

KRIEGER TEASE

[01:00:00]

Collage of misc scenes, e.g. woman with ipod, bus, cell animation, little kids, woman with fancy hat, people on the street

NANCY KRIEGER (PARTIALLY O/C):

There's one view of us as biological creatures, that we are determined by our genes, that what we see in our biology is somehow 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?

TITLE SEQUENCE

[01:00:46]

SHOW TITLE:

“In Sickness and in Wealth”

ACT ONE

[01:01:26]

Collage: Jogger, woman with newborn, kids playing

LIVING IN AMERICA SHOULD BE A TICKET TO GOOD HEALTH.

Gordon Stauffer entering his garage

WE HAVE THE HIGHEST GROSS NATIONAL PRODUCT IN THE WORLD. ¹

GORDON STAUFFER (O/C):

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

WE SPEND TWO TRILLION DOLLARS PER YEAR ON MEDICAL CARE. ²

Medical collage

THAT'S NEARLY HALF OF ALL THE HEALTH DOLLARS SPENT IN THE WORLD. ³

Slowly scroll down UNDP list of life expectancy

BUT WE'VE SEEN OUR HEALTH STATISTICS...

WE LIVE SHORTER⁵, OFTEN SICKER LIVES THAN ALMOST EVERY INDUSTRIALIZED NATION. ⁴

WE RANK 30TH, IN LIFE EXPECTANCY. ⁵

Collage of misc scenes

DAVID WILLIAMS (O/C):

Especially of the similar economically developed countries, we are at the bottom of the list.

[1:02:13]

Shots from newborn division in hospital

A HIGHER PERCENTAGE OF OUR BABIES DIE IN THEIR FIRST YEAR OF LIFE THAN IN MALTA, SLOVENIA, CYPRUS.⁶

Medical collage

HOW CAN THIS BE?

IS IT JUST BECAUSE 47 MILLION OF US HAVE NO HEALTH CARE COVERAGE?⁷

KAWACHI (PARTIALLY O/C):

Health care can deal with the diseases and illnesses. But a lack of health care is not the cause of illness and disease. It's like saying that since aspirin cures a fever that lack of aspirin must be the cause of the fever.

[01:02:48]

hospital staff leaving the hospital, misc scenes on street

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.

WRITTEN INTO OUR BODIES IS A LIFETIME OF EXPERIENCE – SHAPED BY SOCIAL CONDITIONS, OFTEN EVEN MORE POWERFUL THAN OUR GENES.⁸

NANCY KRIEGER:

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.

CHRISTAKIS:

There are ways in which our society is organized that are bad for our health. There's no doubt there's ways we can reconfigure ourselves in ways that would benefit our health.

[01:04:4]

Dr. Adewale Troutman with kids

DR. ADEWALE TROUTMAN KNOWS THIS IS TRUE IN LOUISVILLE KENTUCKY.

Sound up with kids saying: “.. you’re a doctor?”

Troutman: “I’m a doctor now. I’m the director of health for Louisville. I’m a physician.”

TROUTMAN (V/O):

I have the primary responsibility of overseeing the public health of over 700,000 people in this community.

Troutman: “...think about a back up, just in case you don’t make the NBA?”

TROUTMAN OC:

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: "... you did a fantastic job."

THE DETAILS ARE IN THE DATA.

Sheila Andersen showing GIS maps: "This map shows infant mortality rates, in the east very low infant mortality rates..."

TROUTMAN (V/O):

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

[01:04:54]

Sheila Andersen showing GIS maps: "Death rates from lung cancer, little bit better outcome in the east..."

TROUTMAN VO:

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

Sheila Andersen showing GIS maps: "The highest rates of death from diseases of the heart are in the West End. And that even ..."

Tracking shot of cemetery

EMBEDDED IN THE DATA IS A SOMEWHAT MORBID BUT REVEALING INDICATOR OF POPULATION HEALTH... EXCESS DEATH.⁹

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?

Sheila Andersen showing GIS maps: "And then these are death rates from all types of cancer. And you see the same pattern."

IN SOME AREAS, PEOPLE DIE THREE.... FIVE EVEN TEN YEARS SOONER THAN IN OTHERS.¹⁰ CANCER AND HEART DISEASE ARE ALMOST TWICE THE RATE IN SOME AREAS AS IN OTHERS.¹¹

[01:06:02]

BUT LOUISVILLE HAS MANY FACES.

Montage of images.

ITS POPULATION IS SPREAD OVER 26 NEIGHBORHOODS, OR COUNCIL DISTRICTS.¹²

EACH WITH ITS OWN SOCIAL AND ECONOMIC ENVIRONMENT...AND EACH WITH A DISTINCT HEALTH PROFILE.¹³

Troutman driving.

TROUTMAN:

And the further east you get the more affluent the communities become.

[01:06:32]

**FURTHEST EAST AND NORTH IS COUNCIL DISTRICT SIXTEEN - HOME TO JIM TAYLOR.¹⁴
TAYLOR IS A FATHER, GRANDFATHER AND A CEO.¹⁵**

Scene with Taylor family at barbecue: so is this going to be like when your Board chairman came and the grill didn't work?

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.

Scene with Taylor family at barbecue: Is James gonna be here too? I like James...

[01:07:12]

LIKE MANY RESIDENTS HERE¹⁶, TAYLOR EARNS WELL INTO THE SIX FIGURES.¹⁷ HIS INCOME PLACES HIM IN THE TOP 1% OF AMERICANS.¹⁸ THE WEALTH OF THAT 1% IS GREATER THAN THAT OF THE BOTTOM 90% -- COMBINED.¹⁹

JIM TAYLOR (O/S PARTIALLY):

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. That I can exercise and walk. And I know that not every neighborhood in this country or in this city, that's true.

EXCESS DEATH DOESN'T SEEM TO BE A HEALTH ISSUE IN COUNCIL DISTRICT 16.

HERE LIFE EXPECTANCY IS NEARLY 80 YEARS¹⁰ – TWO YEARS LONGER THAN THE NATIONAL AVERAGE.⁴

NICHOLAS CHRISTAKIS (O/S PARTIALLY):

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.

[01:08:33]

Misc scenes in mall, Whitehall studies article animation

RESEARCHERS HAD WONDERED ABOUT THIS FOR DECADES.^{20a} BUT IN THE 1970S, THE PIONEERING WHITEHALL STUDIES OFFERED HARD DATA. SIR MICHAEL MARMOT HAS BEEN LEAD RESEARCHER.^{20b}

MARMOT:

I was interested in how social influences affect disease. And so we looked at people's grade in the hierarchy, their employment grade.

Misc shots of office workers

OVER MORE THAN THIRTY YEARS, MARMOT AND HIS TEAM CHARTED THE HEALTH OF 29,000

BRITISH CIVIL SERVANTS. ^{20b}

MARMOT (O/S PARTIALLY):

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.

[01:09:40]

IN BRITAIN EVERYONE HAS GUARANTEED HEALTH CARE. ²¹

STILL, MARMOT FOUND THAT DEATH RATES AND ILLNESS CORRELATED TO STATUS, EVEN AFTER HE CONTROLLED FOR UNHEALTHY BEHAVIORS. ^{20c}

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.

Montage of Americans intercut with Marmot on camera

MARMOT:

When 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.

Misc shots of people on escalator, animation of narration statistics.

IN AMERICA THE WEALTH HEALTH GRADIENT LOOKS LIKE THIS. OVER 70% OF AFFLUENT AMERICANS REPORT VERY GOOD TO EXCELLENT HEALTH ^{22a} **– 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. ^{22b}

[01:11:12]

AND FOR THOSE IN THE MIDDLE, IT'S STILL ALMOST TWICE THE RATE.

A SIMILAR PATTERN HOLDS FOR STROKE ^{22c} **... HEART DISEASE** ^{22d} **.... EVENTUALLY CONTRIBUTING TO EXCESS DEATH, ESPECIALLY FOR MIDDLE AND LOW INCOME AMERICANS.**

Ballgame intercut with Marmot on camera

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 driving, various neighborhoods

TROUTMAN (V/O):

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 populations in Louisville and the social conditions that can be seen as you go from one council district to another.

[01:12:20]

Shots of neighborhoods, Tondra Young at home, at library/campus

**SOUTH OF JIM TAYLOR'S HOME IS COUNCIL DISTRICT 24.
TONDRA YOUNG LIVES HERE.¹⁴ YOUNG IS 37, A LAB SUPERVISOR – AND SHE'S JUST GOTTEN ENGAGED.²³**

TONDRA YOUNG (O/C PARTIALLY):

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, ya I would.

TO GET AHEAD, TONDRA WENT BACK TO COLLEGE WHILE WORKING FULL TIME.²³

TONDRA (V/O):

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.

RESEARCH SHOWS THAT COLLEGE GRADUATES LIVE ON AVERAGE TWO AND A HALF YEARS LONGER THAN HIGH SCHOOL GRADUATES.²⁴

TROUTMA (V/O):

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 or not you can afford it.

[01:13:44]

TONDRA'S DEGREE HAS LEFT HER \$20,000 IN DEBT, ON TOP OF HER MORTGAGE.²³

Tondra & Christian gardening: Leave the worm along. – I think I broke him.

IN THE LAST FIVE YEARS, THE COST OF COLLEGE HAS INCREASED 35%.²⁵

Basketball game, animation of stats in narration

ONLY 15% OF ADULTS IN TONDRA'S COUNCIL DISTRICT, HAVE A COLLEGE EDUCATION, COMPARED WITH OVER 63% IN JIM TAYLOR'S DISTRICT.²⁶ LIFE EXPECTANCY HERE IS 75 YEARS, FOUR YEARS LESS THAN IN JIM TAYLOR'S.¹⁰

Troutman driving to Corey's neighborhood. MAP over aerial.

[01:14:21]

NORTH WEST FROM TONDRA YOUNG'S DISTRICT IS COUNCIL DISTRICT 21.¹⁴

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.^{27a}

Shots of Corey doing household chores, photos of Corey's mother and younger Corey

COREY:

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 the praise and the glory for teaching me how to keep myself nice and neat.

WHEN COREY WAS YOUNG, HIS MOM WORKED FULL TIME. AND HER JOB WAS MORE THAN JUST A PAYCHECK. ^{27b}

COREY (O/S PARTIALLY):

She had just purchased the house, everything was going great for me – I'm doing good, you know, I'm being blessed. Then all of a sudden, ya know, 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.

EVENTUALLY COREY'S MOM DID FIND WORK, BUT SHE HAD TO LEAVE HER HOME ^{27b} **– FOR MOST AMERICANS HOME OWNERSHIP IS A WAY TO BUILD FINANCIAL SECURITY.** ²⁸

ANGELIQUE:

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 (O/S PARTIALLY):

A basement, with a pool table... I want to own a house. I want both of us to own a house. So that if anything happened to me, she wouldn't be put out on the street.

[01:16:17]

COREY AND ANGELIQUE BOTH WORK FULL TIME. ^{27a} **THEIR COMBINED SALARIES PLACE THEM RIGHT AT THE NATIONAL MEDIAN INCOME.** ¹⁷ **ABOUT \$48,000.** ²⁹ **HALF OF ALL AMERICAN HOUSEHOLDS LIVE AT THIS INCOME LEVEL – OR BELOW.**

COREY:

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:

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

COREY:

You ain't working two jobs.

ANGELIQUE:

I didn't say me.

Corey grilling, animation of statistics in narration

AT 37, COREY HAS ALREADY BEEN DIAGNOSED WITH HYPERTENSION. JOINING ONE THIRD OF THE RESIDENTS IN COUNCIL DISTRICT 21. ³⁰

AVERAGE LIFE EXPECTANCY HERE IS TWO YEARS SHORTER THAN IN TONDRA'S COUNCIL DISTRICT – SIX YEARS LESS THAN IN JIM TAYLOR'S. ¹⁰

Troutman driving down Broadway in the rain.

[01:17:25]

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, 9th 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...

Troutman driving down Broadway in the rain, various store fronts

TROUTMAN:

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 place has a Ninth street. Whether it's 110th Street in Harlem or South Side of Chicago. Or sections of Watts...

ANA DIEZ ROUX:

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.⁵²

[01:18:54]

TROUTMAN (V/O):

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.

Troutman driving. Louisville map.

HOW SOCIAL POLICIES CAN DRIVE HEALTH, BECOMES EVEN MORE APPARENT IN COUNCIL DISTRICT 5. THE HOME OF MARY TURNER.¹⁴

Mary leaving her house

Mary driving, with voice over about the neighborhood: This is where we usually come down for shoes, school shoes and school clothes...up here is Save A Lot,,,

**A THIRD OF THE RESIDENTS HERE HAVE NEVER RECEIVED A HIGH SCHOOL DIPLOMA.²⁶
ALMOST 30% LIVE AT OR BELOW THE POVERTY LINE. LIKE MARY.¹⁶**

[01:19:54]

LIFE EXPECTANCY IN MARY'S COUNCIL DISTRICT IS MORE THAN 3 YEARS LESS THAN IN COREY'S DISTRICT, 9 YEARS LESS THAN IN JIM TAYLOR'S.¹⁰

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.

MARY IS 49, WITH THREE CHILDREN AT HOME. HER HUSBAND IS DISABLED.³¹

MARY TURNER:

You have to eat what fits your budget. So when you get these, a family size, and they're \$1.99, and you can feed four people with it. You know, versus ... maybe four with \$4... I mean, what's your choice going to be? Especially on a \$200 a month budget for food.

The food that we buy would last about 2 weeks. We spend cash for the first part of the month, when we get Social Security and SSI. And then usually by the last two weeks of the month, things are getting really spare, y'know, I got like 3 teenagers, so about the end of the month I start reducing to one meal a day, so I make sure the kids got everything they need.

12% of THE RESIDENTS HERE ARE UNEMPLOYED¹⁶ – MORE THAN DOUBLE THE NATIONAL AVERAGE.³² AS IS MARY FOR NOW. SO SHE VOLUNTEERS AT THE NEIGHBORHOOD MUSEUM SHE LOVES.³¹

Mary at the Portland Museum

MARY CONTINUES (V/O PARTIALLY):

I do feel like sometimes things are out of control ...Because as soon as you try to better yourself...I mean 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.

[01:22:00]

ITON (O/C MOSTLY):

We can predict on aggregate, based on where somebody lives, high school graduation rates, and their income³³... ..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...

ACT TWO

Misc shots, Tondra Young at school, hospital, streets

SYME (O/C PARTIALLY):

We know that social class is the most important determinant above any other risk factor. But what does social class mean? Is it housing, or medical care? Education?

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...

[01:23:04]

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.

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 with their kids....

[01:23:50]

Visuals include layered pix montage of Americans, Corey's Mom, Mary Turner

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.

WHEN WE FEEL THREATENED OR DON'T HAVE CONTROL IN OUR LIVES, ONE CRITICAL BIOLOGICAL REACTION KICKS IN - THE STRESS RESPONSE. ³⁴

Pix: woman running in garage, pull in to her eyeball

Animation

WHEN THE BRAIN PERCEIVES A 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...

[01:24:37]

MCKEWAN:

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.

Tennis court

WILLIAMS:

Stress helps to motivate us... In our society today everybody experiences stress. In fact, the person who has no stress is a person who is dead.

A NORMAL STRESS RESPONSE SPIKES UP WHEN NEEDED, THEN TURNS OFF.

Factory workers

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? ⁵⁴

MCKEWAN (O/S PARTIALLY):

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 (O/S PARTIALLY):

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.

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.

[01:26:08]

UNIVERSITY HOSPITAL. LOUISVILLE'S MAJOR TEACHING HOSPITAL. YOU'D EXPECT TO SEE THE WEAR AND TEAR OF STRESS IN THE BODIES OF PATIENTS.³⁵

BUT AS A LARGE HIERARCHICAL WORKPLACE, MUCH LIKE ANY OTHER, UNIVERSITY HOSPITAL REVEALS MORE. STRESS IS EVERYWHERE.

VISUAL MONTAGE: PORTRAIT OF A BUSY HOSPITAL. Feature: doctors confabbing, people in food services prepping meals, people filing papers and doing clerical work

KRISTI:

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.

COREY ANDERSON, FLOOR TECHNICIAN, IS STRESSED. SO IS TONDRA YOUNG, SUPERVISOR OF A CLINICAL LAB. AND JIM TAYLOR, CEO OF THE HOSPITAL IS STRESSED.³⁵

[01:27:02]

BUT NEITHER CHRONIC STRESS NOR ITS HEALTH EFFECTS ARE EQUALLY DISTRIBUTED ON A HIERARCHY.

Macaques outside. Shively voiceovers.

Shively: Alright, that's a chase and a flee. That one is dominant over the one that ran away.

CONSIDER THIS HIERARCHY.... OF MACAQUE MONKEYS.

PRIMATOLOGIST CAROL SHIVELY HAS BEEN STUDYING MACAQUES FOR ALMOST 30 YEARS.

³⁶

SHIVELY (V/O):

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.

SHIVELY:

A dominant animal has complete control over his life. He can go wherever he wants in the pen to do whatever he wants. Take over the favorite resting places, eat the choice food, 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.

MACAQUES WITH LESS POWER AND CONTROL ARE IN A STATE OF CHRONIC STRESS. THE EVIDENCE IS IN THEIR STRESS HORMONE LEVELS.

[01:28:16]

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.

Visuals: lab shots, macaques going through the MRI, slides, microscope

SHIVELY CAN ACTUALLY LOOK INTO THE HEARTS OF MACAQUES TO SEE THE DAMAGE FROM CHRONIC STRESS.

[01:28:41]

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.

IN OTHER WORDS, A HEART ATTACK.³⁷

[01:29:47]

Kids playing, riding tricycles.

MONKEYS ARE ONE THING, HUMANS ARE 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.^{38a}

Cold study scene, researcher calls "who's next?"

COHEN:

We have people chew on little cotton swabs till they get wet. And take it and analyze it for cortisol.

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.

[01:30:33]

THEN COHEN WANTED TO TEST THE EFFECT OF STRESS ON OUR BODIES. HIS FOCUS, OUR IMMUNE SYSTEM.

COHEN:

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

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.

[01:31:11]

COHEN (O/C PARTIALLY):

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, autoimmune diseases and some kinds of cancers.

SO...HIGHER STATUS, LESS STRESS. LESS STRESS, BETTER IMMUNE FUNCTION.

Jim Taylor scene: you still like this place compared to where you were?

BEING CEO IS A HIGH DEMAND JOB. BUT TAYLOR USUALLY HAS THE POWER, RESOURCES AND CONTROL TO MANAGE THAT PRESSURE.⁵³

Scene with Tondra

TONDRA YOUNG HAS A HIGH DEMAND JOB, BUT LESS POWER AND CONTROL.

TONDRA:

Sometimes it can get a little stressful, because I have 50 something employees running around, on three different shifts, three different building, sometimes it can be tough for me, because everybody's 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 scrubbing floor, manager: "looking good in here."

COREY:

The control that I have on my job is limited.

[01:32:26]

COREY ANDERSON'S JOB REQUIRES HIM TO RESPOND TO A LOT OF DEMANDS FROM ABOVE.

Corey on the phone

COREY:

Yes, mission is complete up on the first floor, I want to know what my next project is.

IN ONE SCENARIO – COREY IS FIRST TOLD TO CLEAN PATIENT ROOMS.

COREY (O/S PARTIALLY):

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?"

Corey and supervisor

LIKE COREY, ONE IN EVERY FIVE AMERICAN MEN WORKS IN A HIGH DEMAND/ LOW CONTROL JOB.^{39a}

[01:33:10]

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.^{39b}

Corey and Taylor

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:

So this is basically what I call my neighborhood. I don't venture no farther, because I just, 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:

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:

I thought he got strangled.

ANGELIQUE:

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

[01:34:23]

THE ACCUMULATION OF STRESSORS..... OR THE ACCUMULATION OF RESOURCES TO MANAGE THEM, SO MUCH IS DETERMINED BY CLASS.⁵³

Back to Jim Taylor at home:

TAYLOR (O/C PARTIALLY):

I'm well paid for what I do. I'm fortunate enough to be able to have the choice of where we live. More than half the mornings when I come to work, I have to stop for that 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.

[01:35:09]

TAYLOR (O/C PARTIALLY):

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.

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.

Scene: Stills of Corey and Angelique on vacation.

Corey and Angelique at home

ANGELIQUE:

We went by bus. All the way from here to Miami. We got on this party bus. And once we got on that boat, brother... it was over for me.

COREY:

Throw your hands up...that's how she was.....

ANGELIQUE:

I was like hallelujah! No kids... 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...

Rain and river scene

[01:36:18]

MARY:

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

MARY TURNER:

And my children, I think they're living with whole lot of stress. A whole lot, you know. And they are, you know, kind of at a loss for doing anything about it. Y'know 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. Y'know. That happens a lot around here.

Family photos

CONTRARY TO SOME STEREOTYPES, MOST OF THE POOR IN AMERICA ARE WHITE.⁴⁰ MARY GREW UP POOR. HER CHILDREN JOIN THE 21% OF ALL AMERICAN CHILDREN WHO LIVE IN POVERTY.⁴¹

[01:37:17]

THE UNREMITTING STRESS OF CHILDHOOD POVERTY CAN HAVE LIFELONG HEALTH CONSEQUENCES.

JACK SHONKOFF:

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.⁵⁵

Animation

SHONKOFF (O/C PARTIALLY):

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.⁵⁵

SHONKOFF:

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.

Children playing at a table

ECONOMIC SECURITY MAY OFFER SOME OF THOSE CUMULATIVE HEALTH BENEFITS.

[01:38:20]

IN ANOTHER COLD VIRUS STUDY, COHEN USED A FAMILIAR PROXY FOR THAT SECURITY: HOME OWNERSHIP.^{38b & 28}

Cold study

COHEN:

We asked people if their parents own their own home, does whether 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.

AND POOR OR NOT, IF YOU'RE NOT WHITE, THE PROGNOSIS CAN BE WORSE. ⁴²

[01:39:21]

Sequence of Troutman with kids at the Community Center, asking where they live.

ADEWALE TROUTMAN (O/C PARTIALLY):

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.

Teenages biking near river

AFRICAN AMERICANS DIE EARLIER AND HAVE HIGHER RATES THAN WHITES OF MANY CHRONIC DISEASES. ACROSS THE SOCIAL GRADIENT. ⁴²

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. ⁵⁶

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 am Dr. Troutman! You know, why... This shouldn't happen to me, but it does.

[01:40:44]

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.

Animation of racial discrimination/hypertension article

RACIAL DISCRIMINATION CAN BE AN ADDED STRESSOR, LINKED WITH HIGH BLOOD PRESSURE... INCREASED RATES OF INFANT DEATH... CORONARY ARTERY DISEASE. ⁴³

TROUTMAN KNOWS WHAT THIS CAN LEAD TO. HE AUTHORED A CORNERSTONE STUDY WITH FORMER SURGEON GENERAL DAVID SATCHER ON EXCESS DEATH AMONG AFRICAN AMERICANS. ⁴⁴

ADEWALE TROUTMAN:

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

Plane on runway, in sky

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.⁴⁵

ACT THREE

[01:41:51]

Corey playing pool

MARMOT (O/C PARTIALLY):

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.

REDUCING HEALTH INEQUALITY IS NOT IMPOSSIBLE. AS A SOCIETY WE'VE DONE IT BEFORE.⁵²

Archival footage

A CENTURY AGO THE AVERAGE AMERICAN LIVED ONLY ABOUT 48 YEARS.⁴⁶ 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 WORK DAY, EVEN A CONTROVERSIAL TAX ON PERSONAL INCOME.⁴⁷

[01:43:03]

Archival FDR: This social security measure...

THE 1930S. AN ARRAY OF NEW SOCIAL PROGRAMS PREVENTED AN ECONOMIC CRISIS, FROM BECOMING AN EVEN WORSE HEALTH CRISIS.⁴⁸

Archival FDR continues: ...to increased services for the protection of children and the prevention of ill health.

Archival footage of returning WWII vets

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.⁴⁹ STILL, MOST AFRICAN AMERICANS WERE EXCLUDED.^{49b}

[01:43:36]

THE 1950s. THE MIDDLE CLASS WAS GROWING, INCOME INEQUALITY WAS DECLINING.⁵⁰ PROSPERITY AND MEDICAL ADVANCES EXTENDED OUR LIVES EVEN LONGER.⁴⁶

CHRISTAKIS (O/C PARTIALLY):

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, it's 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 is all those that are really material for public health.⁵¹

Speaker at Civil Right march: “Black and white together...”, archival ftg 1960’s African Americans

IN THE 1960s, CIVIL RIGHTS LAWS, ANTI-POVERTY PROGRAMS, MEDICARE AND MEDICAID⁵⁷ ALL BROUGHT THE BENEFITS OF PROSPERITY TO THOSE WHO HADN’T YET SHARED IN IT.

DAVID WILLIAMS (O/C PARTIALLY):

During the 1960s, to early ‘70s the black-white gap in income narrowed,^{58a} and the black-white gap on multiple indicators of health also narrowed.^{58b} 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 (O/C PARTIALLY):

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

[01:45:32]

BUT SINCE THE 1980S WE’VE GONE IN THE OPPOSITE DIRECTION.^{58c}

1980s unemployment line. Soundbites: “I used to work for these people, now I gotta stand in line to get a box of cheese.” “Waiting for the Reagan trickle-down, and it’s not trickling.”

IN THE MIDST OF A RECESSION^{59a}, GOVERNMENT SLASHED SOCIAL PROGRAMS^{59b}, DEREGULATED INDUSTRY^{59c}, REDUCED TAXES FOR THE WEALTHY.^{59d}

WITH CONSEQUENCES THAT REMAIN WITH US TODAY.

Warren Buffett at Congressional Hearing:

WARREN BUFFETT:

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.⁶⁰

WARREN BUFFET, THE WORLD’S THIRD RICHEST MAN

[01:46:15]

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.

WEALTH INEQUALITY REACHED A RECORD LOW IN 1976. SINCE THEN IT HAS SOARED.⁶¹ TODAY WE ARE FAR AND AWAY THE MOST UNEQUAL OF THE WORLD’S RICH DEMOCRACIES.⁶²

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.⁶³

Tundra driving

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.⁶³

Tundra driving

[01:47:24]

THAT'S BECAUSE HERE, HEALTH DEPENDS LARGELY ON OUR INDIVIDUAL ASSETS AND RESOURCES.

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.

Shots of misc in foreign countries

THE WEALTH-HEALTH GRADIENT IS NOT AS STEEP IN MOST OTHER INDUSTRIALIZED NATIONS.^{64, 22}

MANY USE THEIR RESOURCES TO ENSURE THAT MORE OF THEIR CITIZENS HAVE THE FREEDOM TO LEAD FLOURISHING HEALTHY LIVES.⁶⁵

[01:48:07]

ALL GUARANTEE UNIVERSAL HEALTH CARE COVERAGE.⁶⁶ MANDATE AT LEAST FOUR WEEKS OF PAID VACATION.⁶⁷

FRANCE'S MINIMUM WAGE HAS BEEN TWICE AS MUCH AS OURS.⁶⁸

IRELAND PROVIDES FREE COLLEGE EDUCATION.⁶⁹

SWEDEN'S FAMILY POLICIES REDUCE CHILD POVERTY TO A MERE 4.2% COMPARED TO OUR 21%.⁷⁰

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.⁶⁵

ITON (O/C PARTIALLY):

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.⁶⁵ Those countries where wealth is more equitably distributed are healthier.⁷¹

Driving over bridge

[01:49:30]

HERE IN THE US, MANY COMMUNITIES ARE TAKING HEALTH MATTERS INTO THEIR OWN HANDS.

Sound up on opening on Health Equities Center in Louisville. Continue scene

ADEWALE 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.

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.⁷²

Troutman opening the Health Equity Center

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.

High Point scene

IN SEATTLE WASHINGTON COMMUNITY ACTIVISTS TARGET UNHEALTHY HOUSING – AND THE ASTHMA THAT KEEPS MANY FROM LEADING PRODUCTIVE LIVES.⁷³

[01:50:31]

Folks outside home, Tim Takaro inside a Breath Easy Unit: "The air is inside the home is actually healthier than the air outside."

ADEWALE TROUTMAN (O/C PARTIALLY):

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.

Terrel at graveyard, "And here's my grandpa. He died of diabetes, diabetes and the complications of diabetes"....

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.⁷⁴

Cont Health Equity Center setting:

TROUTMAN (O/C PARTIALLY):

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.

[01:51:32]

Mary Turner packs her car with groceries

MARMOT (O/C PARTIALLY):

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.

Tondra & boyfriend gardening

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.

Taylor, hospital collage

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. ⁷⁵

[01:52:36]

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. ⁷⁶

TROUTMAN (O/C PARTIALLY):

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 with kids at the Y begins: "Somebody told me this table had the fastest kids in all of Louisville – is that true?"

TROUTMAN (O/C PARTIALLY):

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

ITON (O/C PARTIALLY):

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...

[01:53:48]

**END CREDITS
FUNDER BED**

APPENDIX: SOURCES

- 01** (1) World Development Indicators Database, Bank, 4/23/07
(2) World Economic Outlook Database (4/07), IMF
- 02** CMS, National health expenditure data; KFF, "How changes in medical technology affect health care costs", March '07; NCHC, Health Insurance Cost (nchc.org/facts/cost.shtml)
- 03** (1) Progressive Policy Institute, 1/17/07, Almost half of all world health spending is in the US
(2) WHO Fact sheet #319, Spending on Health: a global overview, Feb 07 ('04 data): global expenditure for health now at US\$4.1tr <http://www.who.int/mediacentre/factsheets/fs319/en/index.html>
- 04** (1) Thorpe et al: "Differences in disease prevalence as a source of the US-European Health Care spending gap", Health Affairs (web exclusive), Oct 2, 07 (2) Banks, Marmot, et al: "Disease and disadvantage in the US and in England", JAMA, May 3, 06, vol 295, Ino17
- 05** (1) UNDP, HDR 2006 ('04 data): US average at 77.5 yrs = 30th (2) UNDP HDR '07/08: 77.9 yrs = 29th
(3) RWJF, Overcoming obstacles, 2008, p.38&39
- 06** (1) UNDP HD Report 07/08 (UNICEF 2006 data): down to 6 IMR, Slovenia, Cyprus, Malta better
- 07** (1) US Census, "Income, Poverty, and Health Insurance Coverage in the US: 2006": 15.8% = 47m; (2) NCHC: nearly 47m (referencing Census '05 rpt);
- 08** Nancy Krieger, "Twins' health and adult socioeconomic status", PLoS Medicine, vol 2.7. 7/05
- 09** John Kimball, Biology pages @ <http://users.rcn.com/jkomball.ma.ultranet/Biology/E/Epidemiology...>
- 10a** Michael Price, Kentucky Population Research, KSDC, life tables by census county subdivision based on 2000 US census data
NOTE: CCS are an area including several council districts, but per Price each of our four selected CD's probably quite representative
- 11** (1) GIS Maps, Sheila Andersen, Louisville Metro Health for mortality by cancer and mortality by heart disease
(2) Sheila Anderson, Louisville Metro Health, death rate data shows twice for lung cancer, more than twice as high for heart disease
- 12** City of Louisville, KY website: 26 council districts
- 13** GIS Maps, Sheila Andersen, Louisville Metro Health
- 14** GIS Maps, Sheila Andersen, Louisville Metro Health
- 15** (1) University of Louisville Hospital, "new University medical Center board members are names" @ [www. Uoflhealthcare.org/news](http://www.Uoflhealthcare.org/news)
(2) Taylor interview transcript of tape #1006
- 16a** KSDC, census 2000 summary file 3, profile 8, area 16, p10: \$110,989 mean household income, c.a. 3,142 of 10,411 earn > \$100,000
- 16b** KSDC, census 2000 summary file 3, profile 8, area 5, p18: 29.2%
- 16c** KSDC, census 2000 summary file 3, profile 8, area 5, p. 5: 11.6%

- 17** Ken Marshall, ULH, email of 1/16/07 to Julie Crawford: Taylor's income range: \$343k-\$470k; Corey's income: \$17k-25,6k; Angelique's income estimated
- 18** Emmanuel Saez, 2005 income tax data computations, available at <http://elsa.berkeley.edu/~saez/TabFig2005s.xls> - see Table 1: income threshold for top 1% (incl cap gains): \$350,501
- 19** Arthur Kennickel, Survey of Consumer Finances, Federal Reserve Board, "Currents and Undercurrents – changes in the distribution of wealth, 1989-2004", Jan 30 '06, table 11a
(2) EPI, The State of Working America, table 5.7 (data source: Wolff, 2006)
- 20a** per Marmot email 1/31/08, Nancy Krieger in conversation with CHS
- 20b** (1) WHO Commission on Social Determinants of Health website; MacArthur Research Network on Socioeconomic Status and Health
(2) Ruth Bell email 7/2/07: WHI ('67-69) = 2 yrs initially, follow up over 35 yrs, 19,019 subjects total; WHII ('85-89) = 3 yrs init, follow ups over 24 yrs, 10,308 subjects (3) Robert Evans: "Why are some people healthy and others not? – The Determinants of Health of Populations", 1994, p5-9
- 20c** Work, Stress and Health – the Whitehall II study, 2004 CCSU/Cabinet Office, p.4, downloadable at www.pcs.org.uk
- 20-graph** Whitehall study, per M. Marmot email 2/12/08
- 21** European Observatory on Health Care Systems: Health Care Systems in Transition, p.5
- 22a** RWJF, 2007 (NHIS 2001-5 data)
Note: the original data categories were % of FPL, so these are approximations
- 22b** RWJF: Overcoming obstacles, p.22 (NHANES 1999-2004 data)
- 22c** RWJF (2007 preview for upcoming report using NHIS 2001-5 data)
- 22d** RWJF: Overcoming obstacles, p.22 (NHIS 2001-5 data)
- 23** Tondra Young confirmed via phone 1/25/08 & email 4/26/07
- 24** (1) Adriana Llenas-Muney email 5/9/07, referring to NBER paper she co-authored with David Cutler, available at <http://www.nber.org/digest/mar07/w12352.html>
- 25** (1) College Board, Trends in College Pricing, 2006, p.10
- 26** Sheila Andersen, KSDC (2000 census data)
- 27a** confirmed in phone conversation w/ Angelique Anderson. Corey previously lived in different neighborhood, but not far
- 27b** implied in interview transcript
- 28** (1) White House Homeownership Policy Book - Background at www.whitehouse.gov/infocus/homeownership/homeownership-policy-book-background.html
(2) Woo et al, CFED, Measuring Ownership in America – CFED's 2005 assets and opportunity scorecard
- 29** US Census Bureau: Income, Poverty, and Health Insurance Coverage in the US, 2006
- 30** Sheila Andersen, Louisville Metro Health: 29.4% (BRFSS data 2005)
NOTE: CCSs are an area, including several council districts, but each of our four selected CDs probably quite representative
- 31** Mary Turner confirmed in email 1/28/08
- 32** BLS, CPS data at www.bls.gov/cps/home.htm

- 33** (1) by L. Neergaard, AP, “Where you live linked to life expectancy – stark differences in longevity reported around the country”, 9/12/06 (2) RWJF, *Overcoming obstacles to Health*, p.17, 18, 68(3) GIS maps various cities (4) Income - HUS 1998 (DC/NCHS); Vital & Health Stats 2006 (CDC/NCHS)
- 34** Animation sequence (visuals and voice over) approved by medical animation advisors Judith Saide, Ass. Professor of Physiology and Biophysics, Boston University, and James Head, Prof of Physiology, BU (email of 2/12/07); further feedback and comments by Rebecca Stoltz and Jack Shonkoff, Harvard University (email of 6/29/07); plus information and comments from various other medical advisors collected and forwarded by Al Race, Ctr on the Developing Child, Harvard School of Public Health (4/24/07 email)
- 35** Ken Marshall, University of Louisville Hospital (email 6/28/07)
- 36** Carol Shively email 12/18/07
- 37** “Myocardial infarction / heart attack”, Patient Health International at www.patienthealthinternational.com
- 38a** S. Cohen et al, “Psychological stress and susceptibility to the common cold,” *NEJM* 325, 1991
- 38b** S. Cohen et al, “Childhood Socioeconomic status and host resistance to infectious illness in adulthood,” *Psychosom Med* 66, 2004
- 38c** Interior Health, Canada, “Beyond Health Services and Lifestyle – a social determinants approach to health,” Nov ‘06
- 39a** <http://circ.ahajournals.org/cgi/content/full/92/3/327>
(1) Schnall et al., “Longitudinal study of job strain and ABP – results from a three-year follow up”, *Psychosomatic medicine* 60:697-706, 1998
(2) Karasek, Theorell, Schwartz et al, “Job Characteristics in Relation to Prevalence of Myocardial Infarction in the US Health Examination Survey (HES) and the Health and Nutrition Examination Study (HANES)”, 1988 *AJPH* vol 78, no 8
- 39b** (1) Peter Schnall et al., “Relation between job strain, alcohol, and ambulatory blood pressure”, *Hypertension*, vol 19, no 5, May 1992
(2) Schnall et al., “Longitudinal study of job strain and ABP – results from a three-year follow up”, *Psychosomatic medicine* 60:697-706, 1998
(3) R. Evans, “Why are some people healthy and others not?”
(4) WHO – “The solid facts,” 2003, by Marmot & Wilkinson (ed)
- 40** (1) Income, Poverty and Health Insurance Coverage in the US, 05 (Census); (2) HUS 2006;
(3) RWJF, *Overcoming Obstacles to Health*, p. 37
- 41** (1) EPI, *The State of Working America* (LIS ‘06 data)
- 42** (1) RWJF, *Overcoming obstacles to Health*, pg. 26-7
(2) data forwarded by Ernie Moy of Agency for Health care Research and Quality: (2a) 2004 MEPS data on self-reported health status, 18-64 by education;
(2b) Age-adjusted all cancer mortality per 100,000 pop, 25-64, by education, NVSS 2001; (2c) Infant mortality per 1,000 by education, NVSS 2003
- 43a** (1) Steffen et al, “Effects of perceived racism & anger inhibition on ambulatory blood pressure in African Americans,” *Psychosomatic Medicine* 65, 2003 (2) Profant & Dimsdale, “Race and diurnal blood pressure patterns,” *Hypertension* 1999, 33 (3) Clark, “Self-reported racism & social support predict blood pressure reactivity in Blacks, *Annals of Behavioral Medicine*,” 2003, vol 25, #2
- 43b** (1) Lu & Lu, “Maternal nutrition & infant mortality in the context of relationality”

(2) Schoendorf et al, "Mortality among infants of black as compared with white college-educated parents," NEJM, vol326, 1992 (3) Dzietham et al, "IM differences between whites and African Americans: effect of maternal education," AJPH, 1998, vol 88, #4

43c Lewis et al, "Chronic exposure to everyday discrimination and coronary artery calcification in African Am women," Psychosom Med, 68, 2006, May-June

44 Troutman & Satcher, "What if we were equal? A comparison of the black-white mortality gap in 1960 and 2000" Health Affairs, 24, no 2, 2005

45 (1) 5/10/07 email from Bernhard Blome, Air Berlin pilot, confirming that capacities flexible, vary widely between airlines and planes, but from examples of some "typical" seating arrangements, a 227 passenger capacity falls well into the range (83,000 / 365 = c.a. 227)

46 National Vital Statistics Reports, vol 52, no 14, 2/18/04: Table 12. Estimated life expectancy at birth in years by race and sex – death registration states, 1900-28 and US 1929-2001

47a-d (A) Public education in the United States, II. Elementary education and the common-school movement, Microsoft Encarta Online Encyclopedia 2007

(B) CDC: Achievements in public health, 1900-1999 – changes in the public health system

(C) Learn about the Progressive Era, Digital History at

www.digitalhistory.uh.edu/modules/progressivism/index.cfm;

Robert Whaples, Wake Forest University, "Hours of Work in US History;"

NYT 9/24/1916 "8-hour workday not arbitrable, Wilson asserts"

(D) NYT 5/6/1913 "Bankers find fault in the income tax"

48 (1) Waller, CE "Social Security Act in its relation to public health", Am J Public Health Nations Health, Nov 1935, 25(11), p. 1186-1194 (2) The Social Security Act, FDR Library at

www.fdrlibrary.marist.edu/oadssast.html (3) Social Security Act (1935), National Archives at

www.ourdocuments.gov

(4) MCH/Public health milestones Part V: 1930-1939, slideshow by Alexander, GR et al

49 (1) Hillary Herbold, "Never a level playing field: blacks and the GI bill", The J of Blacks in Higher Education, no 6 (Winter, 1994-1995), pp. 104-108

(2) Ira Katznelson, *When Affirmative Action was white – an untold history of racial inequality in twentieth-century America*, Norton & Co.

(3) Tim Wise, "Bill of Whites", ZNET, 7/24/2000 at www.zmag.org

50a +b (A1) United States History – C. The middle class expands, MSN Encarta av. At Encarta.msn.com/encyclopedia_1741500823/United_States_History

(A2) Stephen Koepp, "Is the middle class shrinking?", time.com, 11/3/1986,

(B) US census historical income table F-2: share of aggregate income by quintiles

51 (1) Interior Health, Canada, "Beyond Health Services and Lifestyle: a social determinants approach to health", Nov '06, p.13

(2) Woolf, S, "Giving Everyone the Health of the Education: An Examination of whether social change would save more lives than medical advances," AJPH, April '07

52 Interior Health, Canada, "Beyond Health Services and Lifestyle: a social determinant approach to health," Nov 06

53 (1) Wilkinson & Marmot (ed), *The solid facts*, WHO 2003

(2) Holly Avey, "How US Lows and social policies influence Chronic Stress and health disparities", Politics of race, culture and health symposium Ithaca College, 11/14/02

- 54** (1) "Early aging tied to chronic stress," David Perlman, San Francisco Chronicle, 11/30/04
(2) B. McEwen, "Protective and damaging effects of stress mediators," Seminars in Med of the Beth Israel Med Center, Vol 338 #3
(3) R. Sapolsky, *Sick of Poverty*, Sci Am. 2005 Dec : 293 (6):92-9
- 55** (1) G. Evans et al, "The role of chaos in poverty and children's socioemotional adjustment" Psychological science, vol 16, no 7, 2005
(2) "Excessive Stress disrupts the architecture of the developing brain," National Scientific Council on the Developing Child, working paper #3, summer 2005
(3) "Beyond Health services and lifestyle, Interior Health," Canada, Nov '06
- 56** (1) Rotimi, Cooper, Ward, "The puzzle of hypertension in African-Americans," Scientific American, 2/6/99, av. At www.sciam.com
(2) R. David et al, "Differing birth weight among infants of US born blacks, African born blacks and US born whites," NEJM 1997, vol 337, no 17
(3) MacArthur Research Network on Socioeconomic Status and Health, "Discrimination", Summary prepared by D. Williams and the Psychosocial Working Group, revised Oct. 1998, av. at www.macses.ucsf.edu/Research/Psychosocial/notebook/discrimination.html copyright 1999 UCSF, contact Judith Stewart
(4) Gabrielle Amersbach, "Through the lens of race – unequal health care in America," Harvard Public Health Review, winter 2002
- 57** (1) "The history of Medicare", Social Security Online History pages, av at www.ssa.gov/history/corning.html
(2) US HSS – CMS: History Overview, at www.cms.hhs.gov/History
- 58** 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 Medicine, February 26, 2008, Volume 5, Issue 2
- 58a** (1) US Census Historical Income Table F-5
(2) "Black and white balance sheet", Time/CNN, 1/24/1969, at www.time.com
- 58b** (1) Table 12. Estimated life expectancy at birth in years, by race and sex: death-registration States, 1900-28, and US 1929-2001, Nat'l Vital Stats Rpt vol 52, no 14, 2/14/2004 (CDC/NCHS)
(2) Dzietham & Picciotto, "Infant Mortality differences between Whites and African Americans: the effect of maternal education," MJPB 1998, vol 88, #4
(3) Infant mortality data forwarded by Ken Chay via email 6/19/07 plus studies he co-authored, e.g. "Long-run intergenerational impact of poor infant health" & "Civil rights, the war on poverty, and black-white convergence in infant mortality in Mississippi"
- 58c** (1) US Census Table P-1: narrowing through '78
(2) Time/CNN: Black and white balance sheet, 1/24/1969
(3) Lu & Lu, "Maternal Nutrition and infant mortality in the context of relationality," Joint Center for Political and Economic Studies Health Policy Institute
- 59** (1) "The economy in the 1980s", adapted from the book "Outline of the U.S. Economy" by Conte and Carr and has been adapted with permission from the U.S. Department of State, av at www.economics.about.com/od/useconomichistory_1980s.htm?p=1
(2) "Ronald Reagan", Microsoft Encarta Online Encyclopedia 2007 at Encarta.msn.com
(3) William A. Niskanen, "Reagonomics", The Library of economics and Liberty, The concise encyclopedia of economics, av at www.econlib.org/library/Enc/Reagonomics.html
- 59b** (1) Spitzer, S, "Presidential silences and Symbols – Racial politics and welfare retrenchment during the Reagan presidency," paper presented at the Western Political Science Association, 3/17/05
(2) Conlan, T, *New Federalism – Intergovernmental reform from Nixon to Reagan*, Brookings Institution, 1988, av at www.questia.com
(3) John O'Connor, "US Social welfare policy – the Reagan record and legacy", Journal of Social Policy, 1998, 27

- 59d** truthandpolitics.org, "Top US marginal income rates 1913-2003 (citing "Table A.--U.S. individual income tax: personal exemptions and lowest and highest bracket tax rates, and tax base for regular tax, tax years 1913-2003" (Rev. 4-2003), in Internal Revenue Service, Statistics of Income Bulletin (Publication 1136), Winter 2002-2003)
- 60** Mar '08 - Acc to Forbes 400 March 2008, Buffett now world's richest man
- 61** (1) "Who rules America: Wealth, Income, Power", table 3: Share of wealth, 1922-98 - based on Edward N. Wolff, *Top Heavy* (New Press, 1996); Wolff, "Recent Trends in Wealth Ownership, 1983-98"; The State of Working America, Changes in the distribution of wealth, 1962-2004, EPI (Wolff 2006 data)
(2) inequality.org, "Income Inequality in the US, 1913-1998," Quarterly Journal of Economics, 2003: top 1% share of tl pre-tax income - based on Piketty & Saez data analysis
- 62** (1) The State of Working America, Household income inequality in the OECD, EPI (data source: Smeeding 2006 & LIS 2006)
(2) UN HDR 2006, table 15: Inequality in income or expenditure
- 63** (1) Booza et al, "Where did they go? Decline of Middle-income Neighbhoods in metropolitan America", Brookings Institution, Living Cities Census Series, June 2006 (2) Paul Krugman: "The Death of Horation Alger", The Nation, 1/5/04
- 64** Kunst, Bos, Mackenbach, "Monitoring socioeconomic inequalities in health in the European Union", Rpt for the Health Monitoring Program of the EC, Nov 2001
- 65** (1) OECD Factbook '07: Public social expenditure as a %age of GDP, 2003
(2) Social Expenditure Database, OECD '04: Public expenditure on family and on Incapacity related benefits (3) OECD - Society at a Glance '06: unemployment benefits (4) OECD Factbook '07: Total tax revenue (5) Canadian Center for Policy Alternatives, 12/06: Social benefits and Econ costs of taxation (6) Wilkinson & Marmot (ed), The Solid Facts, WHO 2003
- 66** (1) UN HDR 2005: The impact of health insurance coverage on health disparities in the US
(2) Bureau of Labor Education, Univ Maine: "US Health care system - best in the world, or just the most expensive?", citing from S. Ayres, Health Care in the United States – the facts and choices, Chicago & London, American Library Association, 1996
(3) Joel Miller, NCHC confirmed in phone conversation 7/6/07
- 67** (1) EPI, State of Working America, table 8.9 Work and leave policies in OECD (2) Ray & Schmitt, "No-vacation nation USA - a comparison of leave and holiday in OECD countries", European Econ and Employment Policy Brief #3, 2007, ISSN 1782-2165
- 68** (1) OECD, Society at a Glance '06, EQ2.2 Minimum wages
(2) Taxing Wages '05-06, 2006 edition, OECD: Net minimum wage %AW
- 69** (1) The Free Fees Initiative <http://www.heai.ie/index.cfm/page/sub/id/822> confirmed by Lindsay at Ireland ministry of education: The first 4 years of college (BA degree) are free for all EU-students (2) Sean Barrett email 2/6/08
- 70** (1) UNICEF Innocenti rpt card #6, fig 1 "The Child poverty league" (LIS data) (2) EPI State of Working America: "Poverty rates in OECD countries", 2000 (LIS 2006) and "Child poverty rates before and after taxes and transfers, 2000 (Corak, 2005) (3) "Achieving health equity – from root causes to fair outcomes", WHO Commission on Social Determinants of Health, 9/6/07, fig 9: Total family policy generosity and child poverty
- 71** (1) Daniels, Kennedy, Kawachi: *Is Inequality bad for our Health?*, Beacon Press, 2000
(2) NACCHO: "Creating Health Equity Through Social Justice" (draft working paper, Sept. '02)

- 72 confirmed by Dr. Adewale Troutman, 2/5/08 email
- 73 www.seattlehousing.org, "Families benefit from healthy 'breathe easy' homes"
- 74 confirmed by David DeJong, 11/16/06 email
- 75 DeVol, Ross, Bedroussian, *An Unhealthy America: The Economic Burden of Chronic Disease on the US*, Oct 2007, av at www.milkeninstitute.org
- 76 (1) Olshansky et al, "Potential decline in life expectancy in the US in the 21st century," NEJM, 3/15/05, p. 1138
(2) Poirier et al, "Obesity and Cardiovascular disease – pathophysiology, evaluation, and effect of weight loss" *Circulation* 2006, 113, 898-918, av at circ.ahajournals.org