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Health Have, Health Have Nots in a Time of COVID-19

Sandro Galea
Boston University, sgalea@bu.edu

Center for Policy Research

Syracuse University
Maxwell School of Citizenship and Public Affairs | Center for Policy Research

Policy Brief

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Sandro Galea, a physician, epidemiologist, and author, is Dean and Robert A. Knox Professor at Boston University School of Public Health. He previously held academic and leadership positions at Columbia University, the University of Michigan, and the New York Academy of Medicine. He has published extensively in the peer-reviewed literature, and is a regular contributor to a range of public media, about the social causes of health, mental health, and the consequences of trauma. He has been listed as one of the most widely cited scholars in the social sciences. He is chair of the board of the Association of Schools and Programs of Public Health and past president of the Society for Epidemiologic Research and of the Interdisciplinary Association for Population Health Science. He is also an elected member of the National Academy of Medicine. Galea has received several lifetime achievement awards. Galea holds a medical degree from the University of Toronto, graduate degrees from Harvard University and Columbia University, and an honorary doctorate from the University of Glasgow.

The Herbert Lourie Memorial Lecture on Health Policy honors the memory of Herbert Lourie, MD, a distinguished Syracuse neurosurgeon, professor, and community leader for nearly 30 years. Generous contributions from his family, friends and colleagues, and former patients have endowed this series. The Lecture and Policy Brief are jointly sponsored by the Maxwell School of Citizenship and Public Affairs of Syracuse University and the Central New York Community Foundation, Inc., and is administered by the Center for Policy Research and The Lerner Center for Public Health Promotion.

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Policy Brief

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Introduction

In this brief, my goal is to talk about something which has animated a lot of my thinking and writing in the past decade. It is how our health is fundamentally socially patterned and reflects the world around us. This has been true for decades in this country, and one could also argue, globally, however this brief will focus on this topic at the national level. I am going to talk about "Health Haves, Health Have Nots in a Time of COVID-19." As you will see, I will talk mostly of health haves and health have nots in general, but as we progress, show how COVID-19 has made this evermore apparent.

Understanding Health

First, we need to understand health. All I want to do is put health into context. I want to help us all understand health in a way that I think seldom represents how we think about health, and in a way that really stops us as a country from achieving what we should achieve regarding health.

Some of you who are familiar with my previous talks may have heard me tell this story, but it is a story of Blind Willie Johnson. Blind Willie Johnson was a blues man, so if you are someone who likes the blues, you will recognize that he is one of the blues greats. Blind Willie Johnson was born in Texas around the turn of the 20th century. When he was a young child, he lost his vision in a domestic violence incident. Therefore, he grew up in Texas in the early 1900s poor, blind, and black. Later on, Johnson got married. He and his wife lived in a small house, which unfortunately burned down. The family did not have any money to move, so they kept living

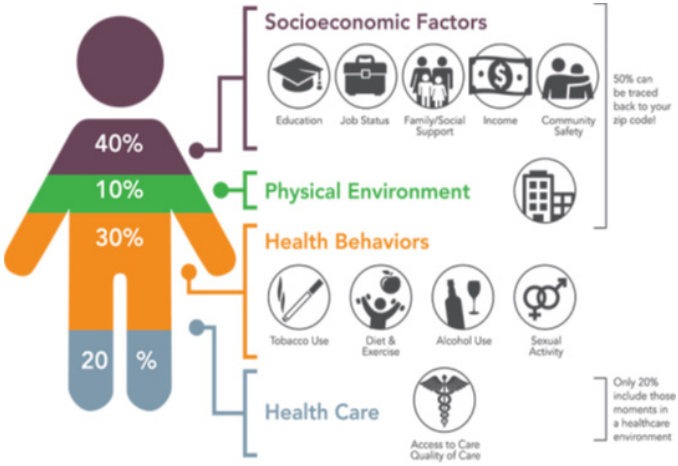
in the burnt-out shell of the house. When Willie was in his forties, he developed malaria. Malaria was fairly common in Texas in the 1940s. Those of you who know the history of the CDC for example, will remember that the CDC initiative was started as a center for control of malaria. Malaria was a big problem in this country, so in some respect, it was nothing particularly unusual about Blind Willie Johnson getting malaria. His wife took him to the hospital where he was turned away. It is not clear if he was turned away because he was poor, because he was black, or because he was blind, but unfortunately Blind Willie Johnson died.

The question is, why did Blind Willie Johnson die? There is only one answer to that question: he died of malaria. Had he received treatment of chloroquine, Blind Willie Johnson would not have died. The reason I tell that story is because I think anybody who's paying attention will recognize that, yes, he died of malaria, but it was not just malaria that killed Blind Willie Johnson. It was poverty, racism, domestic violence, homelessness, and poor access to healthcare. All those factors contributed to his death, and all of those factors would have made him die of something else soon, even had he not died of malaria.

Why is this important? It is important because it makes the very simple point that health is not just malaria. Health is malaria, yes, but also all those other factors I stated before. Once you understand that point, everything else falls from that. Now, I suspect that most people reading this are thinking, "Yeah, that's obvious I know that". But I would challenge us to think, "Well, if we know that, if it's obvious to us, and presumably it's obvious to people of sound mind, why is it that we do not behave accordingly?"

Figure 1

The Determinants of Health



(Institute for Clinical Systems Improvement, 2014)

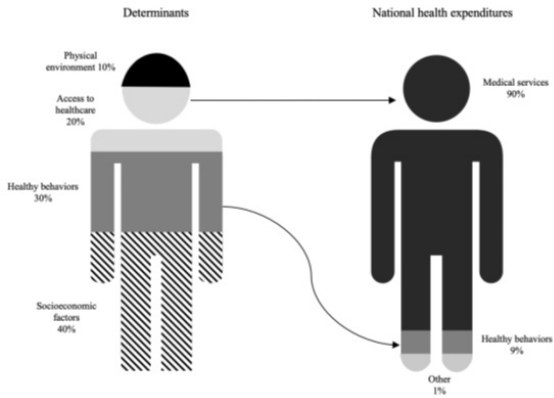
Figure 1 is the story of Blind Willie Johnson rendered as an infographic. We know that health is caused by medicine and healthcare, but it is also caused by our behaviors, physical environments, and social economic factors.

Health Care Spending, Life Expectancy, and Opportunities for Investment

Where do we spend our money? That information is now rendered through this infographic person on the left in Figure 2 below. On the right I've put in where we spend our money. Conservatively, at least 90% of the money that we spend on health is spent on medicine. In other words, on malaria. We spend far less on behaviors and all the other forces that also affect health.

Figure 2

The Spending Mismatch: Health Determinants vs Health Expenditures



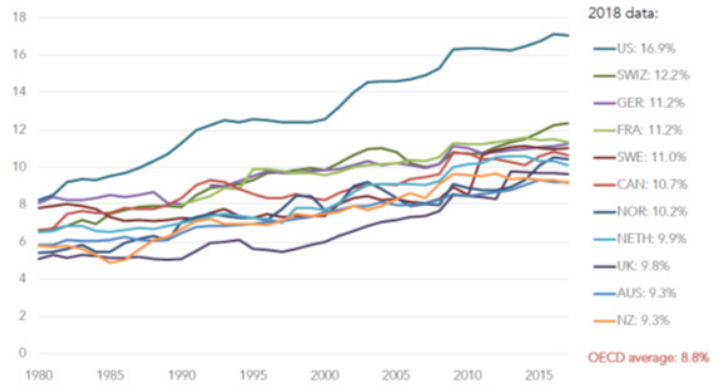
(Galea 2020)

My challenge to you as an audience is to say, “We cannot have it both ways.” If we know this, why is it that we do not behave accordingly? We need to make sure that the world knows where the money is going. So this is the conundrum we’re in: in the world of expressed preference we say, “We know this, we understand the story” but in our actions, our revealed preferences, that is not what we spend our money on.

We spend our money on malaria. It is as though the racism, homelessness, domestic violence, and poverty that affected Blind Willie Johnson are fundamentally not what health is about. And we put all our money in malaria. I am using malaria as a metaphor: malaria is healthcare and medicine.

Figure 3

Health Care Spending as a Percent of GDP, 1980-2018
(Percent (%) of GDP, adjusted for difference in cost of living)



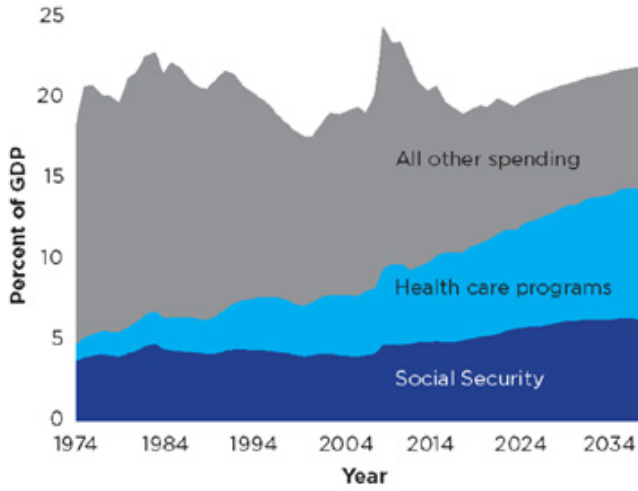
(Roosa & Abrams, 2020) | Data from OECD Health Statistics 2019

Note: Current expenditures on health. Based on System of Health Accounts methodology, with some differences between country methodologies. GDP = gross domestic product. OECD average reflects the average of 36 OECD member countries, including ones not shown here. * 2018 data are provisional or estimated.

The blue line at the top of Figure 3 shows the United States and our spending on health, which is largely healthcare. Also pictured are all the other rational high-income countries. You can see they also spend more, but they spend about 40% less than we do in terms of what we spend on healthcare. So, we spend a lot of money on the malaria end of things.

Figure 4

Historical and Projected Federal Spending: Health Care and other Programs



(Dzau, Et.al. 2017) | Data from Congressional Budget Office

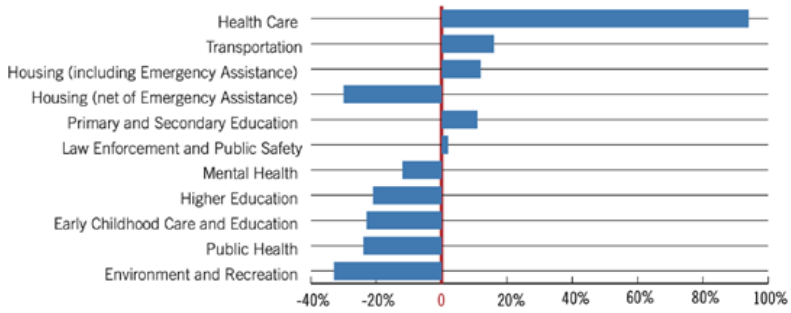
As we are doing that, we are spending less on other things. Figure 4 above is from the Congressional Budget Office (CBO). The chart depicts U.S. social security spending, increasing healthcare program spending, and all other spending, which broadly speaking has been decreasing evermore. Now, let us think back to the Blind Willie Johnson story. Even though we may understand that story, somehow it is not translating to our real lives today. We are still spending more on treating malaria, and spending less on everything else, which is, fundamentally, the major cause for health.

Massachusetts is one of the most progressive states in the country. What I'd like to do is show you spending in Massachusetts. Figure 5 below shows 15 years of spending in Massachusetts. We can see an increase in spending on healthcare and some increases in transportation and housing (including emergency assistance). We

see less spending on housing (net of emergency assistance), a small increase on primary and secondary education, and then all together less on public safety, mental health, education, early childhood education, public health, and environment and recreation.

Figure 5

Percentage Spending Growth FY 2001-2015



(Hubbard, Et.al. 2015) | Data from the Massachusetts Budget and Policy Center, State Budget Browser

Note: All data adjusted by CPI to 2015 dollars.

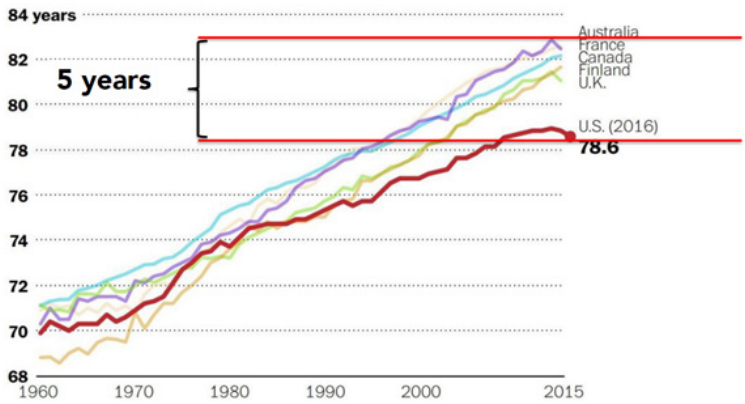
Again, Massachusetts is one of the most progressive states in the country. Even in Massachusetts, we are essentially working backwards if we are to implement an agenda of promoting health. This is because we are spending all the money on malaria and ignoring all the other factors that also shape health.

What has been the result of that? Well, the result of that has been in so many respects, catastrophic for the Nation's health. Notice I have not even started discussing COVID-19 - then we are going to really talk about catastrophe. I am simply pointing out that we as a country have allowed our life expectancy to fall off the trend for all the same rational, high income countries. We saw earlier that those countries spend a lot less on health than we do. So, remember, these other countries get more health despite spending much less than we do.

The U.S. has had a three-year, year over year drop in life expectancy. Fundamentally, as shown in Figure 6, we have put a five-year gap in life expectancy between us and the highest achieving, high income countries. Five years less in life expectancy sounds clinical. So, let's say it in a way that perhaps has a more emotional tag: we suddenly have chosen to die five years sooner than other countries, despite the fact that we're paying much more. Now, you may be thinking, "Well, I did not choose it." But we did. We collectively are choosing this. We are choosing to die five years sooner. That is unfortunately what we are choosing as a country.

Figure 6

American Exceptionalism
Life Expectancy at Birth, Selected OECD Countries



(Sarasohn-Kahn, 2017) | OECD, U.S. Census Bureau

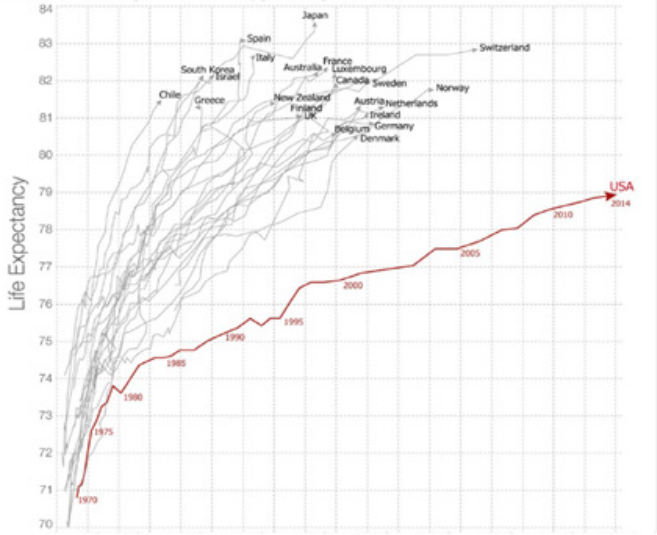
Because we, as a country, under-invest in the forces that shape health, we under-invest in the following: education, nutrition, parks and opportunities for recreation, creating opportunities for livable wages or stable wages, opportunities for housing, opportunities for people to be brought together, mental health, and the environment. These opportunities for investment become a real issue when we talk about COVID-19. These are all areas that contribute to our

health, that shape our lives, and really shaped the life of Blind Willie Johnson, in which we under invest. This is because we put all our health money in treating the disease; treating malaria once it is already started. That is fundamentally the challenge that this country faces and has faced for the past 30-40 years. A challenge that unless dealt with, is not going to improve our health.

Figure 7 shows the big picture. On the X axis you have our spending, and on the Y axis is our life expectancy. What you see is that all other rational, high income countries spend more. Therefore, they have more life expectancy. This is not the U.S. We are off the curve. We spend more, and we do not gain more. That is the moment that we were in when we faced COVID-19, and that is ultimately what has shaped much of what has happened with COVID-19 in this country.

Figure 7

Life Expectance vs Health Expenditure Over Time (1970-2014)



(Roser, 2017)

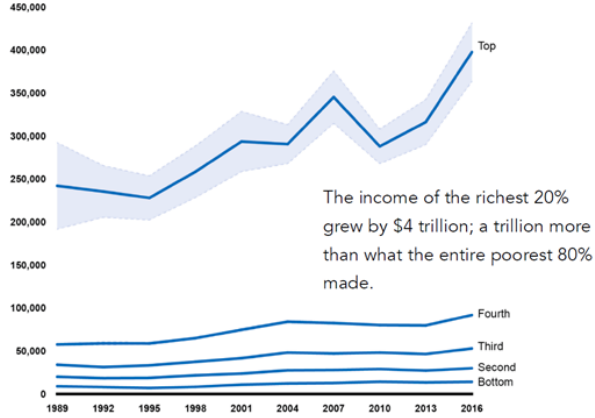
Note: Health spending measures the consumption of health care goods and services, including personal health care (curative care, rehabilitative care, long-term care, ancillary services and medical goods) and collective services (prevention and public health services as well as health administration), but excluding spending on investments. Shown is total health expenditure (financed by public and private sources).

Underlying Social Divides

Before we discuss COVID-19, let's talk about some of these underlying forces mentioned above. I began by saying that my fundamental premise is that our health is imprinted. Social and economic factors imprint on our health. They drive our health. Let's discuss some of the social divides that then are imprinting on health divides. In the context of thinking about health policy, they are inextricable. We cannot think about health divides, or health haves and health have nots, without thinking about social haves and social have nots. The situation on haves and have nots in this country is a pretty bad picture. Because we are the in a University environment, it is probably a fair guess that we are in an environment of a progressive liberal people. Many people are animated and invested in things like the richest 1% and similar thoughts, but I often feel that those rhetorical divides are not very helpful because they distract us from much more foundational divides between. For example, according to Figure 8, it's the richest 20% versus everybody else in this country. Income in this country has essentially risen only in the past 30 to 40 years for the richest 20%. The poorest 80% basically had no rise in income. Thus, the richest 20% is where incomes are rising.

Figure 8

Estimated Average Household Income of Older Households by Income Quintiles, 1989-2016

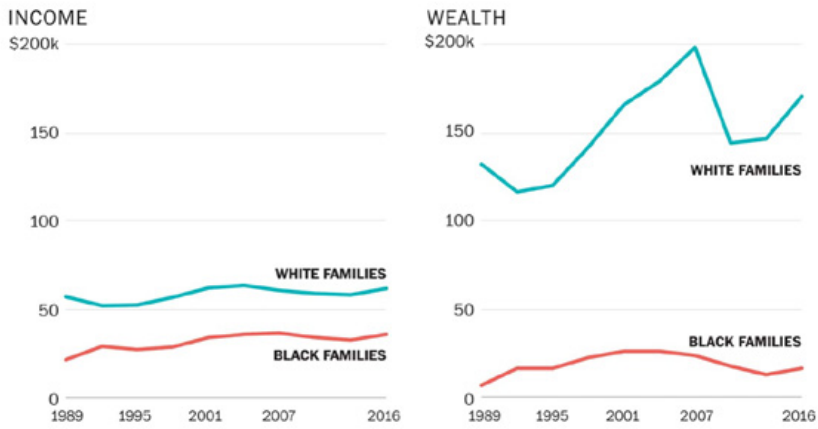


(USGAO, 2019)
Note: Average household income (in 2016 dollars).

How about wealth? Wealth is an extraordinary divider in this country, particularly around racial lines. In Figure 9 below, the left chart shows income, white families, and black families. On the right, you have wealth between the two groups. There is an extraordinary gap in wealth between white families and black families because wealth depends on accumulation of resources over generations. When you have black families who haven't had an opportunity for that accumulation, simply going back to deeply rooted or some structural racism and slavery, you are inevitably going to have this wealth gap. And of course, the wealth gap then becomes patterned as the health gap. I would say that there is a health argument for thinking carefully about the issues of black reparations, to try to remedy these wealth gaps specifically to narrow health gaps.

Figure 9

Racial Income and Wealth Gaps

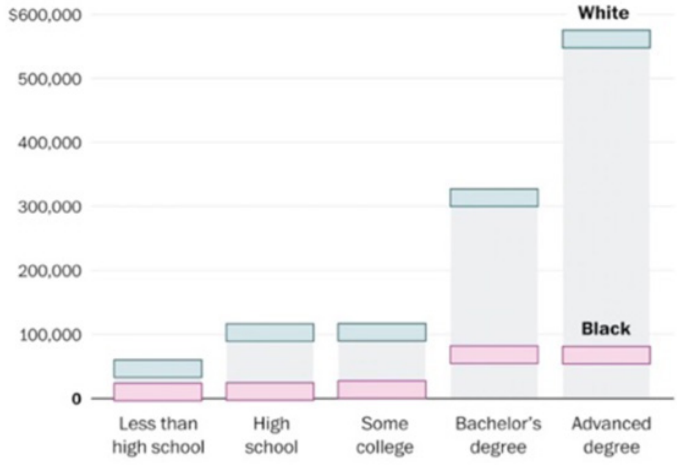


(Ingraham, 2019) | Survey of Consumer Finances

Note: Median income and wealth of black and white families over time (in 2016 dollars).

Figure 10

At Every Education Level, Black Wealth Lags

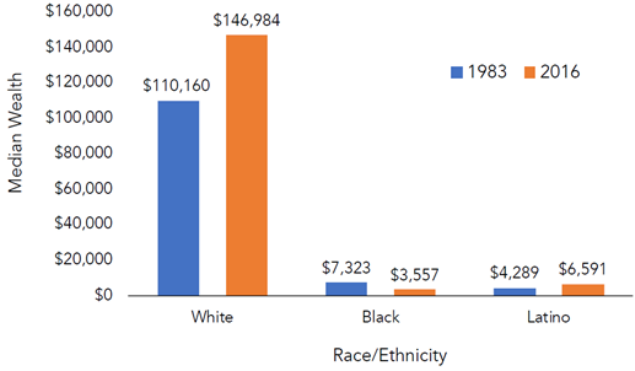


(Long, 2020) | Federal Reserve
Note: Median household wealth by race and educational level, 2016

Figure 10 portrays black and white students at every level of education and clearly depicts how black wealth lags at every level. This is the wealth gap that we face as a country. This change in the wealth is only getting more severe.

Figure 11

Change in Median Wealth by Race/Ethnicity (1983 vs 2016)



(Collins Et. al. 2019)

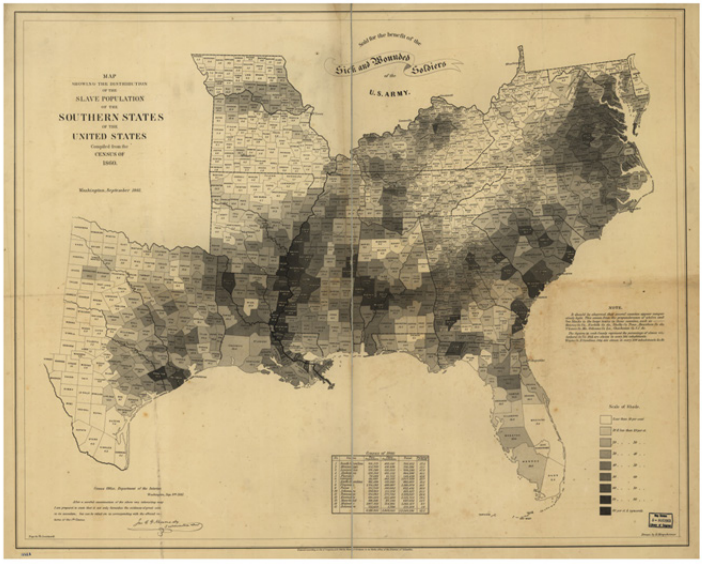
Figure 11 shows wealth changed by race/ethnicity in this country. Not only do we have these social and economic divides, we can see that these social and economic divides have been deepening. It is extraordinary if you think about it. If you accept the argument that our health is divided into health haves and health have nots, that it is patterned by social and economic haves and have nots, and you understand that we have been mis-investing in health by investing only in malaria in healthcare; then on top of that, you see that we actually are deepening the social and economic divides that create these health divides. In my mind, this is enough to make you think, "Why are we doing that? What kind of country are we living in? This defies logic and it defies our expressed preference for health." Now you may think, "Well, we don't have an express preference for health." I would respond by asking if you can think of a reason, other than our health, why we would have upended our whole country and changed everything we do, the way we did in 2020, other than our health? Health is why we did it. It means we care about health and we somehow still intersect with it in the wrong way.

The Inevitable Consequent Health Divides

Figure 12 is a map of slavery in the mid-19th century. This map ultimately sets the stage for deep racial divides that would also become health divides. It's impossible to have this conversation without actually bringing in the foundational causes of the forces of structural racism that really all come from slavery from hundreds of years ago. This, of course, mirrors in things like health.

Figure 12

Slave Population of the Southern States of the United States Compiled from the Census of 1860



(Barry-Jester, 2017) | Public Domain

Figure 13

Racial Segregation in Detroit

(VanHemert, 2013) | Image: Dustin Cable

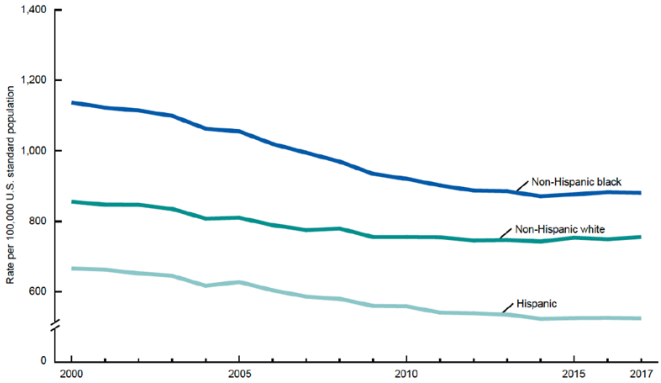
Note: In Detroit, Amongst the most Segregated Cities in America, 8-Mile Road Serves as a Sharp Racial Dividing Line.

Figure 13 shows deep racial segregation in Detroit around 8 Mile Road. The green dots and the blue dots denote white and black, respectively. Notice the segregation - you cross a road and it changes color dramatically. That is the kind of country which builds on the legacy of slavery and of segregation that we've had for hundreds of years. These become social divides that ultimately become health divides.

Now let's talk about the inevitable health divides that emerged. I use the word inevitable here as I was preparing this presentation, because I thought that given it's a health policy lecture, by the time I get this point, you're all going to say, "Hey, we get." But work with me, I am going to show you some of these health divides.

Figure 14

Age-Adjusted Death Rates, by Race and Hispanic Origin: United States, 2000-2017

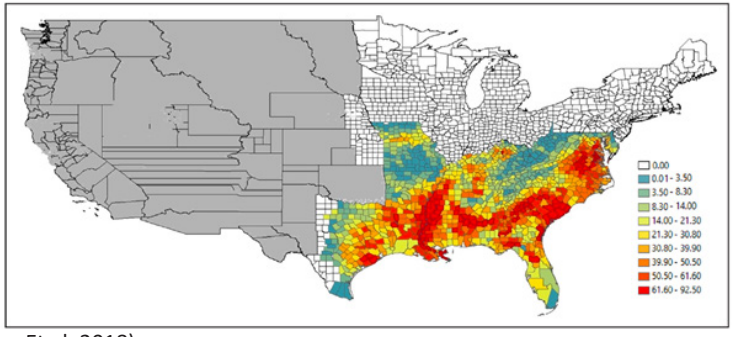


(Kochanek, 2019) | NCHS, National Vital Statistics System, Mortality

Now let's take a look at the health divides that inevitably emerged. Figure 14 looks at black and white life expectancy. Above are death rates showing about a four to five-year gap overall in life expectancy in black and white individuals. It is much wider when we compare black men, who have lower life expectancy than anybody else.

Figure 15

County-Level Salve Population Density in the Year 1860

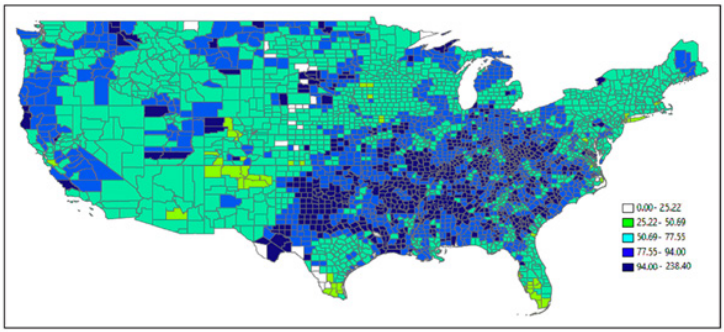


(Esenwa, Et.al. 2018)

Note: Map of U.S. Counties in 1860 with heat map of slave density (percent slaves per 100 county inhabitants). Counties in white did not have slaves or were nonslave counties. Areas in gray were excluded from final analysis because they were not yet considered states or were recently admitted states that were considered free of slaves. Data derived from map showing the distribution of the slave population of the southern states of the United States. Compiled from the census of 1860 by E. Hergesheimer, Engraved by Th. Leonhardt, in Library of Congress, Geography, and Map Division.

Figure 16

All-race Stroke Mortality for the Years 2011-2013

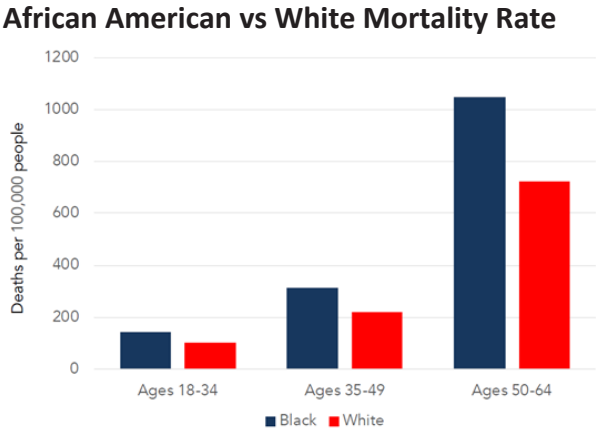


(Esenwa, Et.al. 2018)

Notes: Map of county-level stroke mortality rates for all stroke subtypes for years 2011 to 2013. Data are age adjusted and only includes those aged ≥ 35 years. Data derived from the Centers of Disease Control and Prevention, National Vitals Statistics System.

Figure 15 is a Geographic Information System (GIS) map of slavery in 1860. This map looks a lot like the map in Figure 16, which shows the density of mortalities in the "stroke belt" of our country. It is interesting how the map of slavery from hundreds of years ago maps on to a map of health burden today. These two maps show how our centuries of creating social and economic divides and creating structural forms of excluding particular groups, literally maps on to geographical patterns of poor health burden where we are today.

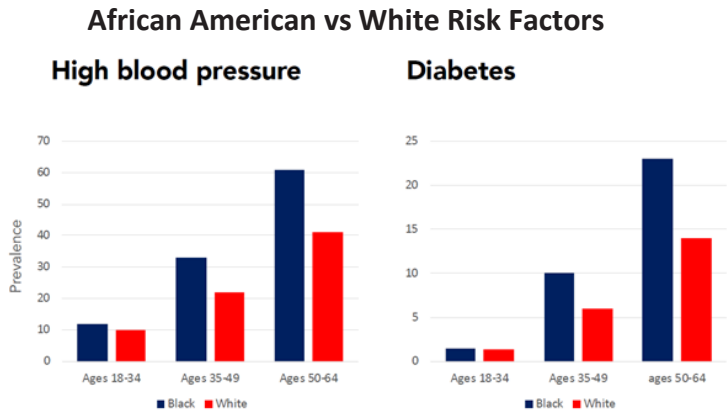
Figure 17



(CDC, 2017) | US Vital Statistics, 2015

Figure 17 looks at black mortality rates to show you how black individuals have a higher mortality rate at every age group.

Figure 18

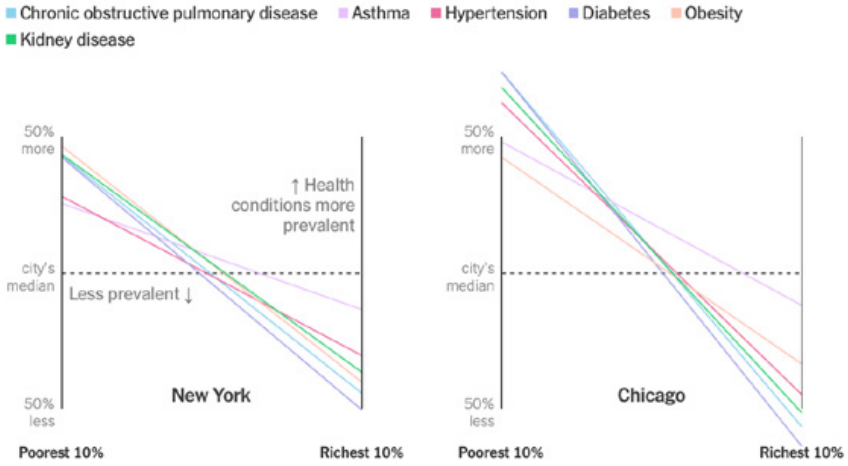


(CDC, 2017) | Behavioral Risk Factor Surveillance System, 2015

Figure 18 includes risk factors for black and white individuals during young, middle, and old age. And I could go on and on and show you some various patterns.

Figure 19

Prevalence of Health Conditions Among Top and Bottom 10% of Income Earners



(Serkez, 2020) | Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health (disease prevalence); American Community Survey (household income).

Note: Prevalence estimates are based on 2016 and 2017 Data.

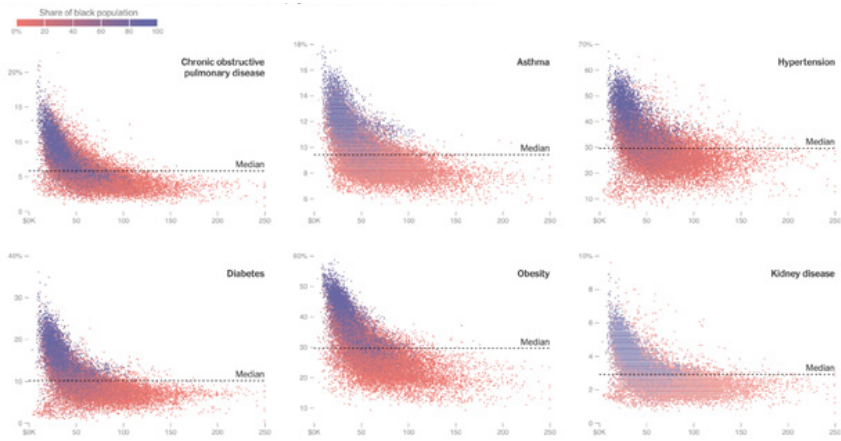
Let's talk about income. Figure 19 above looks at New York and Chicago and the six different health conditions dealt with by the poorest 10% and the richest 10% of neighborhoods in those cities. Poorer areas clearly have more health conditions, and the richest areas have less conditions in terms of health. I'm often asked, "What should I do to make myself healthiest?" That's a fair question. My answer is, you should choose to be born to well-educated well-off majority group parents. If you can choose that, you and your health are going to be fine.

I quite like Figure 20 below because it brings the intersecting concepts of income and race together. This graph shows the same six diseases I showed you in Figure 19. For now, because they all behave exactly the same, we will focus on the middle graph labeled 'asthma'. On the X axis you have richer census tract, and the Y axis is

prevalence of disease. In this asthma cluster, there is a best fit line. The richer the census tract, the less asthma, that is point A. Point B shows that the census tracts are shaded with more purple. This means the greater the share of the black population. So, the richer you are, the less disease you see, for all six diseases shown here. Then you see, in all six graphs, the black census tracts are clustered in the poor and high prevalence areas, which of course makes the case about the confluence of income and race. We sometimes spend too much time arguing about "Is it this, or is it that," but the truth is it's very hard to isolate causes with these things because these causes co-occur and they are inextricably wound up in each other.

Figure 20

Prevalence of Health Conditions Across Census Tracts, by Median Household Income and Race



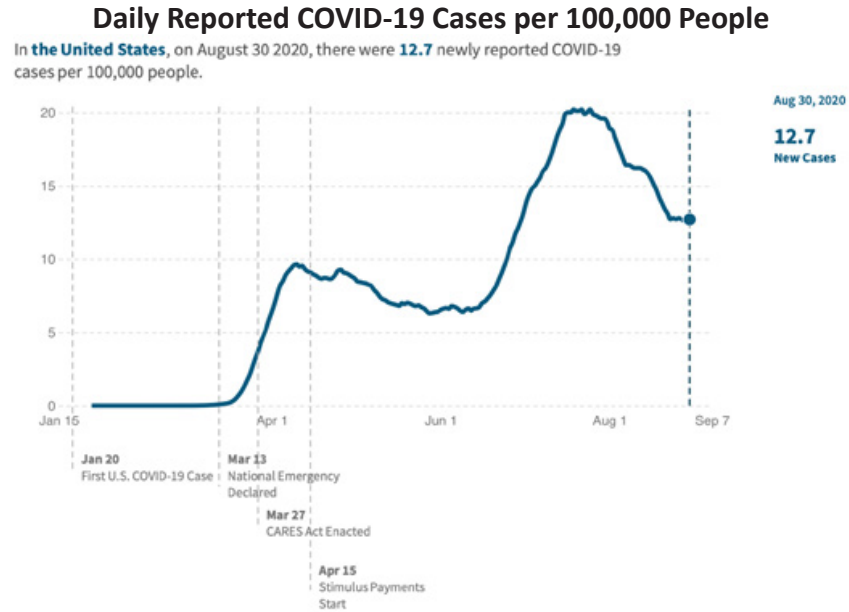
(Serkez, 2020) | Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health (disease prevalence); American Community Survey (household income).

Note: Prevalence estimates are based on 2016 and 2017 data.

The COVID-19 Moment

In this country we have our social and economic divides, and then those divides become our health divides. That is the country that we have built over the past 40 years. Then COVID-19 hit. That's the state of the country that SARS-CoV-2, the novel coronavirus, came and found us in. So what happened? What did COVID-19 do to us? And how did that then overlay on the presence of the social divides, economic divides, and the consequent health divides?

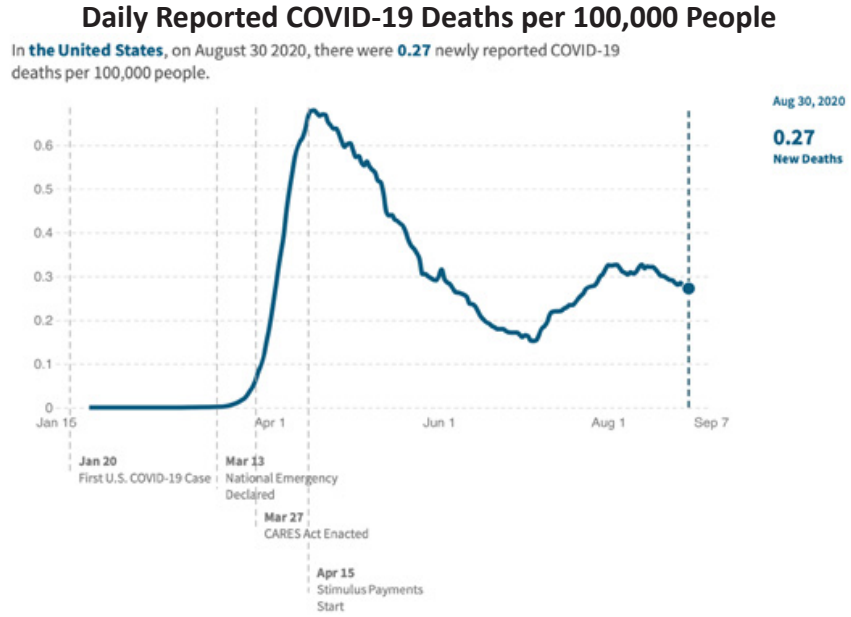
Figure 21



(Opportunity Insights Economic Tracker, 2020)

Note: Confirmed COVID-19 cases per 100,000 people, 7-day moving average. This series uses data published by the *New York Times*. Negative numbers may appear if corrections of official statistics are made that, on net, reduce the daily count relative to new cases.

Figure 22



(Opportunity Insights Economic Tracker, 2020)

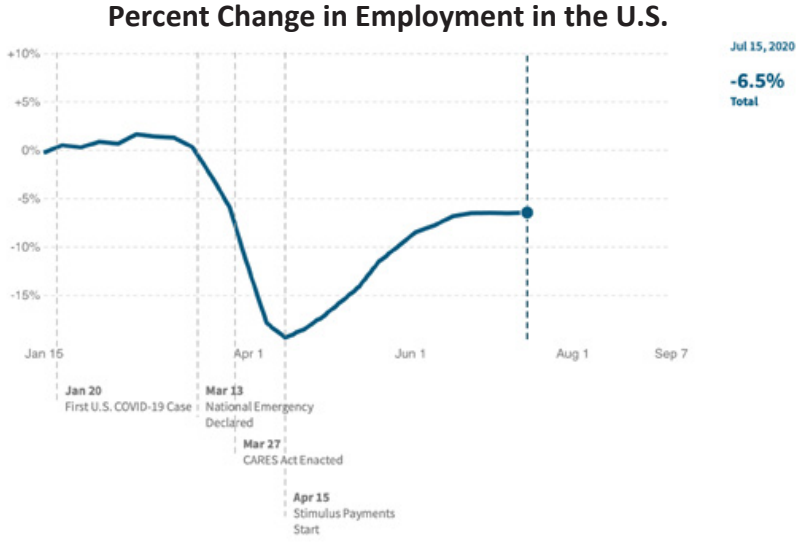
Note: Confirmed COVID-19 cases per 100,000 people, 7-day moving average. This series uses data published by the *New York Times*. Negative numbers may appear if corrections of official statistics are made that, on net, reduce the daily count relative to new cases.

COVID-19 has dominated all our lives. As of September 2020, there have been almost 190,000 deaths and roughly 6 million cases throughout the U.S. Figure 21 depicts the epidemic curve. We had a first wave, and we now are in the second wave. You'll see it is going down. Figure 22 shows COVID-19 deaths. In the first wave, we had a lot more deaths than the second wave. At this point, cases are going down, so we'll see where it goes come the fall.

All of that has led to enormous social transformations. When we look at footage from typically heavily populated areas, like New York City and Times Square, it looks desolate. COVID-19 has led to an unprecedented social transformation. Of course, it's

not just COVID-19, a virus, or a pandemic. It's also the massive change in employment. Figure 23 shows us a dramatic decrease in employment, which is now beginning to recover. What the graph below does not show is that high income employment has recovered to just minus .5% as of today. Low income employment is still 50% off what it was before COVID-19. This means that the economic divides I showed you earlier, are now deepening. High-income employment has essentially recovered, low income employment is still 50% below what it was in the beginning of COVID-19. Remember what I was showing you earlier about economic divide having impact on health divide. It's not a stretch to then ask the question of "How is that going to affect our health divides going forward?"

Figure 23



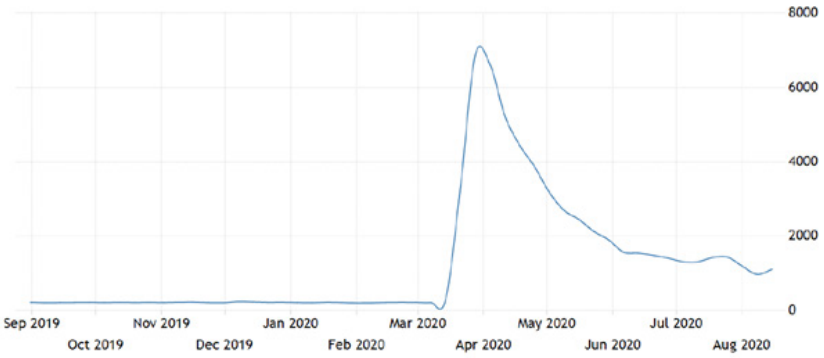
(Opportunity Insights Economic Tracker, 2020)

Note: Percentage change in employment in the United States, as of July 15, 2020, employment rates decreased by 6.5% compared to January 2020. Change in employment rates, indexed to January 4-31, 2020. This series is based on payroll data from Paychex and Intuit, worker-level data on employment and earnings from Earnin, and timesheet data from Kronos. The dotted line in the low-wage series is a prediction of employment rates based on Kronos data.

Figure 24 gives you a sense of unemployment. You can clearly see we were trucking along and then we had this enormous spike, while Figure 25 helps us step out of the lens a little bit. This graph represents about five years, and shows us just how dramatic the increase in unemployment was around COVID-19. This is where we are along, and then there is this enormous perturbation. In the context of health and the context of the thesis that health divides are patterned by social and economic divides, this issue is now deepening, making it substantially worse. We cannot have a COVID-19 conversation without having the conversation on the underlying health divide that we have in this country.

Figure 24

U.S. Weekly Unemployment Claims (2019-2020)

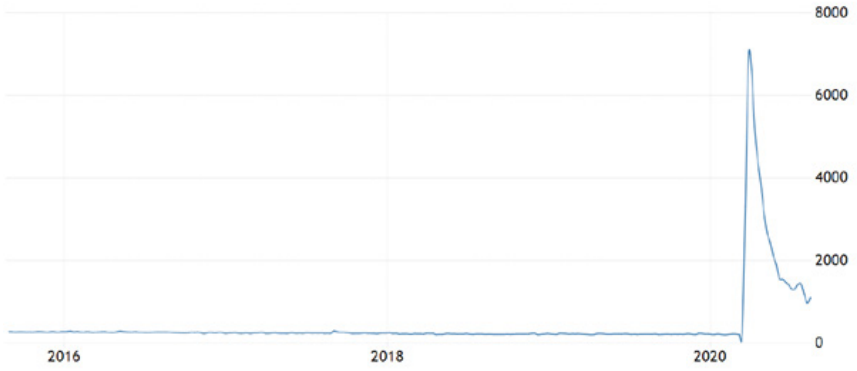


(Trading Economics, 2020) | U.S. Department of Labor

In addition to COVID-19 has been the civil unrest- justifiable anger at centuries of structural racism and a lot of anti-black racism that has boiled over with the murder of a number of people, including George Floyd and many others. This reflects an intersection of the moment. I would argue it reflects these deep seated, underlying social, economic, and health divides. They all came together because of a health condition, because of COVID-19.

Figure 25

U.S. Weekly Unemployment Claims (2016-2020)

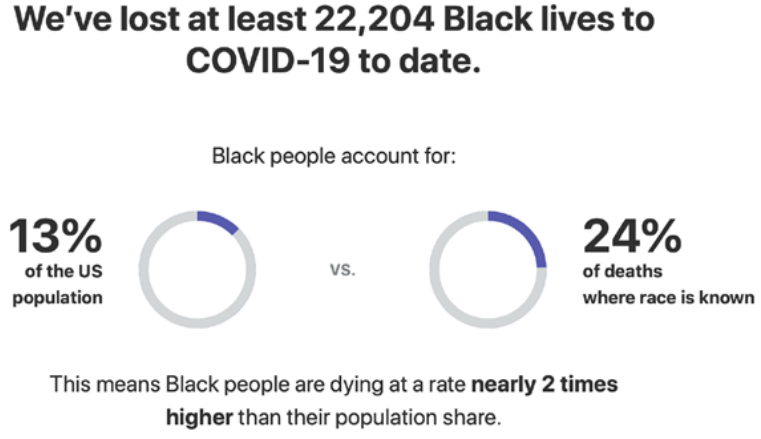


(Trading Economics, 2020) | U.S. Department of Labor

COVID-19 and Health Divides

So is that true? How have these inequities manifested as COVID-19 and health divide? If what I am saying is true, then we should have seen health divides during COVID-19. And we did see these health divides as I'm going to show you.

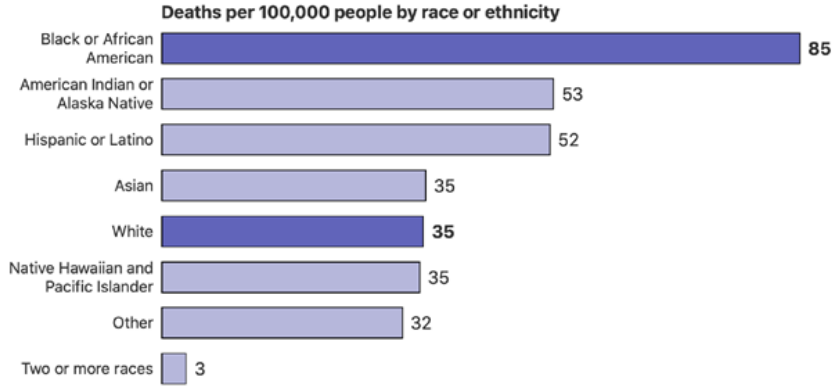
Figure 26



(The COVID Tracking Project, 2020)

Figure 27

Nationwide, Black People are Dying at 2.4 Times the Rate of White People



(The COVID Tracking Project, 2020)

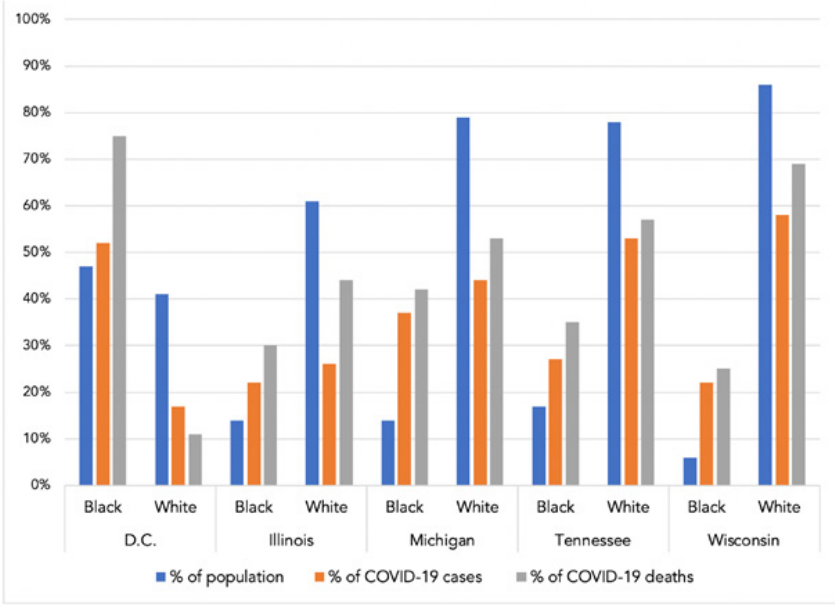
Figure 26 shows that black people are about 13% of the population and account for 24% of deaths. Black people are dying about twice the rate of white people. That reflects both the risk of contracting COVID-19 and then dying from it. Figure 27 is the death rate per hundred thousand by race or ethnicity- black death rate, compared to white death rate. It's a twofold increase in death from black versus white.

To give it some numbers, if they died of COVID-19 of the same actual rate as white Americans, about 20,000 fewer black people would have died. 8,400 Latinx people and 600 indigenous people would still be alive. I'll say this again, 20,000 black Americans died, who wouldn't have died if the black death rate was the same rate as white Americans. We have had civil unrest about the police shootings and the deaths from them, but 20,000 deaths from COVID-19 is just a lot of people. That really is fundamentally a social patterning of disease. That is the same social patterning with pre-COVID-19 manifesting in a time of COVID-19. That is the country

that we had built. COVID-19 did not do anything special. It simply came in and overlaid on the country that we had already built.

Figure 28

COVID-19 Cases and Deaths by Racial Groups in Different States/Districts



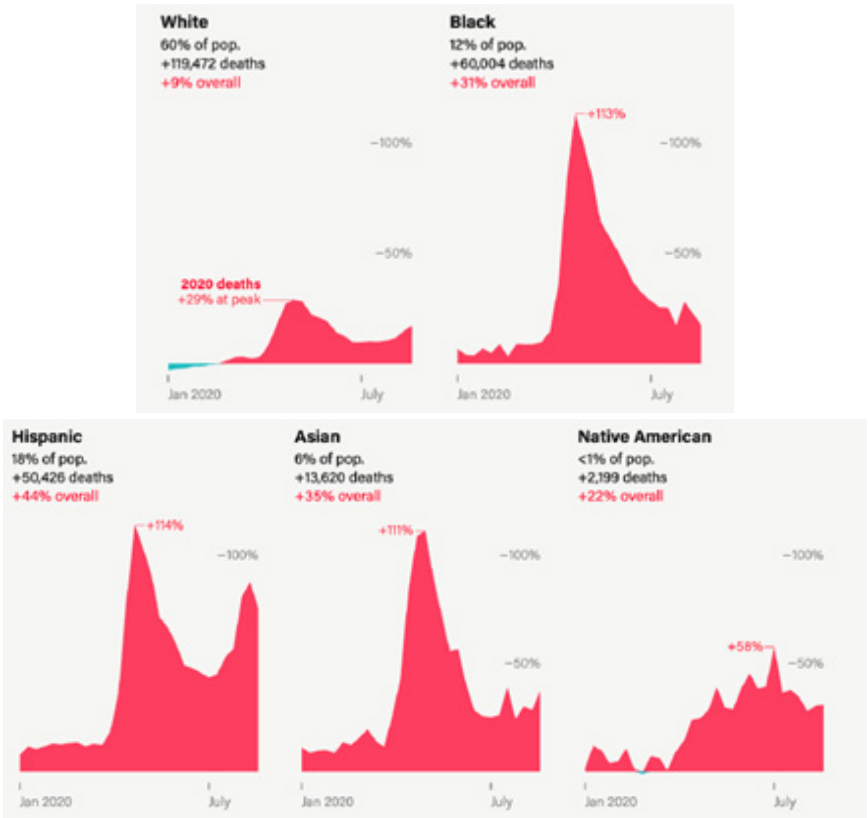
(The COVID Tracking Project- Racial Dashboard, 2020)

That being said, this has been true everywhere. Figure 28 shows D.C., Illinois, Michigan, Tennessee, and Wisconsin. The blue shows the percent of population, the orange is the percent of COVID-19 cases, and the gray is the percent of COVID-19 deaths. What you see in all of these is a pattern. The black population has a higher percentage if COVID-19 cases than population, and a higher percentage of COVID-19 deaths than cases. The white population has a higher percentage of population than COVID-19 deaths and cases. The reason for that is because the risks of getting COVID-19 and dying from COVID-19 are different risks. The risk of getting

COVID-19 is influenced by underlying social conditions that can make you more likely to be exposed to COVID-19. Risk of dying from COVID-19 is fundamentally patterned on an individual's underlying conditions to make them more susceptible and vulnerable to adverse consequences once they have COVID-19. Both of those conditions reflect the social and economic reality and the underlying health reality.

Figure 29

United States Deaths Above or Below Normal

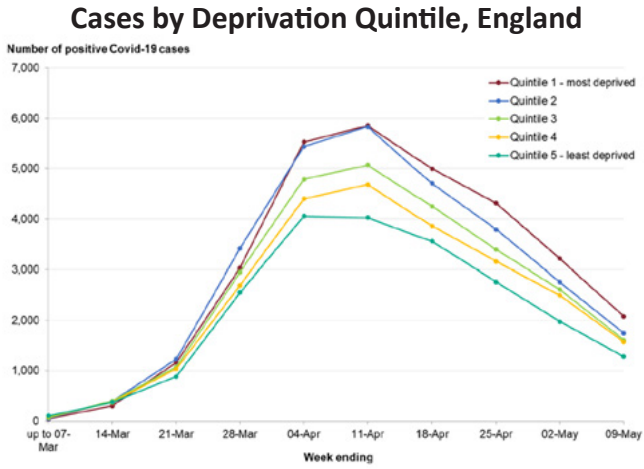


(Flagg, Et.al., 2020) | 2018 U.S. Census, CDC weekly death estimates by race and Hispanic origin.

Note: The data is provisional and likely undercounts true numbers of deaths in some cases. Due to differences in estimation methodologies, summing counts over demographic groups does not provide an accurate estimate of total deaths.

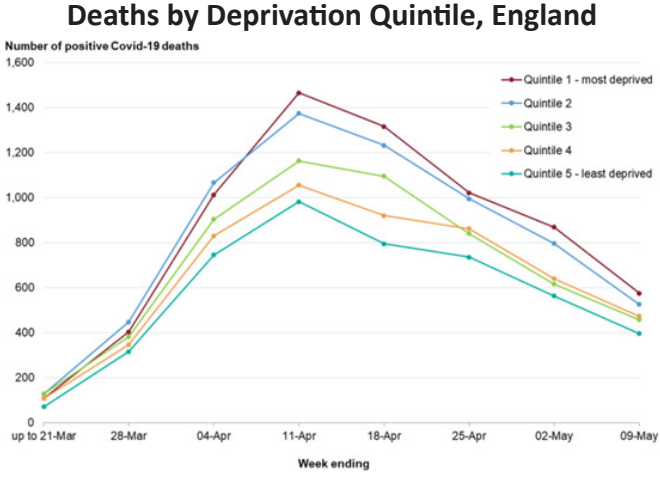
Figure 29 is a graph that looks at deaths above normal and overall deaths. This chart shows overall, how during every single moment of the pandemic there has been an extraordinary increase above normal in black mortality. I am talking about race and income in this country, but this is a universal pattern.

Figure 30



(Public Health England, 2020)

Figure 31



(Public Health England, 2020)

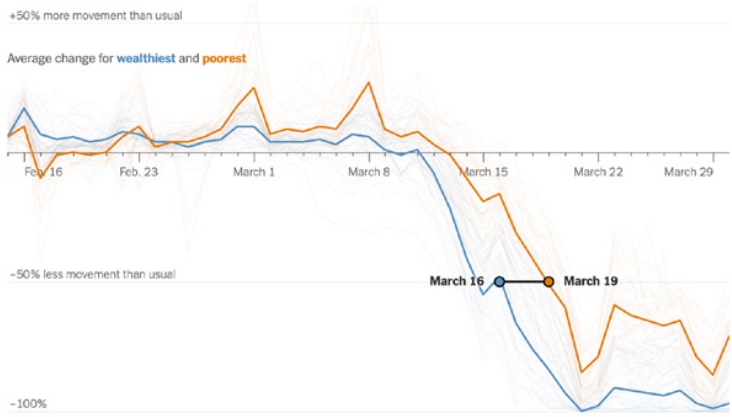
Figure 30, "Cases by Deprivation Quintile, England," is data from England. This is the best data that is out there and I think it makes the point very nicely. This figure shows the first wave epidemic curve in England. Quintile five is the richest 20% and quintile one is the poorest 20%. What you see is this beautiful epidemic curve. Notice the richest 20% is always lower, at every point than the poorest 20%. This is a pattern that's consistent when the have nots become the health have nots. Figure 31, "Deaths by Deprivation Quintile, England," follows the exact same pattern.

Health Haves, Health Have Nots, and COVID-19

The social divides in the U.S. become health divides in time of COVID-19. Let's now talk about why this is happening during COVID-19, and how to bring all of these ideas together. Why is it that black Americans were more likely to get COVID-19? Because the risk factors of getting COVID-19, which is essentially contact with other people, was more prevalent among black Americans than among white Americans. Why is that? Because wealthier Americans were more likely to be in jobs that afforded them the luxury of being distant from other people.

Figure 32

Change in Mobility after Covid-19



(Valentino-DeVries, Et. al. 2020)

Figure 32 is a very simple graph that shows us change in movement when things were happening. Remember the first week of March when the whole world seemed to stop? For those of us in the wealthiest group, it stopped days earlier than for those in the less wealthy group. Those days make a big difference in your risk of contracting COVID-19. Moreover, the more money you had, the faster you were able to isolate.

Figure 33

Share of Workers in Sectors not in Lockdown who can Work from Home, by Sociodemographic and Socio-Economic Group

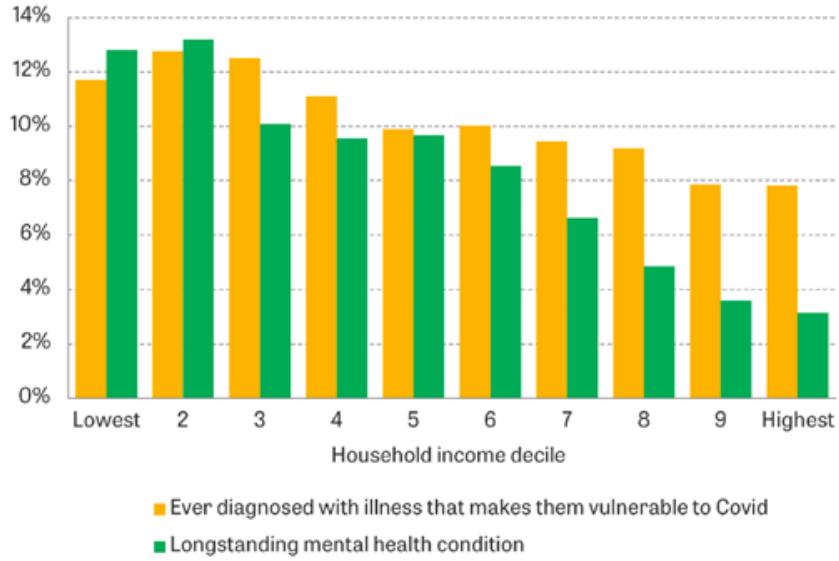
(Blundell, Et. al. 2020)

Note: 0*NET data used to identify occupations that are amenable to working from home, using classification in Dingel and Neiman (2020). 'Pak./Bang.' stands for Pakistani or Bangladeshi. 'Oth.Asian' are Asian ethnicities other than Indian, Pakistani, or Bangladeshi. 'Other' are mostly mixed raced ethnic backgrounds. Authors' calculations using Labour Force Survey, quarters 1-4 2019, waves 1 and 5 only.

We're going back to the UK reports, because they have such excellent data on this. In Figure 33, let's focus on education and earnings. The more your earnings and the higher your education, the more likely it is that you can work from home. The forces of social division and economic division that were shaping our health pre COVID-19 were the same forces that programmed our likelihood of getting COVID-19 once it hit. In conclusion, the more education and higher income were more likely to be able to work from home.

Figure 34

Medical Vulnerability to COVID-19 or the Effects of Social Isolation, by Income



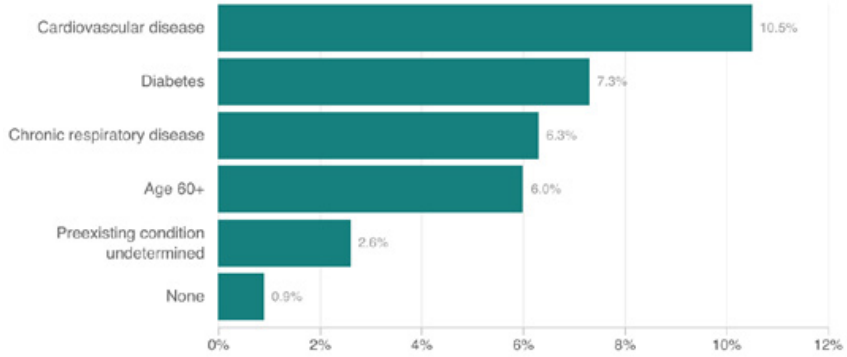
(Blundell, Et. al. 2020)

Note: Diagnoses include asthma, congestive heart failure, coronary heart disease, emphysema, chronic bronchitis, cancer or malignancy, diabetes, and high blood pressure. Mental health based on self-reported mental health condition lasting or expected to last over 12 months. Deciles based on equivalized net household incomes, using modified OECD equivalence scale. Authors' calculations using UK Household Longitudinal Survey wave 9 (ever diagnosed) and Family Resources Survey 2018-19 (mental health).

How about vulnerability then to COVID-19 and to its effects? Figure 34 depicts income decile. The yellow shows if you have ever been diagnosed with an illness that makes you vulnerable to COVID-19 and its health consequences. And the green is having a longstanding mental condition, which of course makes you vulnerable to COVID-19. The more money you have, the less likely you are to have to an underlying medical condition, which of course makes you then less likely to die from COVID-19. Because one of the things that we know from COVID-19 is that medical underlying comorbidity is the central risk factor for having adverse consequences of contracting COVID-19. Similarly, the more money you have, the less likely you are to have a mental health condition, which then means you are less likely to have mental health problems.

Figure 35

Death Rate for COVID-19 Patients in Chine Higher for Those with Underlying Conditions



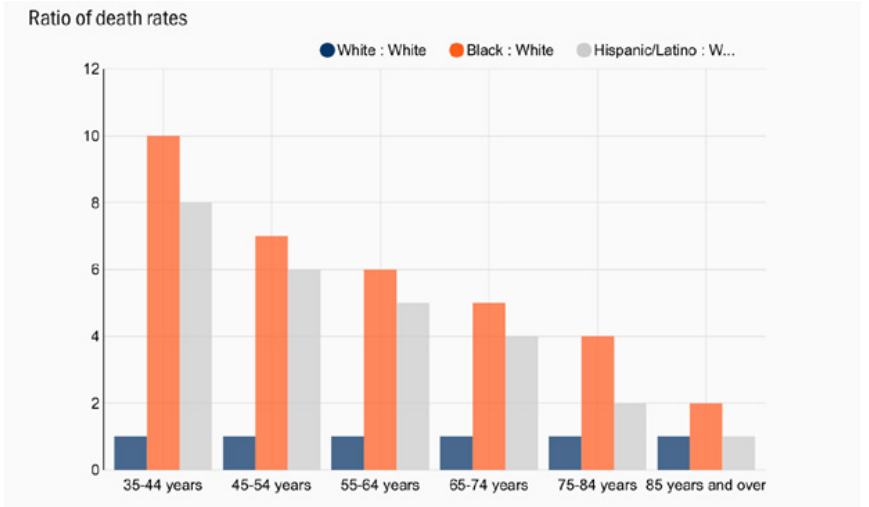
(Whyte & Zubaak-Skees, 2020) | Chinese CDC | Ruth Talbot/NPR
Note: Preexisting condition death rates based on 504 deaths out of 20,812 cases.

Figure 35 shows the first data available from China, displaying the death rate for COVID-19 patients. If you have cardiovascular disease, diabetes, chronic respiratory disease, or other pre-existing conditions, you are more likely to die from COVID-19. Your chances

of dying from COVID-19, if you have no underlying conditions, is less than 1%. Which of course is immensely, socially patterned, racially patterned, and economically patterned in this country, which then manifested people in particular racial and socioeconomic groups dying from COVID-19. It was not a mystery when COVID-19 unfolded. It was like a book that was already written, and COVID-19 just added layers of script on top of it.

Figure 36

Huge Race Gaps in COVID-19 Death Rates, Especially in Middle Age

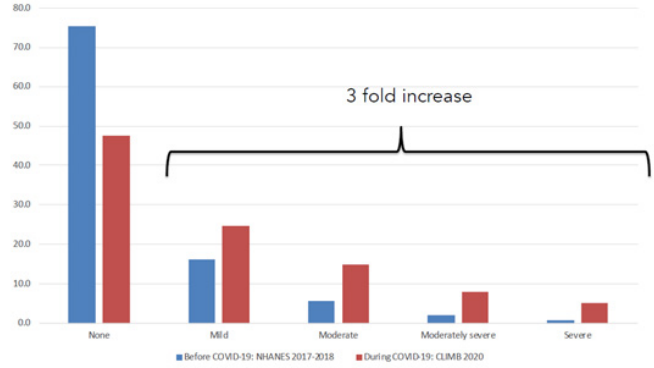


Source: CDC data from 2/1/20-6/6/20 and 2018 | Census Population Estimates for USA | Brookings

What Figure 36 shows us is this enormous gap in death rates particularly among the younger groups and less so among older groups. Why is that? Well, among older groups, white people also start having comorbidity. Among younger groups, the burden of disease is shifted among black Americans that have more disease earlier, which then becomes what COVID-19 affects.

Figure 37

Depression in U.S. Adults Before and During the COVID-19 Pandemic

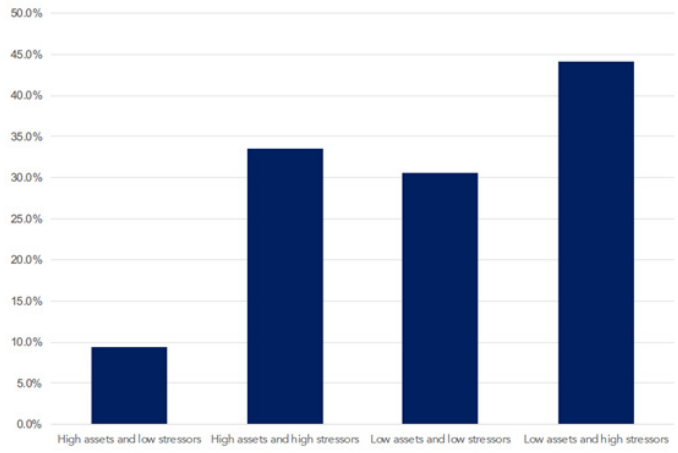


(Ettman, Et. al. 2020)

Note: Before COVID-19 estimates from the National Health and Nutrition Examination Survey (NHANES) from 2017-2018 (N=5065). During COVID-19 estimates from theCOVID-19 and Life stressors Impact on Mental Health and Well-being Study (CLIMB) collected from March 31, 2020 to April 13, 2020(N=1441). Depression symptoms categories calculated using the Patient Health Questionnaire-9 (PHQ-9): none (0-4), mild (5-9), moderate (10-14), moderately severe (15-19), and severe (≥20). Percentages weighted to the U.S. adult 18 years or older population.

Figure 38

Predicted Probability of Depression



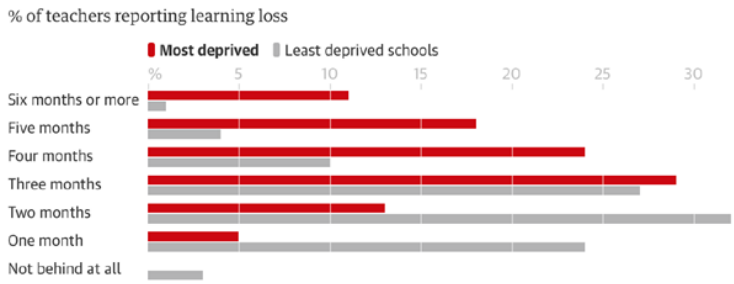
(Ettman Et.al. 2020)

Figure 37 comes from a paper we just published in *JAMA* and shows there has been about a three-fold increase in depression nationally. We looked at those with no symptoms and those with mild, moderate, and severe symptoms. The blue bar shows pre COVID-19 and the red shows post COVID-19. There are more people in the "none" group pre COVID-19 and less in this group post COVID-19. Then you see about a three-fold increase in those with mild, moderate, and severe symptoms of depression post COVID-19, and that is importantly, completely socially patterned.

The group with more risk of depression, as seen in Figure 38, is a low asset high stressor group, which means people who did not have assets before COVID-19, and the people who then face stressors like unemployment during COVID-19, are the group that had more depression. I've been involved in a lot of public writing about depression which tries to de-stigmatize it and tries to communicate depression as a common health condition and one that's important to recognize. Unfortunately, it almost always gets caught up in the narrative of "It's a problem of the wealthy." It is not. Poor mental health is disproportionately a problem of people with fewer assets and fewer resources. It is a problem of the poor, and we fundamentally cannot overcome that unless we deal with these underlying social differences.

Figure 39

More than Half of Teachers in the Most Deprived Schools say Pupils are Four Months or more Behind



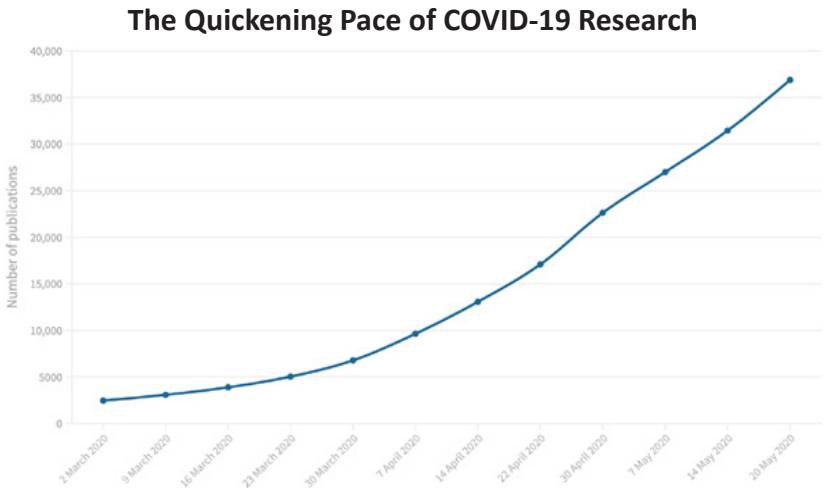
(Adams, 2020) | National Foundation for Educational Research

We are continuing to deepen these divides. Figure 39 shows some examples of that regarding teaching and pupils falling behind. What I want to show you is that kids in the least deprived schools are really not falling far behind. My kids are not falling that far behind, your kids are not either. It's kids in the more deprived schools who are the ones falling behind.

The Role of Science

Before I conclude, I want to share with you some graphs showing the role of science. There has been a lot of COVID-19 research recently. It is the steepest growing area of research for any topic ever, as seen in Figure 37. Right now, we are close to 9% to 10% of all papers being published are COVID-19 related papers, which is really quite extraordinary.

Figure 40



Source: Dimensions

We've been publishing a lot of papers and we've been publishing differently. Figure 40 shows where papers have been published. It's an eight to one pre-prints to peer review ratio in our publication of

COVID-19. I'm not here to bury pre-prints, I'm just simply raising questions. We should be asking ourselves, "How is it that we have told the story of COVID-19? Are we, in scholarship and science, holding ourselves accountable to telling the right story for how COVID-19 has affected our health as a country?"

Figure 41

COVID-19 Journals and Preprints Servers by Number of Articles

Journal or preprint server	Number of COVID-19 papers	
medRxiv	3866	
SSRN Electronic Journal	2543	
Research Square	1415	
arXiv	1184	
bioRxiv	1120	8 preprint:1 peer-review
The BMJ	636	
ChemRxiv	564	
JMIR Preprints	456	
Science	420	
The Journal of Medical Virology	368	

Source: Dimensions

The Contagion Next Time

I'd like to briefly talk about the contagion next time. James Baldwin's classic book, *The Fire Next Time*, shows how the ineluctable role of racism and interpersonal structural racism is shaping everything about life and about experience. Because fundamentally, it's impossible to tell the story of COVID-19 without telling the story of the underlying social divides, race being what a predominant factor, and the underlying economic divides, which mirrors race but also has its own total dimensions. You cannot tell the story of what happened with COVID-19 without actually dwelling on these

forces; without saying that the contagion next time will behave the same as this time, unless we deal with these underlying forces.

We knew a pandemic was going to happen. Take a look at the *Time Magazine* Cover Story below. *Time Magazine* is as mainstream as it gets, and they are not in the business of saying controversial things. Yet they had a publication two years ago saying, "We're not ready for the next pandemic." We are not ready, not just because of our under-investment in the pandemic preparedness and the public health infrastructure, which is fundamentally what they talk about, but because we are not ready to allow our society to be structured in such a way to create these health divides that then become the COVID-19 divides that we see now.

Image by Henrik5000–Getty Images
https://time.com/magazine/us/4766607/may-15th-2017-vol-189-no-18-u-s/

I'm going to conclude the lecture with a picture of the best soccer team in the world; The Western Women's National Soccer Team. I'm showing it to end on a metaphor. I started with a story, so I want to end with a metaphor of soccer. For those of you who don't know soccer or play soccer, here's a little background. There are 11 people on one team and 11 on the other. They try to get the ball into the other team's net. 10 of players on each team (the one's in white in the image below) can only use their feet, hence why it's called football. The woman in black, Alyssa Naeher, can actually use her whole body, arms, legs, et cetera, to stop the ball from getting into the net. So, if the goalkeeper is superhuman bionic, she will not let a single ball in and then they will always win. Now if you do not play soccer, you might think, "Well, if I have the best goalkeeper in the world, I'm never going to lose." Which is true theoretically. If you watch a professional soccer game, what you see the goalkeeper do is prowl her box, walk from her net and yell at her fellow teammates. What she's doing by yelling at her players the whole game is saying, "Keep the ball away from me." Why is she doing that? Well, because if you have ever stood on the side of a soccer net, you know it is pretty big. The best goalkeeper in the world knows that the ball's going to go bust by her sometime. I'm telling you this because the goalie is medicine and healthcare, right? We want the good goalie.

When I have malaria, I want to be treated from malaria. The goalie in this metaphor is medicine. You are not going to win unless you have 11 players, you are not going to win unless the other 10 players also act. Those other 10 players are gender equity, dealing with segregation, structural racism, housing, domestic violence, poverty, and creating availability of nutritious food. And we as a country think of health as being just the goalie. The goalie is important, but it's just one of 10 players. We have lost in COVID-19 soccer because we have a very expensive goalie. That goalie has been nowhere

near good enough because we have not invested in the other 10 players.

Image by Marcio Machado–Getty Images
https://www.forbes.com/sites/tomflynn/2019/07/16/the-carolina-team-that-helped-fuel-a-uswnts-title/#e34a205c6e07

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