

A New Angle

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Justin Angle This is A New Angle, a show about cool people doing awesome things in and around Montana. I'm your host, Justin Angle. This show is supported by First Security Bank, Blackfoot Communications and the University of Montana College of Business.

Justin Angle Hey, folks, welcome back and thanks for tuning in. Today I am speaking with Lori and Robert Byron, two physicians from Hardin, Montana, and lead authors of the Climate Change and Human Health in Montana report.

Robert Byron Climate change is the world's greatest group participation project. We can all win together, and in fact, it's probably the only way we will.

Justin Angle The report details what we know about how climate change is affecting the health of Montanans.

Justin Angle Lori, Robert, thanks for coming on the show today.

Robert Byron Well, thank you for having us.

Lori Byron Yeah, thanks a lot.

Justin Angle So tell us, where did you grow up and what did your parents do? Lori, let's start with you.

Lori Byron I grew up in Louisville, Kentucky. My dad was an enlisted military man and mom was a stay at home mom.

Justin Angle And what was your entry point into medicine? Why did you decide you wanted to be a physician?

Lori Byron I went to Kentucky Wesleyan College. I was a math major and actually thought I'd end up being a medical missionary and all my friends were going to med school and I just decided I could do that too. It was a little inconceivable growing up because we weren't ever around educated people when I was a child so.

Justin Angle Yeah, you went to school and kept going. Robert, how about you? Where did you grow up and what did your parents do?

Robert Byron Well, I grew up in Eastern Kentucky, not Appalachia, but the foothills of Appalachia. And actually, my father was a physician, one of the last of the country doctors. There was no hospital nearby and so when the county sheriff got between two people in a domestic violence case and got shot, he ended up on our front lawn.

Justin Angle And did that, you know, some of these formative experiences inspire you to pursue medicine?

Robert Byron Well, eventually, yes. I was a little resistant. I went to college at Vanderbilt and then spent several years in the Navy, having gone to college on a Naval ROTC scholarship. But it was while I was in the Navy that I decided to go to medical school, which I did after getting out of the Navy.

Justin Angle I'd love a sort of a brief summary of your careers in medicine, I know you spent many years on the Crow Reservation. Lori talk about your professional careers as a practicing physician.

Lori Byron Yeah, we spent 27 years in Crow Agency. We sort of felt like people who are in the federal form of government deserve to have some long term care and that wasn't something that happened in a lot of Indian Health Service hospitals. There were so many people that just came and went and we really felt like they needed continuity. And then it wasn't until our kids left home that we sort of had the epiphany of realizing that what we did in the exam room didn't matter if we didn't start addressing climate change.

Justin Angle Rob, do you have anything to share about your experience on the reservation? And in particular, you know, as physicians, there's abundant opportunities in some ways probably to monetize your expertise and training in other areas. But you both chose to dedicate your primary practicing years to a disadvantaged population. Talk about that commitment.

Robert Byron Lori and I met in medical school and married a few years later, but neither of us was really interested in private sector medicine or sub specialization. And in fact is we worked overseas a couple times in Haiti and then looking at different aspects of serving underserved populations and eventually decided that working with a Native American population was probably better for us. And then we came to the Crow Reservation, worked with Indian Health Service for a number of years. After leaving there, I left Crow a couple of years before Lori, even though we've been together the whole time, and helped start up Bighorn Valley Health Center, which is now called One Health, which is a federally qualified health center serving initially Hardin and the Crow Reservation, but now with multiple sites throughout eastern Montana and northern Wyoming.

Justin Angle So, Lori, you mentioned a few moments ago that climate started to become on your radar as your children were getting older. Talk about that. How, when did you become interested in climate and when did you become concerned about its effects on our health?

Lori Byron I think we had more time to read once the kids left home and started reading more and just realizing how serious climate change was and of course how significant it affects our health. And yeah, we just decided it was another bandwagon we wanted to jump on and start working on.

Robert Byron And Justin, if I may add too, a lot of our work, in fact all of our work with Indian Health Service at that time, we would see patients in clinic. We worked in the emergency room and saw patients there and then we would take care of them in the hospital. But also in that setting is, there's the distinction of working with an individual but also working with populations, which is more public health. Those are kind of different perspectives. Sometimes what's best for an individual or best for a population

differ. And particularly, as Laura stated, when we started learning more about the evidence and the data that was available on climate change, it was kind of a real wakeup call for us to realize how important this was and that we'd be doing something about it.

Justin Angle Yeah. And so let's get to the doing something about it part. Like how do you, you know, as a practicing physician, you become more aware of this, this force that we're sort of all living through climate change. And then how do you then connect that awareness to action?

Lori Byron The first few years, we were both still working part time and we were involved with a number of organizations, some in Montana and some nationally doing activism work, doing lobbying with our congresspeople. And it eventually became clear to us that really, Montana needed dedicated people working on climate, or more dedicated people than the nation did. And so we felt like we needed to put most of our efforts into Montana. So about 4 or 5 years ago, we started the Montana Health Professionals for Healthy Climate, which is a statewide group of all kinds of health professionals, and we just work on climate change.

Justin Angle So in your work at the intersection of health and climate, how do you even start to investigate the link between climate change and health? Like what sort of process do you start with?

Robert Byron A good place to start is with air pollution. I mean, air pollution is clearly the cause of manmade or anthropogenic climate change. And air pollution currently contributes to tens of thousands to maybe hundreds of thousands of premature deaths in the United States every year. And that's despite the fact that our air quality is better now, for the most part, than it was two or three decades ago, thanks to the Clean Air Act. Unfortunately, in addition to that, not only is air pollution causing climate change, but it, climate change is also worsening those problems. For example, the heatwaves that we are seeing so much more in recent years, many of them could not have happened without climate change. And heat is the number one cause of climate related death or weather related death in the United States and maybe globally. Another thing that we're very familiar with in Montana certainly is our wildfires. We've

always had wildfires, it's part of healthy systems, but the wildfires we're seeing in recent decades are dramatically worse. More intense, burning more acres and more frequent. And that's multifactorial. But a significant part of that is from climate change related issues, increased temperatures with more drying, less overkill of pests in the winter and other things contributing to this. And in fact is studies have suggested that whereas most places in the United States, air quality has improved, in the Northwest we've taken a step back and it's because of the wildfires that we've seen over the past decade or so.

Justin Angle So is that degradation in our air quality largely attributable to wildfires? What are the primary drivers here?

Robert Byron When you talk about air pollution, for me as a physician, that's kind of like saying cancer.

Justin Angle Okay.

Robert Byron And there are hundreds or even thousands of kinds of cancer, depending on how you classify them. And some are worse than others, but they're all bad and they all have a lot of things in common. The air pollution is kind of the same way. So the air pollution that is actually leading to climate change is primarily things like carbon dioxide, which is mostly from the burning the fossil fuels, as well as increased numbers of wildfires because that does contribute to that. Nitrous oxides, which are mostly industrial, but also some other sources, and then things like fluorinated gases that we use for refrigerants and anesthetics and others. Different parts of air pollutants are primarily the ones that impact our health. Particulate matter being one of the really bad actors, and nitrous oxide again in this category, even allergens and the ground level ozone, which is the result from sunlight hitting other air pollutants. So not only is air pollution causing the problem, but climate change actually makes it worse. As temperatures go up, we have more particulate matter because of the massive increase in wildfires both in the U.S. and globally.

Justin Angle Yeah. So some really dangerous feedback loops that we're we're stuck in. Let's talk about the report, the Climate Change and Human Health in Montana report.

This was a part of the Montana Climate Assessment, or it grew out of the Montana Climate Assessment. Talk about how a project of this scope comes to be and your experience working on it.

Lori Byron Well, we met Bruce Maxwell when we were giving a talk at Rough Cuts at University at the MSU in Bozeman, and afterwards he said this sounds like the beginning of a new chapter for the Montana Climate Assessment. We said yeah, we'd love that. So that's sort of where it started. And it ended up that CARE, which is the Center for American Indian and Rural Health Equity at MSU, ended up getting their initial grant from the Montana Health Care Foundation, which was able to kind of barebones fund this project. So there were seven of us authors working together, mostly during Covid. So it was almost all done virtually. It took about a year and a half, and that was published about two years ago.

Justin Angle Got it. Monumental project, talk about sort of your sources and your methods. Like what kind of research project is this?

Robert Byron I mean, this is an assessment to look at what's out there, what does the data that's available say and what are some of the gaps in that? And certainly one of the issues and one of the questions that we all ask when we first started doing it was, do we have enough data for Montana to write an assessment? And the answer is, in many cases, yes. In some cases we could not be specific. And that's related because Montana has such a small population, you know, a million people spread over such a vast area. It's hard to collect health care data. That was one of the issues. As you noted, we built this on the Montana Climate Assessment, which came out in 2017, which had noted that particularly heat was going to be a big issue or anticipated to be a big issue. And that's also a big impact on people's health for a variety of reasons, but also the issue of drought. Again, Montana lives with droughts. That's part of being here, but they're becoming or will become longer and more frequent. And the other issue that we are seeing, what we termed in the assessment or the report, as climate surprises, which are extreme weather events. And that can be anything from, in Montana mostly is going to be extreme precipitation events. But even the flash droughts that we saw in eastern Montana a few years ago is an extreme weather

event. And then, of course, if it's a rain event or a snow event, then we have flooding after that, as we saw in Yellowstone Park and Red Lodge a couple of years ago.

Justin Angle Yeah.

Robert Byron The other part of the assessment which we tried to put a lot of information in, is things that people can do and it's not specific policies, but things that individuals can do, that communities can do and that elected officials can do to make our, either better, prepare us or address these issues so that they hopefully will have less impact on people's health.

Justin Angle We'll be back to my conversation with doctors Lori and Robert Byron after this short break.

Justin Angle Welcome back to A New Angle. I'm speaking with doctors Lori and Robert Byron about the health impacts of climate change.

Justin Angle I'd just love to get your sense for how these effects on health in Montana are distributed. I mean, some people, you know, don't have access to clean air if they work outside or other factors like do we know on which variables these negative effects of climate change on our health are distributed?

Lori Byron We do. And nationally and internationally, there are subsections that are always more at risk. And those include women, especially pregnant women and children, the elderly, people who already have disabilities or chronic medical problems, people who live on the coasts, which of course doesn't affect us in Montana, Indigenous populations. But another group is people who are what we call primary care workers, they're in forestry or fishing or ag or even rec tourism in Montana because they're just exposed to the elements more.

Justin Angle And do we know much about the effects on mental health? You know, I want to ask you to comment on the Held case, of course, but that was a theme in that case, the sort of the mental toll, the mental health effects that climate change is having

on youth in particular. Do we know much about how climate change is affecting our mental well-being?

Robert Byron Yeah. The data is extremely strong and supports the fact that climate change is affecting our mental health, whether it's an extreme weather event, say of a flood or a big storm. There's increased risk of violence, increase risks of depression and of post-traumatic stress disorder after any of those. When temperatures go up and they don't have to be extreme, just as temperatures go up, we see more violence, we see more depression, we see more suicides across the board. When we have events like, well, wildfires is certainly a big issue and it's easy to understand. Well, that's devastating to say, a family or community. So now, in addition to all the life stressors we have now, we have more financial and other stresses and things like drought. Again, unfortunately, Montana is long been a leader in the United States in the number of suicides per capita. And things like drought make that a whole lot worse. So and these don't have to be extreme events. The droughts that we saw over the past couple of years had profound effects on several segments of our population, thinking of rural populations, especially ranchers and farmers were at high risk for problems with this. And we saw extreme issues with worsening mental health.

Lori Byron And as you noted, even if we're not directly affected by climate change, just the overall gestalt we have that has led to the climate anxiety or eco anxiety, solastalia. There's been a number of different words put on it, and certainly our youth are more affected. I think they're, number one, more aware and number two, they're going to live through this longer than those of us that are older. And that can lead to significant despair for young people. And in fact, a good international study in the last couple of years showed that 80% of our youth are very worried or extremely worried about climate change.

Justin Angle One of the realities that you must grapple with is okay, at a international level, at a national level, at state level, local, at all the levels we need meaningful action. But given that climate change is here and we're experiencing it, we also need to be as resilient as we can as individuals and in the health systems that we have. What are you advocating as far as what individuals do to maximize their wellness, given all the pressures on our health?

Lori Byron Well, there's numbers of things we can do, for example, with wildfires. Those of us that can afford it. Having filtration in your house definitely helps, limiting our outside activities or going somewhere else if it's a vacation. But I also realize that that's a, in a population that's entitled. And there are some people like our unhoused people or people living in low quality housing where they have a lot less available to them. So there's a number of community efforts that have gone on in Montana to do either box fan filter distributions or air, official air filter distributions. And those do help us during wildfire season. When we look at heat, you can again, in in your own home, you can insulate your home better. You can have more green space around it. And we can do the same things in our cities. We can help the parts of our cities that are heat islands by doing these actions. And then beyond that, I think it's people getting involved and motivating both their communities, but also their politicians, their legislators, and motivating the state in general to start working on climate change.

Justin Angle At the level of how our health systems are organized are there any solutions or any ways we could engineer our health system to better address the effects of climate?

Robert Byron Our health care system, regardless of what segment of it is, we are supposed to be helping patients. Unfortunately, the health care system contributes about 8 to 9% of U.S. greenhouse gas emissions.

Justin Angle Wow.

Robert Byron So there's certainly a big effort in hospitals and clinics and systems across both the U.S. and the world to try and address that. The other aspect is the idea that outside of clinics or outside of the hospital or helping to prevent people from needing to come to the hospital. And in working with that organization at the community level to help improve, whether it's air quality or help families stay better, insulate a home which saves them money in the long run, also improves air quality in the home. So things like that can make quite a difference. And there is an effort in many of our communities across Montana by organizations to our health care

organizations to address this. But we need to do a lot more, and there's a lot more that can be done.

Lori Byron Our health departments in Montana are starting to get involved in this. They are, again, looking at the things they can do, both with air quality, with helping people, with the extreme heat issues. So they are becoming more involved. And traditionally, it's been the health departments that have again, done the big picture kind of things. But more and more, we're finding that other health care providers are wanting to get involved in this kind of action too.

Justin Angle When we think about climate advocacy, you know, the role of the health care system and the role of health care providers is not one that immediately comes to mind, but you all kind of occupy this intimate space with your patients. How does that give you a unique influence on helping people navigate these effects of climate change?

Lori Byron I think we more and more are finding that health care providers are speaking out more. They are talking to their patients about it. They may not mention climate change, but they might mention the extreme heat and what can be done to protect themselves from it. And sometimes drawing the links between climate change and whatever the particular health problem is that that they're educating on. We find more physicians and nurses are willing to put information in the offices, and that's something we're working on, an education campaign to do just that.

Robert Byron I'll also add in that it's only just now that being able to talk with patients about climate change is being introduced into the curriculum of a lot of the training of a lot of health care professionals. So that's not something most current health care professionals have been trained in. So that's a big gap that's trying to be addressed as well. We think of it as being similar to smoking back in the 1960s and it was not being talked about. But now no health care professional would dream of having patients with certain conditions or just in general and not talk to them about smoking and the risk that has. We think that's where air pollution and climate change need to occupy that same level because the risks are comparable.

Justin Angle Yeah, it makes me think that, you know, our health system's gotten pretty good at like fixing acute problems. But we are you know, we need to improve at understanding these effects of what, if they're lifestyle, disease or lifelong exposures to air pollution or whatever that is. You know, as practicing physicians for so long, what's your view of that and how, you know, we're sort of trying to improve our capacity to address these the way factors affect us over a lifetime.

Robert Byron We agree with you very much. And that in the past we have dealt with just the immediate problem. And we're both learning more, but also trying to do a better job of it's not a one time thing, it's a cumulative effect of many different things. We in the health care sector need to do a better job of not scaring people, but one making them aware, but also helping them learn what the answers are, what are alternatives, healthy alternatives to address some of these issues.

Lori Byron What we do see when we teach the medical students every year that they are more and more exposed to things that we never even had available when we were in medical school, like the social determinants of health. And they are very aware of these things. Also very aware of climate change.

Justin Angle And in our remaining time, you've mentioned some of the work you do, but let's mention your organization, specifically Montana Health Professionals for Healthy Climate. Talk about that organization, your mission, and how folks could learn more about it.

Robert Byron We shortened it to Montana HPHC. If people are interested, they can google it or go to our website at montanahphc.org. Any health care professional or people just interested in health are welcome to join. There's no cost, but our goal is to both educate health care professionals about air pollution and climate change and not just the bad things, but things we can do and more broadly to to educate the general public and elected officials and to work with them. And we welcome talking with anybody and appreciate questions.

Justin Angle Super well, Lori, Rob, it's been a pleasure getting to know more about you and your work, this important work. Thank you for this work and thanks for spending some time talking with us about it today.

Robert Byron Thank you for the opportunity. And we close a lot of our presentations with the idea that climate change is the world's greatest group participation project. We can all win together, and in fact, it's probably the only way we will.

Justin Angle Thanks for listening to A New Angle. We really appreciate it. And we're coming to you from Studio 49, a generous gift from UM alums Michele and Loren Hansen.

A New Angle is presented by First Security Bank, Blackfoot Communications and the University of Montana College of Business. With additional support from Consolidated Electrical Distributors, Drum Coffee and Montana Public Radio. Keely Larson is our producer. Ella Hall is our production assistant. VTO Jeff Ament and John Wicks made our music and Jeff Meese is our master of all things sound. Thanks a lot and see you next time.