



Season 5 Episode 3a
Climate Change, Climate Justice, and Healthcare
A Beginner's Primer, Part 1

Show Notes

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Clean Air Saves Lives
Don't light things on fire and breathe them in.
...this means tobacco, diesel, wildfires and more...
— Erika Moseson, MD

"We in health and medicine have an obligation to act, and to start treating climate change as the public health crisis that it is. We have a duty to advocate for health and equity to be at the center of climate change planning and policy."

-Victor Dzau, MD (2021 Annual President's Address to the NAM Membership)

Learning Objectives:

Part 1:

1. Explore the intersection between health, healthcare disparities, and climate change.
2. Describe the breadth of the impact of climate change on historically marginalized and disinvested communities and individuals.
3. Understand the various strategies to respond to climate change being adopted at the community level, frontline, and systems level in two different areas in the United States.

[0:00-2:05] Welcome and Introductions

Marianne Parshley: Good morning, good afternoon, good evening. Welcome to The DEI Shift, a podcast focusing on shifting the way we think and talk about diversity, equity, and inclusion in the medical field. I'm Marianne Parshley, a general internist practicing primary care medicine with a geriatric focus. I serve as the Regent of the American College of Physicians and President this year of the Oregon Medical Association, and I love human-powered travel from commuting to seeing hidden corners of the world on foot or by bike.

Elisa Choi: And I'm Elisa Choi. I'm an internal medicine specialist and an infectious diseases subspecialist in community practice in the greater Boston, Massachusetts region where I take care of patients in primary care and general internal medicine, and also in HIV Medicine and infectious diseases. I'm the current chair of the Board of Governors for the American College of Physicians and immediate past governor of the Massachusetts ACP chapter. I also currently serve on ACP's Board of Regents. I have a strong interest in health disparities and relevant to today's podcast, also very interested in issues related to environmental health equity. In addition to being a co-host of today's podcast episode with Marianne, I'm also a co-producer of The DEI Shift podcast.

MP: Today's conversation, one of a series, I hope, is one at the intersection of justice, equity, and inclusion in healthcare and the environment, featuring two guests who have been working on this at different levels of our healthcare system in this country. Climate change is changing how we live across the globe, impacting some communities far more than others and requiring us to continue to seek to shrink our carbon footprints and to sequester carbon and to mitigate the damage and adapt to a new and changing environment. Nowhere is this need more important than in healthcare.

[2:05-4:42] Introduction to Guests: Dr. Robert McLean and Dr. Erika Moseson

EC: Our guests today are Dr. Erika Moseson and Dr. Robert McLean, rheumatology at Yale Health System, past president of ACP, and immediate past chair of the Medical Society Consortium on Climate and Health Steering Committee.

Dr. McLean is an MACP and FRCP, and as mentioned, was president of ACP from 2019 to 2020. He practices internal medicine and rheumatology in New Haven, Connecticut with the Northeast Medical Group of Yale New Haven Health System, where he is also a medical director. He is an Associate Clinical Professor of Medicine at the Yale School of Medicine, where he regularly teaches students, residents, and fellows.

With ACP, he has been involved with advocacy at the state and national levels for many years, served as ACP governor for the Connecticut chapter from 2009 to 2013, and then was on the Board of Regents for ACP for several years before serving as president. In the ACP president role, he served as ACP's Liaison to the Medical Society Consortium for Climate and Health. Then from 2020 to 2022, he served as the consortium's Steering Committee Chair as it has evolved from a focus on education in this area to include more advocacy. He currently serves as a member of the National Academy of Medicine's Action Collaborative on Decarbonizing the U.S. Health Sector.

MP: It's my pleasure to introduce Dr. Erika Maria Moseson, who is a pulmonary critical care physician with Legacy Medical Group of Oregon. She's a member of the American Thoracic Society's Environmental Health Policy Committee, as well as an American Lung Association

Health Professional for Clean Air and Climate Action. She serves on the board of the American Lung Association of Oregon and is a past president of the Oregon Thoracic Society.

She is the founder of [AirHealthOurHealth.org](https://www.airhealthourhealth.org), an educational resource on the links between the air we breathe and our health. She hosts bilingual Air Health Our Health podcast and is engaged in advocacy for clean air, both indoors and outdoors. Dr. Moseson is also a founding member of Oregon's first chapter of the National Medical Association and has worked with the Oregon Medical Association to promote healthy climate action.

Welcome, Dr. Moseson. We often use first names on The DEI Shift. Would that be okay with both of you?

Robert McLean: Absolutely.

Erika Moseson: Fine with me.

MP: Wonderful.

[4:42-13:04] “Be the Change” Segment

MP: We're moving to the next section of our podcast, which is “Be the Change”, and hear a little bit from each of you about how you started your journey to being a health and climate advocate. Dr. Moseson, Erika?

EM: Yeah, well, I think, I grew up in the beautiful Pacific Northwest, and I think I've always been passionate about the environment and learning about climate change was distressing as it often is when you start to learn about that in your educational journey. But I didn't really include it in my physician journey that much until I was approached by the American Lung Association when I was on the executive committee for Oregon Thoracic Society about some clean air bills that were being considered in our state legislature. Both related to diesel exhaust and then also on raising the tobacco purchase age to 21. And that's kinda when I first started learning more about how the sausage is made, I think, and recognizing that the way legislative calendars are done.

It's just, there's almost no hope for physicians or patients to actually show up and for lawmakers to hear from them because they'll just decide, okay, we're gonna have a committee hearing next Tuesday. You're thinking, well, I'm working in the ICU or I'm in clinic. And so, just kind of recognizing how much the voice of physicians and patients and the people who are really affected by climate change and air pollution is just not heard.

I was kind of stunned to realize we really had no effective diesel legislation in Oregon because I had been in residency in California when I'd go to American Thoracic Society presentations with a California resource board, and I just kind of assumed that whatever California was doing, Oregon was doing. And it's just not true. And so, and then just kind of recognizing that lawmakers just really had no idea. They'd say, “Well, how bad can a truck be, or kids don't smoke anymore, right?” Like, just kind of this lack, I'm not gonna use the word clueless, but just this lack of understanding because it's just not put in front of them all the time versus all of us in clinic who are just seeing people affected by air pollution and tobacco and climate change and all these things all the time, and who are very vulnerable. And those voices just often don't raise up to our decision makers.

And so, and then the air is kind of invisible, right? So people just don't see it, I think, and don't recognize how much it can affect them. So that's kinda how I started getting involved. And then, I started podcasting in the middle of the pandemic. So part of it was, I just thought I'd kind of been a little burnt out on going to town halls and trying to make it to all these different things because I have three kids and realizing my voice isn't particularly special. I think it's just, people don't have this information or don't know that it's out there. And so I just started trying to just kind of educate people a little more, introduce them to scientists. I think there's a lot of science hesitancy right now in just kind of recognizing that these are people and there's a process, and this is how it's done to kind of spread the word and let people kind of empower themselves to speak up and talk to their legislator or decision makers or their community members on everything from flavored tobacco and wildfires and how to prepare yourself for wildfires.

And then I started doing a bilingual one because during the big wildfire events in 2020, I started just on doing Instagram lives trying to tell people because people were just like, what does it mean when the air is beyond the index? Like, what do I do? What do I do with this information? And so I just started trying to do Instagram lives in English and Spanish, and the Spanish ones were actually more, more people were tuning in there because they'd have outdoor workers in their family and they'd say, "Like, if I wet a bandana and wear it over my face, is that enough? Like, can I keep working outdoors?" And it's, it was just recognizing that this is a really challenging area for so many people.

MP: Just a couple of things. Number one, you don't know about air until you see it and that's what was happening in the wildfires. And the other thing that you underscored was that we are the medical science experts and the experts of what's happening to our patients on the street. So, being active and activating a group of allies and advocates in this is really important. And the other thing that came out of the pandemic is that we can now submit testimony without driving to Salem.

EC: Thank you, Marianne. Yes, some silver linings did come out of the pandemic, fortunately. So, thank you, Erika, for sharing your journey. I loved hearing about it. Robert, wonder if you could share with us how you got started in this particular work?

RM: Yeah, so thank you. Well, being involved with ACP and advocacy at multiple levels for many years, I kind of came from that angle and came early on to recognize the strong and hopefully, sometimes, influential voice that we could have as medical professionals with legislators and policymakers. So I'd been living in that space for a number of years as a governor and then as a regent. And so I was well aware of a lot of health policy, but in all honesty, the climate and health connection was somewhat off of my radar, being busy with other things, and also it wasn't a big policy position with the ACP until 2016, I think it was. And while I was not on the Health and Public Policy Committee at the time that they created it, there was a policy paper that the ACP put out, and I think it was 2016, that really, I think was a real significant force in parts of organized medicine where the ACP took its typical, very evidence-driven, strong, ethical kind of stance about making connections between climate and health.

And what's interesting is I think that policy paper coincided with the creation, or what started to become the creation, of the Medical Society Consortium on Climate and Health because several different organizations, the large ones, the American Academy of Pediatrics, American Academy of Emergency Physicians, were coming together under the leadership of someone named Mona Sarfaty, who was kind of the visionary behind putting this group together. And the ACP was one of the organizing groups that was at that initial table. This was under Nitin Damle,

the president at the time. And so when that happened, I think the climate health change became much more prominent within our own policy arena. And it was kind of there, I think everyone was aware of things, but it still wasn't as high up on the policy agenda, even though in the public realm, I think everyone was quite aware of major climate events and things that were happening kind of internationally and nationally at the policy level.

So then, as president of the ACP, I had the opportunity to be the liaison to that medical society consortium. And we, at that point, were working on some of the same kind of awareness issues that were coming up a lot. And then, as I was finishing on my presidency, the consortium leaders were looking to really make more organization, and they were putting together a steering committee, which didn't exist before I got to know Mona well. We worked together well. She said, "Hey, would you be interested in being the chair of our initial steering committee?" So I was like, well, I'll have a little more time after not being president anymore. And so I took that on and it became a real passion at that point, realizing what we needed to do, how we could do it, how I think the ACP was kind of a model for a number of other healthcare organizations at trying to really make policy live and effective, and so kind of helped craft how that consortium, which has kind of continued to evolve and grow in the last four or five years, really kind of got its legs.

EC: Thanks, Robert. And it's so great to hear how you got involved in this initially from organized medicine because there are so many ways to get involved, but it's also clear that you played a role in influencing a lot of the organizational efforts. So thank you for all of that.

[13:04-15:33] Marianne's Anecdotes about Intersection Between Climate and Health

MP: I'd like to begin our discussion today with two incidents that brought to my consciousness the intersection between climate and health. I was lucky enough to go to El Salvador twice in the mid 2000s to work with a local health cooperative. We began to hear rumors from people in rural areas about healthy young farmers being diagnosed with chronic kidney disease and dying from it.

One gentleman we talked with said that he knew from his friends when he was diagnosed with kidney disease that his life would be shorter, so he left the hospital and went home to spend the rest of his days with his family as he could not afford dialysis. Then, in the late 2000s, a young nephrologist in El Salvador, Dr. Ramon Garcia-Trabanino, put all the pieces together and described what is now called Mesoamerican nephropathy, an epidemic of kidney disease across Central America, primarily in young male farmers without other risk factors for chronic kidney disease. Nicaragua and El Salvador now have the highest mortality in the world from kidney disease as a result.

The most clear etiologic link is to prolonged heat exposure and dehydration in field workers. Other factors may include toxins encountered in farming, like pesticides, and are possibly exacerbated by NSAID use. There's now a movement to promote preventive measures such as safe drinking water, adequate hydration, rest, and shade for workers at risk, as well as to reduce exposure to toxins.

The heat risk with climate change came home to Portland in June of 2021 when we experienced a heat dome that brought temperatures up to 116 in the shade for a couple days. Now we didn't have air conditioners much in Portland then as we historically have not needed them. A patient of mine was in a skilled rehab center without air conditioning and had the fan in her room moved to another patient's room. The temperature in her room soared. Her visiting daughter found her

unresponsive in her bed the next day in a room that was extraordinarily hot and had to call 911. Sadly, this lovely lady died in the hospital of a heat stroke a few days later. So that being the background, it's both here and global that we're talking about.

[15:33-21:00] How Do You Define Climate Justice in Healthcare?

MP: How do you guys define climate justice, particularly in healthcare here and around the world?

EM: Yeah, I mean, I think climate justice when I really try to think about it, I think we'd have kind of justice related to the climate if we really have a situation where everyone's in the same boat. And right now, everyone is just really not in the same boat, right? There are those of us who live in houses near kind of green islands, parks where there's some protection from heat-related illnesses. I have clean air. I have a whole house air filtration system, and I have reliable electricity where I can plug in HEPA filters to protect me from wildfire smoke. But I have a lot of patients who are renting, who maybe don't have air conditioning, don't have filters, or who work outdoors and don't have paid leave or leave when it's too hot or don't have the choice to not work.

So there's severe limitations on resiliency to the effects of climate change just from the amount of money you need to spend to make sure that you actually can maintain your body in both clean air and a regulated, temperature environment that a lot of people don't have. So I kind of think about climate justice meaning that we work to address areas where there's limitations on resiliency and try to make sure that everyone is in the same boat, that everyone, my passion is obviously clean air for all. And so that everyone has access to clean air and that we try to decrease the risks for being exposed to poor air quality.

I was working in the ICU that weekend of the heat dome in June and half my ICU filled up from patients who were victims of heat-related illness. I had two Doe's who were just found outdoors and we literally couldn't ask who they were until we extubated them like a day or so later.

And I had a mom who died on me. She and her husband slept on the top floor. Their air conditioner had quit working. The kids just kind of went up to check on them, and both patient parents ended up in the ICU, in two different ICUs, because everywhere was getting slammed with patients. And this person, over 12 hours, I mean, the only thing I can describe is she was cooked. I mean, she went into severe DIC. I could not keep her alive. We even transferred her down to one of our other hospitals, just seeing if there was something I was missing or maybe there was a cardiac event. But, and just within 12 hours, this young daughter was just stunned at the bedside of her mother and was just saying, "I had no idea it could be this bad. I just thought it was hot."

And I think, it's just these elements of climate justice where it's like, not everyone has access to the knowledge about the importance of clean air and kind of maintaining temperatures and maintaining clean water and everything that goes into it, not just knowledge about it, but the resources to do it, right? Because all these things cost money.

RM: Yeah, I'll add on to that. So I think Erika touched a lot on half of what I was gonna say, which is the local injustice. You know, people locally had inequitable ways of dealing with this, whether where they live, their access to air conditioners with heat and bad air. I think a lot of Hurricane Katrina and people who are living in certain neighborhoods in New Orleans where the

flooding was inevitable and they couldn't get out. And other people who weren't in those neighborhoods who could get out, who had the means or just were living potentially in a different neighborhood.

So you have kind of the local inequities and then I think increasingly, we've heard in a lot of recent reports about the global inequities and the different countries across the world that are not contributing to the pollution, so to speak, but who are in fact suffering from it. And one of the big points that I think it was in that report, and I think the *Lancet* Countdown reports as well, has been that there are these other countries, there's small third world countries frequently who are suffering from a lot of the effects of flooding and significant weather events, which are clearly more frequently than they used to be, yet they didn't contribute to this. And I can't quote the specific statistics, but it's stunning when you look at some of the statistics about the contribution of at least fossil fuel pollution to the world's climate that comes from the U.S. and a couple of the other major countries, yet we're a small percentage of the population of the world and we're not getting the impact.

And then you get into the tricky issues of, well, okay, if we have injustice and inequity, how are we going to right it? And you have all sorts of political arguments about that. But it's, so there's local injustice and there's global injustice, and I think that's where I think a lot more people are a lot more aware of both of those because of what we see and what is now in the news, which is good. The awareness of this has come so far in the last decade, and we need more.

[21:00-30:52] Effects of Climate Change that Impact People and Communities the Most

EC: Well, thanks to both of you for spotlighting various injustices and inequities with respect to environmental health issues. I wonder if, as a bit of a follow up to that, if you could both speak to where or how you foresee effects of climate change impacting communities and individuals the most, or causing the largest amount of suffering?

RM: I'll jump into that real quick. I was just at the, so for the Medical Society Consortium on Climate and Health, we just had our annual meeting about two weeks ago. And so, individuals from around the country, several hundred from different states came, and as was typical and kind of advocacy days, joined in Washington. A lot were remote, which was good from a climate standpoint. Not everyone traveled there, but there were visits to legislators on The Hill. And I think telling legislators about what is happening in their communities at home, whether it be wildfires out west.

I can give you from a Connecticut standpoint, one of the colleagues with me traveling around is very involved in this area and was pointing out how people may not think about it, but at least in the Northeast, Connecticut has like the worst air pollution of any state in New England because there's bad air coming up from the factories and from New York and all the smog from all the car pollution. But then there's this phenomenon where some of the industrial air from the Midwest actually kind of sweeps across us too. And so there's much more than I was really aware of bad polluted air that comes to Connecticut.

Okay, that's kinda at a higher level. But at a lower level, there are certain, like, literally intersections of interstates. In New Haven, there's a big intersection of Interstate 91, you know this, Marianne, that goes north-south. Interstate 95 going east-west. It's a huge intersection and people have measured the quality of air and particulate matter pollution literally in the neighborhoods at that intersection or near that intersection.

And what, another fact that I learned, when you have a lot of trucking, sure trucks are diesel and they have particulate matter, but apparently when there's a lot of traffic, those cars in traffic are hitting the brakes. And apparently when you hit the brakes in at least certain cars or trucks, that like somehow turns off some of the particulate matter mechanisms that slow down emissions in car engines, and basically you get a lot more emission of particulate matter and pollution. So when all of these trucks are braking at these intersections of interstates, you're getting that much more air pollution.

And they do spot measures of air quality in neighborhoods a quarter mile, a mile, two miles from these certain areas and the difference in air quality is absolutely stunning. And I think there's very little realization around that. And so when you look at doing changes locally, like how do we fix this? I think a lot of local highway kind of rules. I mean, so there's a lot of local laws that really can have an impact on how some of those things might actually have an effect in the state.

EM: Absolutely. And just to highlight a little bit about what, you know, to kind of piggyback on what you were talking about, we know that the freeway intersections industry are generally localized in communities with lower socioeconomic resources and often in historically redlined communities.

A large study in California looked at the distance from the freeway and children living near it, and this was a study of Hispanic patients, but they found that kids who had Hispanic ancestry were much more likely to be living closer to freeways versus non-Hispanic whites and have higher levels of nitrogen dioxide that they were breathing. And then the greater the percentage of indigenous ancestry, you know, to be blunt, the darker, these communities were even closer. They were living even closer to the freeway. There's all this, our racial history is always with us and this kind of really impacts especially air quality and where people live and where we zone for freeways and schools and everything with that history of redlining.

I think in terms of where you see the climate change, I mean, it's hard because once you start to see it, you see it everywhere, right? And then all these things interact and intersect and intersect. So, you're mentioning particulate matter emissions. Obviously wildfires are the massive source of PM 2.5 out here. Those teeny tiny particles that just get into your bloodstream and go all around and cause disease in every single organ system and from womb to tomb. So obviously out here with wildfires, and our wildfires are getting so bad in the West, so they're actually going over to the East coast and affecting air quality on the East coast now.

But one other thing that really intersects with that is also in a warming world where our diseases are now actually spreading from their historic locations, in terms of infectious diseases and also with globalization and increased travel, we actually see increased tuberculosis transmission after wildfire events, right? We know that COVID-19 actually intersects with particulate matter exposure, probably because a lot of these emissions change the immune system in the lungs. There have been studies post wildfires looking at the following flu season and seeing increased elements of severity.

So a lot of this, the warming climate and resulting in increased particulate matter emissions, and then also you have increased ozone exposure or formation because part of ozone being formed relates to the heat, right? So all these things intersect. And then now in a more globalized world where pathogens are traveling, we actually are probably gonna be seeing the infectious complications of this.

The other thing I see a lot as a pulmonologist is what happens when you put more carbon in the atmosphere, right? It's plant food, right? So we have a warming climate with more CO₂, right? And so it actually turns out we have more pollen. We have longer pollen seasons. The pollen is more intense and actually more allergenic.

So where I live in the Pacific Northwest, there's actually a month longer pollen season and much higher pollen burden than there was when I was in high school in the 90s, right? So the allergy burden, the asthma burden, like all these things where people think they're not really affected, you know what I mean? So many people kind of think they found the secret sauce that climate change won't bother them. Well, it's coming for all of us and I think sometimes talking with decision makers or communities is just kind of highlighting, I think, this is how this is affecting you.

And this is just a tiny slice of like all the different ways that this can happen. Same with, like, big massive flooding events and mold exposures and water damage. And then also just the existential and financial risk of massive climate events like floods, hurricanes, wildfires that are becoming more frequent, which are gonna cost all of us in terms of increased, whatever, home insurance premiums or needs to rebuild communities, increased taxation that would be required to support those things. I think kind of trying to help highlight how this is already something we're spending a lot of money on can help people understand why it's important to invest in it because we're already spending a ton of money on it, so we might as well invest in addressing the problem.

RM: Yeah, if I could just add one thing, Erika. You mentioned kind of the shorter winter, kind of longer, like, spring with pollen and whatnot. Something which really strikes people, at least in New England, a lot, and I know Elisa being in Massachusetts will understand this and in being ID, vector-borne illnesses.

So Lyme disease was kind of first described in Lyme, Connecticut, and when the nymph ticks come out earlier in the spring, the Lyme disease season is actually a lot longer. And so even those people who aren't living in the cities being exposed to deer ticks, suddenly you have the suburban potentially kinda more middle upper class individuals who may not be sensing the things in the city and not living near traffic, living out in the country. All of a sudden, their paranoia about Lyme disease starts to go up, and there again, so awareness is everywhere. The effects of climate change and the effects on health are just, they're everywhere, as you said.

EC: Yeah, I can't help but jump in because both of you so eloquently referenced some ID fallout, or infectious disease fallout, and certainly the examples of different infections that are becoming more prevalent or are lasting longer than their usual seasonality because of climate change all definitely comes into play and other vector-borne illnesses that seem to be geographically expanding its usual area, dengue and other mosquito-borne infections, as we gradually become a warmer Earth and a globe. So certainly, I hadn't appreciated it prior to my recent interest in climate change, but it has a deep impact, certainly in infectious disease as a specialty. And I find that very interesting and for me, it's a way to bring that to a more concrete focus for what I do in the clinic and taking care of patients. Marianne?

MP: Yeah. And I just wanted to add, Robert, when you were talking, and Erika, you were talking about redline communities. I think about that every time I drive into Philadelphia, there's a place where the freeway has been cut straight through this relatively poor neighborhood and I think

about the noise, the emissions, all of the stuff that's affecting those neighborhoods more than others.

[30:52-31:26] Closing

MP: Thanks to both of you and to Elisa for beginning this rich discussion about the intersection between climate, health, and equity and how we can address it. This is the end of part one of our discussion, and we look forward to part two soon.

In the meantime, we invite all of our listeners to continue this discussion online. We'd love to hear your stories to do with this topic, your questions, and the specific barriers and challenges you have faced around climate, health, and health equity. We have additional resources, including a link to Dr. Moseson's podcast and a transcript of this discussion on our website. Reach out to us. We are also on social media at Twitter and Instagram.

[31:26-32:17] Outro

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