corey (on the phone): You want these scrubbed?

NARRATOR: Like Corey, one in every five American men works in a high demand/ low control job. They're more likely to experience high blood pressure at work. And, their blood pressure doesn't fall as much as men with more control – even when they sleep.

MICHAEL MARMOT: It's not only about work. It's about where you are in the hierarchy, and how that relates to the circumstances in which you live, grow up, as well as work.

COREY ANDERSON: So this is basically what I call my neighborhood. I don't venture no farther, because I'm not comfortable with venturing back there, and back over that way. A lot of things do occur back in the back. And my wife she knew a cab driver who was murdered back there in the back.

ANGELIQUE ANDERSON: Two cab drivers, one got shot in the head. The other one got shot and they dropped him off in his yard. Remember that, Corey? Right over here on Kingston?

COREY ANDERSON: I thought he got strangled.

ANGELIQUE ANDERSON: Oh yeah, they strangled him. And then they shot another young boy...

NARRATOR: The accumulation of stressors, or the accumulation of resources to manage them. So much is determined by class.

JIM TAYLOR: I'm well paid for what I do. I'm fortunate enough to be able to have a choice of where we live. More than half the mornings when I come to work, I have to stop for deer to go by, and that kind of thing is just what happens in this neighborhood. We have the time to exercise, because the lives we live don't require us to try to find a bus that we have to ride for two hours to get to our job.

And on the other end, we don't have huge demands on us when we're not working. Jackie and I talked a lot about healthy choices of eating. Well, that doesn't come for free. We have the ability to get to places, where one can make those choices. We have the time to prepare the meal that we had the money to buy.

NARRATOR: So a certain economic status brings you control over other parts of your life... the kinds of places you can live, the kinds of vacations you can take, or if you can take a vacation.

ANGELIQUE ANDERSON: We went by bus, all the way from here to Miami. (laughs) We got on this party bus. And once we got on that boat, brother... it was over for me!

COREY ANDERSON: Throw your hands up...that's how she was.

ANGELIQUE ANDERSON: I was like, hallelujah! No kids... (laughs) It was just a break, a

piece of... It's just something that we needed. We never get to go nowhere. We're always with the kids or babysitting somebody else's kids...

MARY TURNER: Vacation to me is going to the park, sitting by the river and watching the river flow by. That's my vacation, little short things. It's not, there's no family vacations, it doesn't happen.

And my children, I think they're living with whole lot of stress. A whole lot, y'know. And they are, y' know, kind of at a loss for doing anything about it. I mean, they're young; what can they do? They don't like being by themselves on the streets. They don't like to walk by themselves; they want somebody with them. That's why you see them going two or three. That happens a lot around here.

DVD Chapter 10: Children & Poverty

NARRATOR: Contrary to some stereotypes, most of the poor in America are white. Mary grew up poor. Her children join the 21% of all American children who live in poverty. The unremitting stress of childhood poverty can have lifelong health consequences.

JACK P. SHONKOFF (Pediatrician, Harvard Center on the Developing Child): Just the burden of day after day not knowing whether there's going to be food on the table or not knowing whether you're going to have a roof over your head, is actually toxic to the brain. And the reason for that is because when the stress hormone levels go up, if it stays up for days and weeks on end, those hormone levels literally interfere with the development of brain circuitry, they interfere with the development of the connections in the brain.

So we begin to see in children who experience toxic stress long-term impacts of what's basically been chemically damaging to their brains. The concept here is the pile-up of risk, the cumulative burden of having things that are increasing your chances of having problems, as opposed to the cumulative protection of having things in your life that increase the likelihood that you can have better outcomes.

NARRATOR: Economic security may offer some of those cumulative health benefits. In another cold virus study, Cohen used a familiar proxy for that security: home ownership.

SHELDON COHEN: We asked people if their parents own their own home. Does whether or not their parents owned their own home when they were a kid predict whether they'd get a cold when you're an adult? We now take them as an adult, we expose them to a virus - it turns out it's a great predictor, and it's a graded predictor. That is, the more years their parents owned a home, the less likely they'd be to get a cold when we expose them to a virus.

SHONKOFF: All of it really comes down to whether you're building a strong or weak foundation in early childhood. When you pile up risk factors it ends up being translated into a weaker foundation, a brain that's been subjected to more disruption, an immune system that's been more threatened.

DVD Chapter 11: Racism's Impact

NARRATOR: And poor or not, if you're not white, the prognosis can be worse.

ADEWALE TROUTMAN: I'm clear that on the social gradient, that line that we talked about earlier, that I'm on the top of that line. I'm highly educated. I have a medical degree. I have several other degrees. I make good money. I live in a good neighborhood. But I know that according to the research, if you're an African American, no matter what your social status, your socioeconomic status, your health outcomes are going to be worse than your white counterpart.

NARRATOR: African Americans die earlier and have higher rates than whites of many chronic diseases *across* the social gradient.

S. LEONARD SYME: Why should there be an elevated risk of disease in African Americans of higher social class? Bad genetics... Not true. When you look at other countries where the discrimination is not as prevalent you don't find those kinds of rates. So something's happening.

TROUTMAN: As a physician, I've been followed around the store. When I go in to buy something, I've been looked at askance. I've seen a woman grab her purse when I come into the elevator. And for goodness sake's - I'm Dr. Troutman! You know, why... This shouldn't happen to me, but it does.

SYME: The whole idea of vigilance and the burden that it takes to be constantly on guard over time, really does change biological markers and make people vulnerable to getting sick.

NARRATOR: Racial discrimination can be an added stressor, linked with high blood pressure, increased rates of infant death, coronary artery disease... Troutman knows what this can lead to. He authored a cornerstone study with former Surgeon General David Satcher on excess death among African Americans.

TROUTMAN: It was a national study and we found over 83,000 excess deaths per year in the African American community alone.

NARRATOR: 83,000 excess deaths each year. That's the equivalent of a major airliner filled with Black passengers falling out of the sky every single day, every year.

MARMOT: If these inequalities in health, this gradient in health, was a fixed property of society and never changed, then you'd say, "We're stuck." But that's not the case. The magnitude of the inequalities in health changes over time. It can get rapidly worse, and if it can get rapidly worse, it ought to be possible to make it rapidly better.

NARRATOR: Reducing health inequality is not impossible. As a society, we've done it before.

DVD Chapter 12: Social Reforms

NARRATOR: A century ago, the average American lived only about 48 years. As living conditions and medical care improved, we began living longer. Those improvements reached more Americans through social reforms – like universal education, better sanitation, the 8-hour workday, even a controversial tax on personal income.

ARCHIVAL PRESIDENT ROOSEVELT: This social security measure...

NARRATOR: The 1930s. An array of new social programs prevented an economic crisis from becoming an even worse health crisis.

ARCHIVAL PRESIDENT ROOSEVELT: ...to increased services for the protection of children and the prevention of ill health.

NARRATOR: Returning World War II veterans got the GI Bill. It offered homes and education and, eventually, the kind of wealth that sets health on an upward trajectory. Still, most African Americans were excluded.

The 1950's. The middle class was growing. Income inequality was declining. Prosperity and medical advances extended our lives even longer.

NICHOLAS CHRISTAKIS: But the vast majority of improvements in health in our society over the last century have had very little to do with medical innovation. What really counts is other kinds of things we can do, and those other kinds of things tend to be non-medical things. Like, thinking about the distribution of wealth in our society, or providing public health infrastructure, or better education for people, better housing – all of those things which aren't medical phenomena. It's all those that are really material for public health.

SPEAKER AT CIVIL RIGHTS MARCH: Black and white together...

NARRATOR: In the 1960's, civil rights laws, anti-poverty programs, Medicare, Medicaid... all brought the benefits of prosperity to those who hadn't yet shared in it.

DVD Chapter 13: Wealth Gap

DAVID WILLIAMS: During the 1960s to early '70s, the black-white gap in income narrowed and the black-white gap on multiple indicators of health also narrowed. What this says very eloquently is that economic policy is a health policy. And when we improve economic circumstances and narrow the economic gap we improve the health.

CHRISTAKIS: So we can potentially intervene or potentially see a world in which while we do not eliminate hierarchy, we constrain the way in which hierarchy affects human beings. So it's not just that the people at the top can afford those things and get them, and those at the bottom

that can't do not, if we provide them to all, we still have some hierarchy, but now we've kind of reduced the disparities.

NARRATOR: But since the 1980's, we've gone in the opposite direction.

MAN IN 1980'S UNEMPLOYMENT LINE: I used to work for these people, now I gotta stand in line to get a box of cheese.

1980'S MAN #2: Waiting for the Reagan trickle-down, and it's not trickling.

NARRATOR: In the midst of a recession, government slashed social programs, deregulated industry, reduced taxes for the wealthy... with consequences that remain with us today.

WARREN BUFFETT (at Senate Finance Committee Hearing, Nov. 14, 2007): In a country that prides itself on equality of opportunity, it is becoming anything but that as the gap between the super rich and the middle widens in dramatic fashion.

NARRATOR: Warren Buffett, the world's third richest man...

WARREN BUFFETT: Here are a few figures on the Forbes 400. Other people save their Playboy magazines; I save the Forbes 400 magazine. Twenty years ago, the total wealth of the list was then \$220 billion. Now it's \$1.54 trillion, exactly a seven for one increase. Tax law changes have benefited this group, including me, in a huge way.

NARRATOR: Wealth inequality reached a record low in 1976. Since then it has soared. Today, we are far and away the most unequal of the world's rich democracies.

WARREN BUFFETT: During that same period, the average American went exactly nowhere on the economic front. He's been on a treadmill while the super rich have been on a spaceship.

WILLIAMS: The poor are getting poorer and the middle class is getting squeezed. With what we know in terms of health, that suggests that we will have even more health problems in the future.

NARRATOR: That's because here, health depends largely on our individual assets and resources.

TONY ITON: In America, it's the strongest relationship you'll find anywhere, that wealth pretty much equals health. And that's true for me as it is true for you know the poorest person in the quote-unquote inner city, and people living in the suburbs.

DVD Chapter 14: Other Countries

NARRATOR: The wealth-health gradient is not as steep in most other industrialized

nations. Many use their resources to ensure that more of their citizens have the freedom to lead flourishing healthy lives. All guarantee universal health care coverage, mandate at least four weeks of paid vacation. France's minimum wage has been twice as much as ours. Ireland provides free college education. Sweden's family policies reduce child poverty to a mere 4.2% compared to our 21%.

JACK SHONKOFF: It's tragic actually that we are the richest country in the world and that we are far behind many other countries in terms of how we use our resources to make life better for families with young children, and thereby invest in our future.

ITON: Those countries have found ways to break the tight linkage between income and wealth and health. And they invest in better education systems, housing support, childcare, access to recreation. They subsidize through tax policy, mechanisms that break that strong relationship. Those countries where wealth is more equitably distributed are healthier.

DVD Chapter 15: Community Initiatives

NARRATOR: Here in the U.S., many communities are taking health matters into their own hands.

ADAWALE TROUTMAN: I'm glad you're here. I'm excited that you're here because this is the mosaic of people, partnerships, organizations, agencies that we need to come together to make this a reality.

NARRATOR: In Louisville, the city's new Health Equity Center trains citizens to take political action and design policies that address the health needs of their community.

TROUTMAN: It's not enough to talk about individual behavior and feel that if we could just get people to exercise more and eat more fruits and vegetables everything would be all right. That is not the case. The bigger issues are the social conditions that drive the ultimate health status of populations.

NARRATOR: In Seattle, Washington, community activists target unhealthy housing – and the asthma that keeps many from leading productive lives.

TIM TAKARO: The air inside the home is actually healthier than the air outside.

TROUTMAN: Part of good public health is empowering communities. And I don't think we should shy away from that. And empowering communities means creating those conditions where people become empowered and make the changes they need to control their lives. Power is a public health issue.

TERROL DEW JOHNSON: And here's my grandpa. He died of diabetes, diabetes and the complications of diabetes...

NARRATOR: In Arizona, Native Americans are farming again. With better food and new economic resources, they are beginning to take control of their destinies – and diabetes.

TROUTMAN: Of course the proof is in the pudding. The proof is in the next steps: what we can organize, what we can implement, and how we're able to move this community ahead. It's about human rights. It's about addressing the social determinants of health in order to make a difference. It's about fairness. It's about health equity and social justice.

MICHAEL MARMOT: We've got to create a movement where people understand we're talking about leading more flourishing lives. We need to do certain things 'cause they're the right things to do. But it's an issue of individual self-interest. If I live in a just society, I'll benefit.

TONY ITON: An economist will tell you it's inefficient to have people who could otherwise be contributing during their productive years to the overall benefit of society caught up in hospitals that create a net dependence on society, so they're drawing resources down from society rather than producing resources that benefit the society as a whole.

NARRATOR: And the cost of that lost productivity to business due to chronic illness is staggering. It's now estimated at over one trillion dollars a year. Worse, one study predicts that today's generation of young Americans may be the first in a century to live shorter lives than their parents.

TROUTMAN: And I would hope that we would all be able to-to gravitate towards an egalitarian society where health is seen as a basic human right.

TROUTMAN (to kids): Somebody told me this table had the fastest kids in all of Louisville – is that true?

TROUTMAN: But even if you're not willing to go that far, you'd better be involved in this, because self-interest would dictate that you're at risk too.

ITON: We can wait for things to happen and try to repair them in this mode of damage control. Or we can invest early, try to set good trajectories for families and children in communities.... We can do those things. Or we can engage in damage control. We have a choice.

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