Killer Combination: Climate, Health and Poverty

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Greg Dalton: This is Climate One. I'm Greg Dalton. Climate change often seems like an abstraction. But the signs are all around us - if we know what to look for.

Catherine Coleman Flowers: *I knew that armadillos were not native to Alabama. But when I moved back, I started to see armadillos. I started to see palm trees grow in areas where they would not grow before. [:09]*

Greg Dalton: There are some impacts of fossil fuels that are more obvious and direct. One is that they cause poor Americans to get sick.

Adrienne Hollis: *Let's talk about for example, Cancer Alley, where the communities have been exposed daily, hourly...to air toxics, water toxins and those things that affect their health. [:12]*

Aaron Bernstein*: Climate actions matter to our welfare today...they especially matter to people who are poor, people of color in this country who've been disproportionately burdened by air pollution that is overwhelmingly from burning fossil fuels. [:13]*

Greg Dalton: Climate, health and poverty. Up next on Climate One.

Greg Dalton: What happens when climate, human health and poverty converge?

Climate One conversations feature all aspects of the climate emergency: the individual and the systemic, the exciting and the scary. I'm Greg Dalton.

Greg Dalton: Experts have warned us that COVID-19 is just one example of climate change-related

diseases on the rise. And while climate disruption, environmental health and the current pandemic may seem like three distinct problems, to many experts, that's not the case.

Adrienne Hollis: *All of them are connected, and the underlying cause is systemic racism. And because of that communities are affected by adverse effects from climate change, and because of exposure to hazardous substances because of where they live, because of redlining and such, they are more at risk from COVID-19 infections and death. [:20]*

Aaron Bernstein*: ...and so if you want to address pandemics and you want to address climate change you've got to focus on equity. And the solution and the great news in some ways is that these actions you need to take are one and the same. [:12]*

Greg Dalton: Adrienne Hollis is Senior Climate Justice and Health Scientist at the Union of Concerned Scientists. And Aaron Bernstein is Interim Director of the Center for Climate, Health, and the Global Environment at the Harvard Chan School of Public Health. I'll be speaking with them both later in the program.

Greg Dalton: My first guest, Catherine Coleman Flowers, is the author of *Waste: One Woman's Fight Against America's Dirty Secret*, which explores environmental justice in rural America. Flowers started her career in activism as a teenager in Lowndes County, Alabama. That's when she campaigned successfully to have the name of her high school changed from Lowndes County Training School - named for a noted secessionist - to Central High School. Since then, she's gone on to become a leading advocate for civil and environmental rights. She founded the Center for Rural Enterprise and Environmental Justice, and in 2020 was selected as a MacArthur Fellow. At Bernie Sanders' invitation, Flowers was appointed to Joe Biden's Unity Task Force on Climate Change, which included John Kerry, Gina McCarthy and Alexandria Ocasio-Cortez.

Greg Dalton: In 2001, Flowers moved back to Lowndes County and discovered a lack of sanitation and clean water in this largely poor and Black community. Absence of those basic services, which most Americans take for granted, was leading to the spread of disease-causing parasites, such as hookworm. Why did she return?

PROGRAM PART 1 - CATHERINE COLEMAN FLOWERS

Catherine Coleman Flowers: I was always pulled back. I think it was the you know the dirt, it's something about that soil seeing that red dirt. Something about the people in the spirit and their smiles and always been receptive to me, receptive whenever I went home. I knew I was home.

I just remember as a child, my father telling me, you know, we were living in Montgomery prior to moving to Lowndes County. And we would be on Highway 80, 80 is the road that's where people marched from Selma to Montgomery. So, we would be going west on 80 going into Lowndes County and would go to an area called big swamp. And there was a big swamp creek and there were three bridges there. We're going through big swamp after we crossed over big swamp my father would tell us, we're down home now. And he would tell us you know if you're ever on this road and anybody gets behind you, you can stop at any house, these are your cousins. So, that is the reason why I've always felt connected and close to Lowndes County was always called back because you know my blood is in that soil. And a lot of the people that are there are my relatives and I will forever be connected.

Greg Dalton: And when did you realize that climate change is impacting the issues that you're working on: rural development, economic development and the human waste systems.

Catherine Coleman Flowers: Well, I think part of it happened when I went back home one of the things that I started to notice changes, you know, the good thing about traveling other parts of the country you can compare. And when I was living in Oklahoma and I could see you know armadillos, something that I didn't see growing up in Alabama. I knew that armadillos were not native to Alabama but when I moved back, I started to see armadillos I started to see palm trees grow in areas where they would not grow before.

And I didn't know what it was.And I watched An Inconvenient Truth and that's when I gave it a name, I didn't know it was climate change I thought it was just simple. I knew that the world was changing. I knew that it was getting warmer. I knew that the seasons where we had more hot days and cold days. And just things were just, you know, not the same anymore. I guess I had lived long enough to start seeing them but it was happening faster than I thought it should be happening. Because if I was noticing it, it meant that something was going on. And climate change helped me to understand that.

How it connected to economic development. Well, initially I didn't know the connection. But as I learned about the wastewater problem and I learned that, you know, I would hear things people will say sometimes the cruelest things when I was trying to do economic development for Lowndes County. They will say things like there's no reason to go to Lowndes County except to get Selma or to Montgomery. This is what I would hear from government officials who were supposed to be assisting with economic development. And that let me know that they had a bias against not only Lowndes County but rural communities. Because they didn't see any value there except as a place to go through to get someplace else.

So, when we in trying to do recruitment and trying to bring in some of the services that people needed, clearly one of the things they would always ask about was wastewater and what kind of infrastructure was in place. And it was doing the course of that that I found out about the residents and the problems that were happening there because they were arresting people that could not afford wastewater treatment.

And initially I had been told by people that we trusted at the time that it was because people could not afford it. And we thought that may be getting some funding in place for people to get the wastewater treatment, the onsite wastewater treatment would help. But we ended up getting a grant that was actually sponsored by Senator Richard Shelby that was part of a congressional appropriation. We got it through the EPA and we did what people had not done before which was going house to house. What we started to learn was it was greater than that. It wasn't just that people were without wastewater treatment that people that had it had failing systems and it was coming back into their homes. And there were some people in the small towns that were located within the county had smaller treatment plants and they were paying wastewater treatment fees and the sewers were still coming back into their homes too.

And that's when we realized that there was a connection and the illnesses associated with that. We saw the mosquitoes were still thriving and living in the, I mean I have a picture of when I went to a site with some students. And it was a pit full of raw sewage. In that raw sewage you can see frogs that probably had been tadpoles that were whose eyes are peeking out from among human feces and it was teeming with mosquitoes. And that in itself made me start thinking there could be something going on here.

Greg Dalton: One of the earliest people to help you was Bob Woodson, a conservative expert on urban issues and MacArthur genius grant recipient, you invited him to learn about rural poverty in Lowndes County. What did he see and how did he respond?

Catherine Coleman Flowers: Oh wow, I just remember when I first met Mr. Woodson, I met him at a faith-based summit. And there were all these ministers there from around the county. And he spoke and I had met him before, but you know we had entered into a debate, I was debating with him actually but I couldn't see why he was a member of the GOP. But it just so happened that when I met him years later what he had to say on the stage somehow resonated with me and I felt like this man is going to help us.

After he came off the stage, I went to him and I told him I was from Lowndes County and that I was trying to do economic development, and I needed his help. And he said he invited me first to come to his office, which we did go there and this was shortly after 9/11. So, we went there to meet with him, he listened to us and accepted our invitation to come to Lowndes County. He was quite moved by what he saw.

The first person to come to Mr. Woodson was a man who was a minister of a small church that was there in the area where this family was living and it was a group of families that were living in mobile homes and they kind of set on an incline. And the man came to Mr. Woodson and he said that he had been told that he could no longer worship at his church or have services there because he did not have a working septic system. And he was crying. And then there was a husband and wife who lived there who they had tried to fix their system and it still wasn't working and they had already been placed under arrest one time and they had to go back to court. And they shared their stories and they cried. And Mr. Woodson called William Raspberry who was at that time had a syndicated column at the Washington Post and told him the story and he wrote about it. But he also went to see the judge, the person who was the judge at that time and saw some other people to talk about this and say that this is wrong. And I think that out of that came his commitment to help us.

And what he did was bring people that normally would not have paid us any attention because at that time Bush was president and he brought a lot of them to Lowndes County. And once people no matter how politically they may have appeared, you know, in the media when they came to see this they were stunned.

Greg Dalton: You write that, you know, conservative people helped you were some of the earliest supporters of your work. Bringing attention to the poverty and people living without adequate healthy sanitation. So, tell us about meeting Jeff Sessions at a town hall and then why you organized a fundraiser for him. Not something I would expect.

Catherine Coleman Flowers: Because he listened. So, the way I met him, a lot of the members of the at least the Alabama delegation I know that Senator Shelby's office, but certainly Senator Sessions' office, you know, a lot of town hall meetings. And I went to this town hall meeting in Fort Deposit which is one of the towns in Lowndes County. And Senator Sessions talked about, you know, as they all do, they talk about the programs that were available that people could access and then you can ask questions. And my question was how can poor counties like Lowndes County access these programs and they require a match and we don't have a tax base because they are too poor to have access, you know. And he couldn't answer my question he was stunned.

And he came to me, I was sitting there and he actually came up to me and started talking to me, which I didn't expect. And he told me he said, you know, I'm from Wilcox County, Alabama. He said I grew up poor, he said my family didn't have we didn't have a television until I was ten. That's where we connected. And from that point on I was able to reach out to him and his staff, and I thought that one way for him to listen to local folk was for to get the local black business community there to sponsor a fundraiser for him, which did happen at the home of one of the local black business people. And he came there and there was a young man there who was a graduate of Alabama who had a shrimp farm. So, apparently Senator Sessions went to see his shrimp farm and I

met him there and I drove him from that area to where we had the fundraiser, which is not very far and he asked me Catherine what do you want? I said I want you to help Lowndes County. And he stayed true to his word.

Greg Dalton: This is very interesting to hear someone who obviously played quite a role in our national politics recently, it sounds like you had a moment there where you connected with him because of your class that may be transcended race.

Catherine Coleman Flowers: I think so. And I think that what we have to do is talk to each other and listen more. I think we have to stop shouting at each other because there was a time, you know, when I first met Bob Woodson, I was shouting at him. But when I met him when I met him again, I was humble. I listened and he listened to me. And that's how we developed a relationship that lasts to this day.

Greg Dalton: You're listening to a Climate One conversation about climate, health and environmental justice. Coming up, creating green new infrastructure means more than just building roads, bridges and power grids.

Catherine Coleman Flowers: *We also have to talk about wastewater because it's basic and it's basic to public health. And we have to be concerned that the next pandemic may not start somewhere else. It could start right here in the United States because we have the conditions here that are festering that could feed it. [:17]*

Greg Dalton: That's up next, when Climate One continues.

Greg Dalton: This is Climate One. I'm Greg Dalton, and we're talking about the intersection of climate, human health and poverty. My guest is Catherine Coleman Flowers, founder and director of the Center for Rural Enterprise and Environmental Justice and the recipient of a MacArthur genius award.

Greg Dalton: In her book *Waste: One Woman's Fight Against America's Dirty Secret,* Flowers tells the story of how her own run-in with mosquitoes while visiting a home in Lowndes County, Alabama helped her make the connection between climate, poverty and public health.

PROGRAM PART 2 - CATHERINE COLEMAN FLOWERS

Catherine Coleman Flowers: I had been called to the site by the state health department. The person who is the regional of the director of the regional environmentalist took me to the home of this woman who was in her 20s and pregnant. They were threatening to put her in jail because she didn't have wastewater treatment and she was living on a single wide mobile home and straight piping it outside of her home. She had one child already who was autistic. Her family had struggled to come up with $800 to do a perk test to keep her out of jail. It was awful.

And when I got there and I saw the situation of course I wanted to help her, and I had showed up with a reporter from the Associated Press just in case, because I know how they operate. So, I had on a dress with hose on and the mosquitoes were so bad this is in October that's where climate change intersects. Again, the mosquitoes were so bad they bit me on my leg. I had so many bites that I could look on my hose and I could see bloodstains and then later broke out in a rash. But I also wrote Senator Sessions an email, I told him about them they were threatening to arrest this

woman and that we had had this Congressional appropriation that had passed in 2002. And here it was years later, we still didn't have it. So, he actually wrote the letter to Lisa Jackson, who was the EPA administrator at the time, and explained what was happening and asked about the status of this grant, this appropriation. And within six months we were contacted and we were told that we would have access to it.

And that's what led to we couldn't build anything we couldn't construct any new systems or anything like that. But we could use it to do a study and to go from house to house to determine the extent of the wastewater problem in the county. And that also led to us learning other things which led to the parasite study because then we knew where to go and who to talk to when it came time to collect samples because we collected not only fecal samples, we collected blood samples. We collected water samples and we also collected soil samples to find out whether or not there was something there that was tropical in nature and that American doctors were not trained to look for. And of course, that's where climate change intersected with all of this for me.

Greg Dalton: 60 million people in the United States are connected to individual on-site or small cluster septic systems. They're concentrated in New England in the Southeast, especially Florida. Why should people with septic systems be concerned about climate disruption, what's the connection?

Catherine Coleman Flowers: Well, for a number of reasons. First of all, with septic systems water is a part of the equation. Soil is a part of the equation. And in places like Florida or places that are located near the coast, sea level rise is real. And when the sea level is rising, the water table is rising. In Florida you have it coming from the bottom with sea level rise but you also coming from the top because of the soil. And that makes them fail quicker. But I'm hearing, especially since the book is published from people around the country having problems; people in Alaska. Because of melting permafrost. You know, there are people that are having water issues because of drought in the Central Valley and they are having wastewater problems too. Some of them never got the infrastructure in the first place.

And then we're finding on top of this, the other layer is that for people that don't have infrastructure or failing infrastructure, COVID can be you can find COVID in wastewater, especially in raw sewage. People can actually test and they are testing wastewater to find out the extent of the COVID infections in a community.

So, all of this is why we need to be people with onsite systems, people with no systems or people that are only small treatment plants. And what we found we did the testing is that a lot of the people that had a high incidence of hookworm and these other tropical parasites were not necessarily just people that were straight pipe and had no septic systems. These were also people that had it coming all around where they couldn't escape it; it was in the yard coming to their homes, coming to their bathtubs.

So, you know, we really, really have to do something to address infrastructure. And when we talk about a Green New Deal we can't just talk about roads and bridges. Can't just talk about power grids. We also have to talk about wastewater because it's basic and it's basic to public health. And we have to be concerned that the next pandemic may not start somewhere else it could start right here in the United States because we have the conditions here that are festering that could feed it.

Greg Dalton: I think a lot of urban people they flush and they don't think about where it goes. Something about 20% of American households are on a septic system and they have to be maintained. And sounds like you're talking a little bit about the criminalization of poverty arresting people with inadequate sewage treatment. And is your solution the government funding to give

people the resources to have adequate sanitation?

Catherine Coleman Flowers: I think it's two-pronged. I think we need to not only have adequate sanitation. We need to have sanitation that works. And what I don't like and what I've been saying are people that are exploiting the situation. Because this happened with Bob Woodson and I, people that told us that these septic systems will work and we pay for them and they failed. And then they blame the homeowners for it. And what we're finding out now is that throughout the country that they are failing. And as a result, we need to have the type of investment in finding infrastructure that works. I believe that we can do that. Because with climate change there is a new normal.

So, we have to develop we have to be forward thinking. What would have worked when I first started doing this work years ago is not working now. So, I think it should be two-pronged. I think that the government with the stress with the current government that we have needs to fund innovation and institutions, academic institutions working with environmental justice communities around the United States to find solutions that will work. I also think that we can look to space because they treat wastewater drinking water quality there; why can we not do that here. We have to start thinking out of the box and stop being trapped. That's why we have an economic paradigm that is killing people with COVID because we are so trapped, we only know one way to do it that we can't even think of a different way that will also not only save the economy but save lives too. And we have to be those kinds of thought leaders if we're going to solve this wastewater problem.

Greg Dalton: Catherine Coleman Flowers is founder and director of the Center for Rural Enterprise and Environmental Justice in Alabama. She is a recipient of the MacArthur genius award and author of Waste: One Woman's Fight Against America's Dirty Secret.

Catherine Coleman Flowers, what does the election of Vice President Kamala Harris mean for your work advocating for environmental justice?

Catherine Coleman Flowers: Wow, it means so much to me. First of all, she is a graduate of an HBCU. She is also a member of The Divine Nine which is a group of black sororities and fraternities. She's an AKA, I'm a Delta. And it meant a lot to me so much so that I donned pearls on the day that she was inaugurated.

Greg Dalton: A lot of people are wearing pearls these days.

Catherine Coleman Flowers: Yeah. So, actually there was a man on the site that I was a part of. I saw some men, some fathers who donned pearls too for their daughters.

Greg Dalton: We'll see LeBron James in pearls pretty soon.

Catherine Coleman Flowers: Yes. And it was wonderful because to see her ascend to that role says a lot for my daughter. And it speaks to her and it speaks to so many black women around this country. I remember you know growing up when the only time you would see a black woman on television, she generally was portraying a prostitute or something like that. And to see I mean it meant so much to me to see her inaugurated that even now, you know, kind of brings me in tears because it is so significant because we have come such a long way. And I remember when I was growing up and I thought you know at that that time I was a kid and I wanted to be the first black female justice on the Supreme Court. But my daughter can ascend to be the president, I mean she can aspire to that. But it also means that my grandson can aspire to that too. That's the America that I grew up believing in and still believe in to this day.

Greg Dalton: So, Catherine Coleman Flowers you're something quite remarkable in American

politics these days. Bernie Sanders calls you, you consider Jeff Sessions a friend and ally. You know Karenna Gore and serve on her board and the board of Al Gore's Climate Reality Project. Not many Americans can say they can pick up the phone and call Al Gore and Jeff Sessions and Bernie Sanders. How do you do it?

Catherine Coleman Flowers: I don't think there's a formula. I just be myself. I'm humble. I don't mind asking and I was you know it's like when I was teaching. One of the things that I had in my class I would say that the only I would always encourage my students to ask questions. And I said the only stupid question was the one that was never asked. But also, I think that we have to find the humanity in each and every one of us we all have that.

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Greg Dalton: That was Catherine Coleman Flowers, environmental health advocate and the author of *Waste: One Woman's Fight Against America's Dirty Secret.* We're talking about climate, health and poverty on Climate One. I'm Greg Dalton.

Greg Dalton: My next two guests are both deeply involved in the intersection of social and environmental justice. Aaron Bernstein is Interim Director of The Center for Climate, Health and the Global Environment at the Harvard Chan School of Public Health. He's also a practicing pediatrician. Adrienne Hollis is Senior Climate Justice and Health Scientist with the Union of Concerned Scientists.

Greg Dalton: President Joe Biden recently signed executive orders that for the first time make environmental justice a top White House priority.

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Adrienne Hollis: My initial reaction was pretty much the same as most people in the space is at first a sense of relief and then a sense of excitement about you know the fact that environmental justice is really getting the attention it deserves. And then a sense of the enormity of the task that these executive orders are going to lead to.

Greg Dalton: Right. And there's a new environmental justice working group in the White House, goal of directing 40% of benefits of federal investments to disadvantaged communities. We've heard some of this before. What are you looking for proof that it's real this time?

Adrienne Hollis: Well, I think that the proof is in the fact that looking at the people that have been hired to do the work that's different. You have most of the people, if not all have experience in working in these spaces working with communities. Michael Regan if he is confirmed and a bunch of other people have very good relationships with communities and that's unusual. That's not the norm.

Greg Dalton: Aaron Bernstein a year into the COVID crises. What have we learned about the human response to threats of an invisible virus COVID-19 and an invisible gas, carbon dioxide?

Aaron Bernstein: Yeah, it's been sort of a great psychological experiment because on one hand the response to COVID in many ways what one would expect from a crisis. People transformed how they live. Many were not happy about that. There was a great pressure to find solutions, vaccines, approved diagnostic testing. And especially now with the Biden administration there's very much all hands-on deck. At the same time, you heard Gina McCarthy saying her remarks on climate day that climate change was the single biggest health crisis we face and yet we haven't taken the same sense of urgency. And the reason is because we perceive climate change as a distant problem and that's a

falsehood. But it really makes clear that for those of us who are interested in finding, you know, paths to greater uptake of climate action we need to make the case that climate actions matter to our welfare today. Climate actions matter to the health of the children I care for as a pediatrician. They especially matter to people who are poor, people of color in this country who've been disproportionately burdened by air pollution that is overwhelmingly from burning fossil fuels. And so, one of the take-home messages for me was COVID is we've got to make our climate messaging crisis proof. We've got to make it so that when the next bump in the road happens and I'm not trying to minimize COVID here, but the point that there will be future challenges and our approach to climate change has to be able to keep us on track through those storms.

Greg Dalton: Adrienne Hollis, how do you see the connection between how we've responded to what we've learned about this very immediate threat of COVID and this perceived less immediate threat of climate change? How are they parallel?

Adrienne Hollis: Well, you know, they're definitely connected and I like to, you know, my work, my writing my attention has been on the fact that all of them are connected and all the underlying cause is systemic racism. And because of that communities are affected by adverse effects from climate change, and because of exposure to hazardous substances because of where they live because of redlining and such, they are more at risk from COVID-19 infections and death. So, I've always made that connection and my colleagues have done the same. I think for a while COVID in of itself was the main focus but now people are and especially during hurricane season and now beyond and when it was hot of course people are making that connection and how does COVID make us more susceptible to climate change effects. So, they're definitely related.

Greg Dalton: Adrienne Hollis. What are some specific ways that climate inequality and environmental inequality is making American sick?

Adrienne Hollis: Well, specifically let's talk about for example, Cancer Alley, right where the communities have been exposed daily, hourly, not even you know just their everyday lives to air toxics, water toxins and those things that affect their health. And on top of that, for example, when hurricane Laura hit there was also a fire, right at a BioLab facility and communities were told to shelter in place. Don't open the windows, don't turn on the air. It was also a hot day, very high temperature. So, that's just one extreme example, which now it used to be extreme but now may be more regular that, you know, we'll see more regularly. And that is just an example of the impact that climate change and all of its accompanying inequities have had on communities and we've seen that all over the country.

Greg Dalton: You're listening to a conversation about climate and environmental inequality. This is Climate One. Coming up, the number of COVID deaths in the United States has grown to the point of abstraction. It's hard to wrap our head around half a million deaths - so how do we bring home the reality of the statistics?

Adrienne Hollis: *So, you take a big thing like that and you personalize it ...because people really want to know three things, right. What is it, how does it affect me*

and what can I do about it? And...that's the information we need to give people. [:09]

Greg Dalton: That's up next, when Climate One continues.

Greg Dalton: This is Climate One. I'm Greg Dalton. We're talking about environmental health and climate-related disease, with Aaron Bernstein of Harvard's Chan School of Public Health and Adrienne Hollis of the Union of Concerned Scientists.

Greg Dalton:Pandemics are nothing new - in recent history, widespread outbreaks of HIV-AIDS, SARS and Ebola should all have given us a preview of things to come. Yet, despite warnings from health officials, our government was slow to act when COVID-19 came on the scene. Aaron Bernstein, a practicing pediatrician, often sees similar inaction among his own patients' families. In their case, he says, it's not so much a lack of knowledge as it is a lack of resources.

PROGRAM PART 3 - AARON BERSTEIN / ADRIENNE HOLLIS

Aaron Bernstein: We give all kinds of advice because science tells us that there are good things to do to promote child health. And yet in many circumstances that doesn't happen. And so, you know, I'm very used to people hearing information that could protect the health of their children, and that not happening. And so, to me, the question becomes why is that? What do we need to do to actually get to the change we need?. And, you know, it doesn't help.

A very good example is, if I'm taking care of a child who's overweight. It doesn't help that child much to lecture parent about helping that child eat healthy because the reason they're overweight is because the cheapest foods are the unhealthiest. They have no access to good foods. The parent doesn't have time to prepare the foods. The healthy foods are too expensive and about 16 other things which frankly makes saying you should feed your child healthier foods an insulting thing to say.

So, you know, in the context of emerging infections of course we're not thinking upstream because there are huge amounts of money to be made downstream. You can make money on vaccines, you can make money on tests. There's a return on investment proposition. And we have not been able to get the value proposition on the table for working upstream which you know in one very narrow sense comes down to deforestation as a major driver of emergence. We try and put a carbon value on timber, we try and put some other values on it. We haven't even thought about the fact that you know we don't have evidence on COVID's emergence. We may never have great evidence, but with Ebola in 2013 which everyone remembers those bats which transmitted Ebola were pushed into a new part of West Africa because their homes have been chopped down primarily for the production of palm oil.

And I want to come back for just a second, Greg, to a point that Adrienne raised earlier about intersectionality, you know, her work describing how these issues of equity and climate and health are so intertwined is just spot on. You know the inequities that we allow to fester in society, whether that's based on racial inequities, other social inequities. These are the fissures through which whether it's the climate crisis, a pandemic crisis, they thrive in these fissures. They tear them open.

And frankly, pandemics are really in the most painful way show us what we need to fix in our societies. They see these seams that have been left. We sort of allow them be swept under the rugs, I mean health disparities, wealth disparities, you know. The average white American family has seven times the wealth of the average black American family, this is what I'm talking about. We sort of let these things persist and that's not random of course. And then you get a pandemic, and all of a sudden people are stunned that black Americans are dying at twice to maybe three times the rate from this disease. Well, that's the same exploitation that would happen that is happening from climate change.

And so, if you want to address pandemics and you want to address climate change you've got to focus on equity. And the solution and the great news in some ways is that these actions you need to take are one and the same. And there are the things that I can't do to fix obesity, right. So, I can't tell, you know, telling the parent for you to help their child work. But making better access to transportation, better access to healthy nutritious foods, better community amenities. These are at the core of climate solutions. Their equity solutions and they provide resilience to pandemics when they emerge.

Greg Dalton: Adrienne Hollis, let's talk about that solution side because we've been talking about some of the threats and some of the risks. Let's talk about the upside, about how solutions will make us healthier and what needs to be done to have those solutions be distributed in an equitable way.

Adrienne Hollis: Well, that's a deep question and it's going to take time to really address systemic racism which is, as I said the foundation for all of this. But there are some immediate things, actions that can be done. First let me say the fact that we've had warnings we've had lessons, you know, with Hurricane Katrina and we didn't listen, right, you know. It told us protect your most at risk. Protect your frontline and we didn't do it. And this has been going on for years since the early 1900s. We've been putting frontline people out there mostly people of color just about all people of color. And so, when it comes to just as Dr. Bernstein said you know some of the things that we can do immediately is look at how we've situated communities, how we've, you know, the areas that we put them in the flood prone areas. And, you know, we've had situations where people are told you can't get flood insurance unless you raise your house 10 feet or whatever it is and they don't have the money to do that. So, let's think of some other options, right so that people become resilient. And so that we can adapt to these things and not be reactive but be proactive, right.

And as you also said you know look at putting stores in communities so economic justice is a big issue that I think people can start addressing right now and part of that is looking at infrastructure. And when I talk about infrastructure, I don't mean just transportation I'm also talking about the homes themselves if you live in homes that are subpar. Then we talk about issues in climate conditions where it becomes extremely hot or extremely cold and you don't have the wherewithal to protect yourself and your family because of leaky infrastructure, something very simple and yet very complicated. All of these things require funds and I think that there should be a set-aside of some type so that people can work themselves to identify issues because communities know what they need. People know what they need. The public knows what they need. People in rural areas know what they need and just they don't have the wherewithal and some assistance or they aren't given the opportunity to address those issues themselves.

So, I think that immediately you know we can do some actions we can provide opportunities for them to have access to healthy foods or medical attention. You know that's another conversation entirely around the vaccine and how accessible it is to communities and I can speak from a personal level with my mom on that. My mom is a four-time cancer survivor who happens to be hypertensive and diabetic. And initially when the pandemic first hit her doctor, her oncologist kept telling her, well, the office that she needed to come in just to have a discussion. And she would call me and she lives in Alabama and would say I don't really want to go in. I'm afraid to go in and I was, you don't have to go in, you know, telemedicine is available. And she didn't know it, and when I called the doctor's office and I said you know we need telemedicine. Oh yes, she qualifies for that. Why didn't you tell her that? Well she didn't ask.

You know, questions like that and then when it came to the vaccine, I think she was told, well you gonna have to keep calling the office because we have too many patients to call around. And she had the first vaccine on my birthday, so that was the best present ever. But she didn't get it from a doctor. She heard about an event in Mobile and she went there as did most of my friends' parents

and received that first shot just by sitting in a car in the line to get that shot and that's amazing to me. And the fact that there were no real mask mandates, you know, and I just feel like the knowledge gap and the ability to just provide simple information to our most at risk is because she's 84 also, I didn't say that. I can't wrap my mind around it and I feel like it's in some instances, deliberate, you know. Oh yeah, we would've told her had she asked. She wouldn't have known to ask, you know.

Greg Dalton: Aaron Bernstein, as a pediatrician and parent you've written about how climate disasters can harm children, their bodies and their mental health. What are we learning about how a year like 2020 impacts our kids and their development?

Aaron Bernstein: Yeah, so I remember early in COVID how there are many voices saying oh this isn't so bad for our children. They don't seem to get so sick and we're not sure they're spreading it. And, you know, I understand where those ideas came from but boy, are they wrong. I mean, you know at any point in childhood starting in infancy, first of all the parents being stressed and getting sick and even dying is obviously bad for any child. Then there's the financial hardship which as Adrienne alludes to is not being distributed equally across the population. It's falling heaviest on frontline workers who are disproportionately people of color and the poor. And those are the kids who we know are already most at risk for what we call adverse childhood events and toxic stress and their biggest buffer to those things are their parents and their caregivers.

Then of course there's schooling and you know the things that leave my mind spinning, you know, we had bars open. We had tattoo parlors open. We had all kinds of you know amenities for adults and we couldn't get our schools open. And you hear these stories of parents who are losing their jobs, losing their income trying to figure out how their kid to keep in virtual school. And, you know, the kids are not all right here. This was not a good, you know, again as I said, pandemics in the most painful way, show us what we need to fix in our society and it turns out we are not addressing the needs of our children anywhere commensurate with the richest country in the world. One in five children in United States disproportionately children of color were hungry prior to COVID meaning they didn't know where their next meal was coming from. And then you look at what's going on in this country where we have record profits, record income wealth, huge diversions of money out of the public stream and tax evasion primarily among the wealthy and forget about your politics here. What kind of people are we? Are these the kinds of things you want will happen?

And I think if that discourse gets into the public eye my hope is that people would find some common ground to say, you know, it doesn't really make sense to allow our corporations to outsource their profits to other countries that are going to pay taxes or the wealthiest people in the country to find ways to pay lower tax than other people so that our children can be fed. And I think COVID is what shining a light on this is that we allowed these problems to fester. Starving children? Nah, we're not gonna deal with that. Wealth inequality, nah, health inequality's not my problem. And then we realize COVID is a destructive force for everyone and COVID as I mentioned courses through the same fissures as climate change does. And so, we've got to pay attention to these things to make sure we put ourselves in the right path.

Greg Dalton: Adrienne Hollis, the number of U.S. deaths from COVID is approaching half a million people, hundreds of millions of people are impacted in some lethal and nonlethal ways by climate disruption today. Here is Anthony Leiserowitz from Yale University on understanding those statistics.

[Start Playback]

***Anthony Leiserowitz**: As human beings we're just not well built to understand and really*

understand the meaning of these large numbers that each one of which of course is an individual story. The hundreds of thousands of people who have died of COVID in this country in just the past nine months I can say that but you can't really understand that we just can't compute it in that way. And in fact, climate change itself is an abstraction. You cannot directly experience global climate change by yourself, right. You literally can't. You can experience specific impacts, but you cannot experience what's going on around the entire world in the ice in the oceans in the biosphere in the atmosphere.

[End Playback]

Greg Dalton: Dr. Hollis, I'd like to get your response to or just difficulty of experiencing and taking in the magnitude of the pain and suffering from COVID and climate.

Adrienne Hollis: Well, you know, I think it's, I agree – I wanna preface the caveat on that. I agree with that but I think you never just give that message that we're almost at 500,000 people. I think then you start to personalize it and all that population and then break it down. How many are children how many are elderly. How many are this. And then break it down even further depending on who you're talking to. Everything has to be tailored to your audience. So, if I'm talking about an issue as I do regularly in Prince George's County, Maryland where I live. I may go boldly first and talk about that then I talk about the U.S. then talk about different states and how Maryland is whatever the numbers are. And then I go look at I talked about the number of deaths and infections in different counties and which counties are the highest. And in this particular instance sadly, my county is the highest in Maryland, I talk about that and talk about what that means for people who live here. So, you take a big thing like that and you personalize it and you can do that, right. Because people really want to know three things, right. What is it, how does it affect me and what can I do about it? And it's our job to make that that's the information we need to give people. So, I think the global information the larger in picture does have an impact, especially when you break it down sort of like a V, right?

Greg Dalton: An upside-down pyramid it would be in journalism. Sort of start with the big and then bring it home. So, Dr. Bernstein most people don't discuss climate change with their doctor. How is climate change relevant to a doctor seeing patients today in an office or hospital. You run something called, I think it's called Climate MD.

Aaron Bernstein: Yeah, that's right, Greg. So, we started this program at Harvard Chan C-Change Climate MD because we realized that the science told us that climate change is political, right. So, people hear climate change and it becomes immediately an ideological divide. It's not a conversation about science or even values. It's just, are you invested; it becomes a conversation about whether you think government has an important role in addressing societal problems. So, we realize it's politicized.

We then know that in order to make progress you got to depoliticize it because you can't argue on pure ideological grounds and get anywhere. How do you depoliticize it? Well, the evidence is that health messaging is really important. Talking about, particularly how climate actions matter to health today can improve our health right now, prevent asthma attacks, prevent deaths from heart disease, lung diseases, save our brains that these are important messages. And the best people to deliver these messages the most trusted voices are nurses and doctors. So, we realized that while the evidence shows that nurses and doctors are overwhelmingly concerned about climate change as a health issue, it was not clear how climate change mattered to our day jobs. Meaning, you could ask a doctor does climate change matter in health? Sure. Does it matter to how you do your job? I'm not sure.

And so, Climate MD is trying to fill that void. It's trying to show the various healthcare professions that climate change is actually a direct threat to our ability to do our jobs. And we see that as critical because if we can get that message clear we're gonna have a much easier time getting the health professionals to engage in conversations about climate because it will be about doing their jobs. And we're seeing and, you know, I've watched this for 20 years. Health messaging has come to the fore and increasingly the healthcare community is being vocal. And I'm the first person to say that nurses have been leading the charge on this way before medical doctors, but you know my colleagues in medicine we're coming along now too.

Greg Dalton: Dr. Hollis as you hear that what do you think about that how do we build a climate ready healthcare workforce and should we rely on elite institutions like Harvard to lead the way or perhaps other institutions?

Adrienne Hollis: Well, you know, I think first of all, I'm going to be pro-Harvard because I did my post-doc there at the School of Public Health. So, I'm definitely pro-Harvard, but I really think we, to answer your question, of course, particularly our HBCUs facing universities and reaching these populations that we've already said are at risk for various reasons, so that we can start addressing these problems. And the other thing we're talking about addressing physicians and this is something we've been focusing on; I know I've been focusing on since the early 90s is educating physicians about what to look for.

And so, part of that was training the medical professional and the healthcare professional and everybody who's gonna come into contact with people who are more at risk. So, to answer your question, yes, we need to involve all stakeholders. And people need to know what some of the possible suggested symptoms are. Like this could be more than just a common cold or an allergy or I happen to have asthma. Well, maybe you have asthma because you live in an environment where your surroundings include three incinerators, I don't know. Or you live in California where they've just lifted the ban on incineration because of the number of bodies that have to be cremated, right. So, are we expected to see more respiratory effects? I'm not a physician but I'm gonna say probably.

Greg Dalton: On Climate One today, we've been talking about environmental injustice and health care inequity in the age of COVID and climate change. My guests were Adrienne Hollis, Senior Climate Justice and Health Scientist for the Union of Concerned Scientists, and Aaron Bernstein, Interim Director of the Center for Climate, Health, and the Global Environment at the Harvard School of Public Health. And we started the program with Catherine Coleman Flowers, founder of the Center for Rural Enterprise and Environmental Justice and author of *Waste: One Woman's Fight Against America's Dirty Secret.*

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Greg Dalton: Kelli Pennington directs our audience engagement. Tyler Reed is our producer. Sara-Katherine Coxon is the strategy and content manager. Steve Fox is director of advancement. Anny Celsi edited the program. Our audio team is Mark Kirchner, Arnav Gupta, and Andrew Stelzer. Dr. Gloria Duffy is CEO of The Commonwealth Club of California, the nonprofit and non-partisan forum where our program originates. [pause] I'm Greg Dalton.