

ASPR TRACIE Webinar Transcript

Climate Change Resilience and Healthcare System Considerations

April 18, 2022

PowerPoint Presentation: <https://files.asprtracie.hhs.gov/documents/climate-change-healthcare-considerations-webinar-ppt-final.pdf>

Recording: <https://attendee.gotowebinar.com/recording/1760299846850188806>

Shayne Brannman: On behalf of the US Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response, I'd like to welcome you to ASPR's Technical Resources, Assistance Center and Information Exchange Webinar titled Climate Change Resilience and Health Care System Considerations. Before we begin, we have a few housekeeping items to note. The webinar is being recorded. To ensure a clear recording, everyone has been muted; however, we encourage you to ask questions throughout the webinar. If you have a question, please type it in the question section of the GoToWebinar console. During the question-and-answer period of the webinar, we will ask the questions we receive through the console. Questions we are unable to answer due to time constraints will be followed up directly via e-mail after the webinar. To help you see the presentation better, you can minimize the GoToWebinar console by clicking on the orange arrow. Today's PowerPoint presentation and speaker bios are provided in the handout section of the GoToWebinar console and will be posted along with the recording of this webinar within 24 hours on ASPR TRACIE.

Next slide. The opinions expressed in this presentation and on the following slide by non-federal government employees are solely those of the presenter and not necessarily those of the US government. The accuracy or reliability of the information provided is the opinion of the individual organization or presenter represented. Next slide. My name is Shayne Brannman, and I am the director of ASPR TRACIE and I want to welcome new and old friends of ASPR TRACIE. I want to thank you for what you do daily to enhance the preparedness, response, and recovery activities of your health care entities and communities. Your role is so vital to addressing the daily and arduous challenges being presented, so your willingness to spend the next 60 minutes with us to further advance your knowledge is noteworthy. I also want to convey my heartfelt thanks to our awesome lineup of panelists and moderator for this webinar. Your willingness to lend your precious time and share your substantive expertise so others might benefit is commendable and generally appreciated. Lastly, many thanks to Audrey Mazurek and the ICF TRACIE crew for coordinating this session.

Next slide. For our new friends to ASPR TRACIE on the webinar today, this slide depicts the three domains of ASPR TRACIE: technical resources, assistance center, and information exchange. If you cannot find the resources you are looking for on ASPR TRACIE website, simply e-mail, call, or complete an online form and we will respond to your inquiry in an expeditious manner. Earth Day 2022 is being acknowledged and celebrated across the land this week. So, the timing for this webinar is spot on. Moreover, the impact of climate change on the

volume and intensity of events we must all address make this a very timely session. So let's get started. It's my pleasure to introduce the moderator for today's webinar, Dr. John Hick from Hennepin Healthcare and who also serves as TRACIE Senior Editor. John, let's get started.

Dr. Hick: Thanks so much, Shayne. Next slide, please. This presentation today helps to complement and emphasize key considerations and key areas that we outlined in the climate change resilience and healthcare system considerations document. This is currently posted on the ASPR TRACIE website and we will be including a link to this in the sidebar of today's presentation. In addition, we have a summary document that is posted in the handout section today along with the speaker bios and all the slides from today's presentation. We also have a separate topic collection on climate change and healthcare considerations that hopefully will provide you with valuable resources as you begin to consider some of the short and long-term implications of climate change on your healthcare system operations.

The intended audiences for this document are healthcare executives and emergency planners, and it really discusses a very broad range of illness and injury considerations, planning considerations, healthcare operations, care delivery, continuity of operations, as well as impacts on patient surge. We highlight three areas of the United States that may be affected by specific climate change hazards and case studies that help understand the application of some of the principles to local conditions such as the San Francisco Bay Area, Southeast Texas and Central Tennessee. Next slide, please. It's my pleasure to first welcome David Johnson, who's the Deputy Assistant Secretary for Health in the Office of Regional Health Operations at the Assistant Secretary for Health Offices of US HHS. David, thanks so much for being here today and look forward to your presentation.

David Johnson: Great. Well, good day to all and I appreciate it, Dr. Hick. I do want to say thank you too, a special thanks to ASPR and ASPR TRACIE staff for their commitment to this topic, and to all the continued assistance, also Dr. Hick for leading us through this, as well as to my colleagues, Dr. Butler and Dr. Balbus for all the work that they've done in their commitment as well. So, on behalf of the Office of the Assistant Secretary for Health and our Regional Offices, it's a big responsibility to be considered as part of this effort, as well as really humbling to be included in this panel and more importantly, to have the opportunity to be with such a dedicated audience working on the frontlines of all types of emergencies, those really big and those enormous in scope. So, as we continue the discussion of climate change in public health throughout this presentation today, I wanted to start with this simple yet descriptive logic model so to speak on the impact of climate change. I want to point out also what it doesn't show, sorry, thank you.

Next slide. What it doesn't show and it's actually what we'll highlight during the session and these are the considerations, the antecedents in those elements that exponentially contribute to each box that are occurring before and subsequently after this. We know that the impacts, these are impacts that are health and safety throughout the food that we eat, the water we drink and the air we breathe, and how and where we live and work and more specifically how we public health, emergency management, health care and safety system professionals prepare for and address these threats every day. While we're here to increase our ability to do this, we also have to consider those who are not in the room or not in the audience today and that's the public, our

patients, our clients, our customers, their behaviors, and the educational, economic and social determinants that impact how we live.

Next slide. When we look at this, this slide, so we'll kind of go over the just the general key points, but to put your attention to the right side, this pie chart, and we see a proportion of the emissions that each industry contributes. I don't think many of us are surprised by the top contributors. So, when I took a look at this, I kind of felt myself in this individual versus kind of professional standpoint where as an individual, I'm really in the center of this and seeing how all of this affects me, but also as a professional hovering above this and considering the impact that I am, we have to manage both the proportion, but also the scale and scope of the contributions for each of these industries and similar to this, climate change, right, it's noticed by our senses, what we feel, touch live and how it affects our physical, mental in community health. Overall, right, it affects us all; however, it doesn't affect us all equally, and more importantly, it doesn't affect us all equitably.

Next slide please. For example, Florida has 20 of the top 25 cities most vulnerable to flooding by the year 2050. Patterns of temperature and precipitation change more specifically to the Great Plains region is going to increase which means more competition for water supplies by homes, businesses, agriculture; it's going to affect the aquifers as well. Hospitalization visits related to heat index are rising. Heat related hospitalizations begin at a lower heat value traditionally in these cooler regions, so we see the northwest, the west and the northeast seeing higher hospitalizations due to this and then also wildfires. I think we all know about them. They're more frequent and widespread and what's really challenging is that it's causing more smoke that it's undermining the decades of progress in reducing air pollutions from all of the efforts we've been making. So, this is a real challenge going forward.

Next slide please. And on this element of heat, we know it can lead to many issues, heatstroke, dehydration, cardiovascular, respiratory and other cardio cerebrovascular disease issues, warmer temperatures in shifting weather patterns, worsening air quality leading to asthma attacks and other respiratory events. What does this mean? These increases both the frequency and severity threaten the health of people before and during the event, but also really more specifically after the event and this increase in the need for emergency evacuations and follow on services long term really continue to stress our efforts. Ironically, droughts and more acute heavier rains will impact agricultural yields, causing runoffs, a lot of GI issues that are there and also contaminated food. So, right, we both have this drought and then we get water, but they're not in a great equilibrium. So, again, those that are unfortunately hit are those that are disproportionately from lower income homes in rural areas, and those that are less advantaged.

Next slide, please. So, the media, policy leaders, and even some in our own professions tend to only focus on the primary and immediate impact of these and other storms. What drew me to this example is actually, first of all, I'm not that familiar with cyclones, but actually more specifically, this increase by one third in death following an event, and also an increase in chronic disease progression following these events. I want to reference back to this first slide that, you know, when we think about all these antecedents, it wasn't the storm that caused the chronic disease. However, the storm itself significantly sped up the morbidity and mortality due from them. So, again, another concern about how we go about our business.

Next slide please. Vector-borne illnesses, as we all know, transmitted by another organism, mosquitoes, tick fleas and other animals that carry some type of infectious pathogen like a virus, bacteria or protozoa; changes in precipitation as well, as well as extreme events really change how the vectors actually are being dispersed, as well as also the increase in illnesses and occurring in different times of the year. Anyone who has taken epidemiology 101 probably has, you know, had to sit through the hantavirus. In the four corners early in the 1990s, there was a drought, however, followed by heavy snows and rainfall really made the plants and grew vegetation. As a result, mice were plentiful. In fact, they were about 10 times the number of the previous year, which meant that they interacted with humans more and as a result, the likelihood of actually share of spreading the Hantavirus and transmitted in humans was huge and then so we saw this big outbreak. So, this isn't something new. We've been experiencing this for a while.

Next slide, please. On a slightly personal note, in the late 90s, and early 2000s, I was an EMT running all types of calls. However, you know, in reflecting back, I saw myself really only in the response. That was the role, treating patients and I don't think I really appreciated the continuum of circumstances that often led to the medical call itself, and certainly didn't understand or think about the differences in care that would be necessary for treatment beyond the initial call itself. What's the relevance? As I alluded to all, we're vulnerable to illness, we're all vulnerable to the impact of climate and other negative events, but again, not at the same odds. If you look at this slide, they're listed some of the factors that will lead to one, what's more likely to be impacted more harshly, right, it depends on the population and unfortunately, different populations will also take longer to recover or have more long-term effects following the event and frankly, a lot of these are very predictive.

When we see decreases in green space whether it's less trees, grass, and subsequently more buildings of blacktop, it leads to more heat, less air circulation, more density and we see this often unfortunately happening with lower income groups and additionally, when we think about green space and parks, these are not only helpful for dispersing some of the heat, but it's also a place to exercise and relax. So, not only are there physical benefits, but we also think about the mental health. So, where does this really take us? I think for me, it's not all about response recovery. It's really about regaining some of this lost ground and setting ourselves our professions and industries to be more resilient to the effects of climate and more importantly, the behaviors that promote safe environments and healthier environments.

Next slide please. So, our impact on work, I think you all know better than I do about disaster fatigue, however, this is an interesting statistic that the time between billion dollar disasters has actually dropped to on average 18 days in recent years between 2016 and 20. What does that mean? Well, like I said, talking to the experts, more stress in the emergency services in hospitals, more patients, different severity of diseases, as well as different treatment outcomes of courses that are necessary, costs are increasing, changes in physical health and surrounding environment also has impacted our mental health needs. So they're increasing while again our staffing has decreased a little bit and then infrastructure, right? We see this big increased demand for electric and other power sources, but also challenges and it's still in transportation, and communications clearly during these adverse impacts. So, what is it going to take? Certainly a lot of partnering, a lot of innovation, sacrifices, things that you do every day.

The reason why I have this slide is just a kind of this is a very interesting kind of example. We see smog and air every day and we think about that, but on the side of direct health care, there's always this effort needed to treat and provide care, but surprisingly, it also causes harm to the environment. While we're being saved, we're also causing decreases in the length of our lives. So, whether it's promoting medications or schedules that lead to less hydrofluorocarbon gas emissions in anesthesia practices or how and where we build buildings, we all have a role and I think that's something that we really do need to begin to focus on. Where do we need to put these health centers? Where do we need to put the different resources and next slide.

So, in summing this up, actually, I'm sorry, one more slide. There we go. So, in summing this up, and I apologize for not advancing the slide prior to that, government needs to form partners, both formally and informally, with communities and businesses more often and to a greater extent and from the fed side, we need to provide better guidance, better financial incentives, policies that support positive and assessable use of healthcare, increased health promotion, and also provide multiple options for individuals and communities and companies and we can say this also from the private side.

So, when we look through this slide itself, I think innovation and technology are key, but we can't change without it and the determination and commitment are vital that we have to go through. Ultimately, building resilience of healthcare and the public health system is what response is about going forward and we can continue to do what we've been doing, suggesting early warning systems for that, but we need to be resilient, we need to start building back our own infrastructure, our own personal infrastructure, as well as our own physical infrastructure. So, with that, thank you very much for the opportunity and I'm going to turn it back to Dr. Hick and to our other colleagues.

Dr. Hick: David, thanks so much for that overview. I will move on now to our next slide and to Dr. Lindsay Butler, who's the Director for Climate and Health Resilience for Blue Cross and Blue Shield of Massachusetts. Thanks so much, Lindsay, for being with us today.

Lindsay Butler: Thank you so much, Dr. Hick. It's great to be with you. I want to echo and thank ASPR TRACIE for putting this together. It's such an important topic and it's wonderful to be with you all as we celebrate Earth Week and Earth Month of April, especially, you know, given the recent IPCC reports, what we're seeing is that the climate crisis is perhaps more urgent and more dire than we've ever understood before. So, it's wonderful to be here with all of you. I also want to acknowledge many of those in the audience who have been serving as frontline responders in the midst of the COVID crisis over the past couple of years. I just want to acknowledge you all and thank you so much.

My name is Lindsay Butler. I am an Environmental Epidemiologist and the Director of Climate and Health Resilience at Blue Cross Blue Shield of Massachusetts. We are a not-for-profit health plan, and an anchor institution here in Massachusetts. We provide health care coverage for almost 4 million members across the Commonwealth and we employ about 4000 employees here. We are in the midst of an evolution in our mission to sort of go beyond corporate sustainability. We have made great progress in reducing our own environmental impact and now

we're sort of thinking about how we go further in the face of the climate crisis, recognizing that if we want to be a healthcare leader, we really need to be an environmental steward and that needs to be an important part of our strategy moving forward. So, I'll share more about that. Next slide, please doctor.

So, everything that we do here at Blue Cross of Massachusetts as it pertains to our environmental impact, and the way we communicate about environmental health goes under the term Green@Blue. Green@Blue is integrated environmental health leadership and we sort of organize the work into three pillars. So, the first is reducing our own environmental footprint, recognizing that if you want to talk the talk on environmental health and climate action leadership, you need to also walk the walk and so we are in the process of improving our own greenhouse gas accounting, working towards carbon neutrality and becoming a zero waste organization, continuing to reduce consumption of all our natural resources, improving environmentally responsible procurement practices. This is a really important piece of climate action I think for all healthcare entities no matter sort of where you fall in the healthcare space. We all have large supply chains and we spend a lot of money.

So, at Blue Cross, you know, we are saying to our vendors that we want to do business with companies that are really responsible about their environmental footprint and we want to hear everything they're doing from an ESG perspective when we decide to do business with a vendor. We also are looking at ESG, environmental, social, and governance practices and all of our investments and we want to incentivize our employees to live low carbon lifestyles. Many of our employees have elected to remain working from home, so we want to sort of make sure that the reduction of our environmental footprint doesn't just fall within our own walls, but also into our associates' homes as well. We also are advancing health justice.

In late 2021, we adopted a new corporate social responsibility strategy to advance health justice through three pillars; racial justice, environmental justice, and food justice, so that environmental justice is a critical part of Green@Blue. The third pillar is education and empowerment. This is a pillar that we believe is really innovative, and we're very proud of. It's part of the capacity I'm in here today speaking to all of you. It's the idea that if we are a trusted communicator of health information, we want our members, our employees, our accounts, the communities we operate in, we want them to have access to clear, understandable, actionable information about the climate crisis. We want people to know that the environment impacts their health, we want to support and incentivize action and we want to serve as legislative advocates on the climate crisis.

Next slide, please. The work that we do sort of falls into two buckets, sort of our work as a corporate citizen in the communities that we serve, and then our work as a health plan. So, in terms of that corporate citizen side of our work, we have a lot of disparity here in the Boston area on tree canopy coverage. So, we're working with some of our nonprofit partners to try to address some of that scarcity of tree coverage in some neighborhoods. For Earth Week, we'll actually be out planting trees with some of our community partners later this week. We have contributed to the build of a real jam on the rooftop of Boston Medical Center here in Boston, which is our largest safety net hospital in New England. We have an active community farm on the rooftop of one of BMCs buildings, which creates fresh produce that is then served to patients in the hospital. There's also the opportunity for employees to volunteer in the rooftop gardens and

there's also some cooking classes for some of our cardiovascular patients at BMC to learn about fresh produce.

Next slide, please. We also partner with a lot of leading environmental justice organizations in New England. One of those is GreenRoots, who is a group that works to achieve environmental justice and greater quality of life in a sector of the city that is real environmental justice community and carries a lot of the burden of manufacturing transit and our airport. So, we support them through both grants, but also skills-based volunteering. So, we have members of our corporate consulting group who assist some of our nonprofit partners to try to build efficiency, and acumen in our nonprofit partners. We also work with Eastie farms, which is located in another environmental justice area in Massachusetts and we support their work in advancing climate justice, food access, community resilience, largely through education programs and helping people understand about urban agriculture.

Next slide, please. In terms of our work sort of as a health plan in this space, again, a lot of it is around education and empowerment, recognizing that we're a trusted communicator of health information. We want to make it easy for people to access information about climate and health, about environmental health, about the risks to their health from environment. We've recently begun a project called Environmental Justice 101 Past, Present and Future, where we have been talking to our accounts about the intersection of the climate crisis and their DE&I work in sort of providing an opportunity for them to learn about the roots of environmental justice, the 17 pillars of environmental justice, so they can sort of start advancing environmental justice in their own ways. We have an opportunity coming up for our labor accounts to learn about reconnecting with your health and thinking about environmental exposures that influence some of our labor accounts. So, we want everyone who's a Blue Cross stakeholder to know that, you know, in the face of a heat wave, how can you protect yourself, if you are an occupational worker exposed to heat, when should you be taking your breaks and making sure you're hydrated. Boston is estimated to be the sixth worst heat island in the United States and so we are making sure to advocate for some of the neighborhoods in Boston that are really getting hit hardest with heat waves.

Next slide, please. This is a snippet of some of the things we've communicated about to date. Coverage is sort of like our digital health newspaper, which we share with our members and our accounts. We know that several of our employer accounts use this to communicate with their employees. We know from the COVID-19 pandemic that some of our communications related to vaccine hesitancy and COVID safety or really how our accounts and how our employees, the folks who hold their BlueCross insurance, their employer communicated with them through these coverage pieces. It gets millions of hits, it's very popular. And so we are working to make sure that there's a strong snippet of climate change headlines in coverage. We collaborate with Dr. Aaron Bernstein, who many of you probably know, he's a leader in climate change, and a well known pediatrician here in the Boston area. This week, we have a few exciting pieces coming up in coverage, including one that talks about how you should talk to your children about the recent IPCC reports or about climate change and eco anxiety. We also have another one coming up on the business motivation for acting on climate change.

Next slide, please. We're starting to think about sort of the next generation of wellness offerings, and how does the wellness offerings from your health plan impact your environmental health and impact your climate resiliency. So, many of you know that your health insurer might reimburse you for things like your gym membership, or a membership to a diet and wellness program, but we want to start thinking about what is that next generation product offerings that will help our members understand how the environment impacts their individual health. We want to support healthier environments as part of our wellness offerings and we want to continue to learn about how the environment is impacting the health of our members by looking at some trends in our own data.

So, we want to know if you have Blue Cross coverage and you are in an occupation that's associated with a lot of heat stress, we want to make sure we are communicating with you about how to stay safe. If you are a member of Blue Cross and your child has allergic asthma, we want to make sure we're giving you all the resources to understand what changes you can make to your indoor environment to reduce the exacerbation of that asthma and again, making sure that we're making that continued effort to look at our data and see what it tells us about how the environment is impacting the health of our members. Next slide. I think that's it. I'll turn it back over to you, Dr. Hick, thank you so much.

Dr. Hick: Great. Thanks so much. Dr. Butler. Just a quick question for you that Blue Cross Blue Shield of Massachusetts when you talk about you're looking at your data sets and impact of climate change, is that something that's being done nationally with all the BCBS affiliates or is there traction on sort of common approaches with that?

Lindsay: So, we are working on, as you know, we are one of 36 Blues across the country and we're working diligently to sort of share best practices. Some of the Blues are a little bit more advanced in how they think about environmental health and some sort of need to be brought along. We have some Blues that are already have achieved carbon neutrality and we have some Blues who are looking at quantifying the health care costs of climate change, but we don't yet have sort of an integrated approach across all of the blues for sharing data on the health impacts of climate change, but we're definitely hoping that that's something that will be coming down the pike.

Dr. Hick: Great, thank you so much. Just introducing our closing speaker here for today's session is John Balbus. Dr. John Balbus is the Interim Director at the Office of the Assistant Secretary for Health at the US Department of Health and Human Services in newly formed Office of Climate Change and Health Equity. Now, John, thanks so much for making time to be here today.

John Balbus: Thank you so much, Dr. Hick, my gratitude to you for organizing today and I just want to echo my fellow speakers and expressing their gratitude to ASPR TRACIE for taking this topic on in this webinar, as well as the wonderful guide they've prepared and also to everybody who's listening in on this for devoting time out of your day to hear about this. I'm going to be speaking on a theme I would summarize as resilient communities served by resilient health systems. I think most of the folks in the audience are affiliated with the health system side with that mission of making sure that the patients they serve in the communities in which those

patients live are doing well and I'll be talking about how climate change poses special threats to the wellbeing of communities and individuals and then spend a little bit of time talking about how the new office of climate change and health equity within HHS and the Office of the Assistant Secretary for Health is working across HHS and in fact across the government to try to facilitate that kind of action. So, next slide, please. And I can just skip to the next slide because I already mentioned what I was going to be speaking about.

So, I also want to echo what Dr. Butler said about acknowledging what all of the healthcare frontline professionals, all the health systems, all the people managing the health systems are going through and have been going through over the past two years in battling the COVID pandemic and the stress and the fatigue and the heroism that has been involved in all of this. The picture in the background is a picture some of you may have seen and I put it there as a dramatic reminder that even as we are looking to serve, in this case, a vulnerable population of seniors who are facing, you know, not just the pandemic and the need to wear their masks, but also social isolation, so we need these senior centers and even though we need the social distance, we need to break down the social distance and yet this is happening still in the midst of climate-related disasters, in this case, the LNU lightning Complex Fire near Napa County, California and the inset there is just the reminder as David Johnson reminded us that these billion dollar disasters, that's the threshold that our government agency NOAA uses, are becoming more frequent, the space between them is less, their overall cost is increasing, their number is increasing.

And so as we've been fighting the COVID pandemic in this country, we've also been having to deal with temporary vaccine facilities or screening facilities being beset by high winds, by storms, by floods, by extreme heat waves and interrupting their operations. We've had a series of hurricanes in the Gulf Coast, etc. And so that even as we are fatigued and needing to address and still take care of the COVID pandemic, we also have to have an eye to the ongoing stresses on our systems and on the communities that we're serving from these climate-related health stressors, some of them acute in the form of disasters, some of them more chronic as again Mr. Johnson has spelled out so well.

Next slide, please. David Johnson spelled out how health disparities play into the different risks that people may face from climate change-related threats and this is a slide just to highlight kind of the comparison and the commonality between the way we think about the disparities in the outcomes from COVID, which has laid bare the role of underlying social determinants of health in creating vulnerability and higher risk when a pandemic comes through in very much the same way those factors play into people's different outcomes and different risks from climate change and in the world of climate change, we tend to break up that vulnerability and this is not vulnerability in the sense of weakness, it's vulnerability in the sense of being placed in a state of higher risk and we break up the factors into three. The exposure being in a higher level of exposure, sometimes disproportionate exposure to climate change-related threats, this could come from poverty and experiencing homelessness, it could come from being in an occupation that has you work outside or having to be in a frontline kind of situation and a lot of it has to do with historic and present racial discrimination in terms of zoning in terms of where people live.

The second set of factors relates to sensitivity and that's where health disparities come in. So, people who are experiencing asthma, diabetes, obesity, COPD, depression, and anxiety, all these chronic medical conditions that we know are associated with some social determinants of health. All of those factors make people more vulnerable to a heat wave or to the stress that comes from a disaster, including the stress that comes from losing access to your health system. That's responsible for that bump in mortality that Mr. Johnson showed after the disaster because communities that have higher rates and higher needs for medical services are going to be placed in more risk when the heat wave comes through, when the roads are flooded, when the hospital is shut down, and when the power shuts down. In the last category, there is adaptive capacity, the ability to either prepare for and protect oneself or simply to evade, to escape an oncoming threat, highly associated with factors like poverty, education, the governance in a particular area and a whole set of policies. So, that's one of the ways that – these are the factors that we have to be addressing in trying to make our communities resilient, and health systems have a big role to play.

Next slide, please. And so, I just we've seen some infographics about the threats to people's health. This is a screenshot from a wonderful New England Journal set of resources on the climate crisis, showing the impacts on health systems. The first row talks about the various impacts of climate change, including increased costs from, you know, disruption of services or cost of energy, increased utilization in the face of increased health threats, disruptions of care that I mentioned, and impacts just on the public health as well and then at the bottom are the things that health systems can do in terms of building up their own resilience in terms of preparing for the disasters and as Mr. Johnson mentioned, the role of the health sector in actually being part of the solution by addressing their own carbon footprint in their greenhouse gas emissions more broadly.

Next slide, please. So, with that as a bit of background, that is what the office of climate change and health equity was established to address. Our primary mission is to protect the health of all Americans from the impacts of climate change and the establishment of our office was one of the three mandates directed to the Department of Health and Human Services from President Biden's Executive Order, tackling the climate crisis at home and abroad, the other two being the creation of a working group to decrease the risks of climate change to help coordinate among the agencies, and then the setting up of a biennial health care system readiness advisory council.

Next slide, please. So, our office was officially established at the end of August in 2021 and just a few months later, the picture shows Admiral Levine, the Assistant Secretary for Health, leading or in a position of leading a delegation the first ever official government delegation from the Department of Health and Human Services. At the big international climate change meeting, the UN Framework Convention on Climate Change, COP, the Conference of Parties, this was COP 26, for those who pay attention to the climate change parlance and this was Admiral Levine announcing that the United States was joining 50 other nations of the world in making commitments to the COP 26 health program, specifically those commitments are below.

There was a commitment to resilient health systems and a commitment to low carbon health systems and that commitment to resilient health systems was a commitment that we're making, not just to the facilities and the systems and the companies and the nonprofits that run them, but

also to community resilience and the individuals in those communities. We're working by coordinating the activities across HHS, and I'll say a little bit more about this in a second, as well as the federal government to come up with a coherent set of activities to help to build the resilience of communities, and the health systems that serve them and also in order to better prepare ourselves for what is coming in the future with climate change.

We divide our work into three priorities that you see up at the top. The first is the primary mission of the office to reduce the impacts of climate change on all American people, but especially those most vulnerable. The second is to take advantage of the actions that we're needing to take to meet the administration, the global goals to reduce the impact, the severity of climate change by reducing greenhouse gas emissions by making our communities more resilient through, for example, changing our water infrastructure, by changing our energy infrastructure by changing our transportation, infrastructure. All of those infrastructures actually have tremendous impacts on people's health as well. They're part of the social determinants of health, the ability to access jobs, to access health systems. The ability is, as Mr. Johnson said, to find a place to be physically active and get the necessary physical activity, the necessary healthy food. All of these things are related to our infrastructures.

So, our office is working to ensure that the investments being made in those kinds of climate actions serve to also reduce those underlying health disparities by addressing those underlying social determinants of health and then the third priority is working directly with the federal health sector and through public-private partnership with the private health sector, to assist them in decarbonization, and building their own resilience to climate impacts. Next slide, please. So, we were established, as I said, in August of 2021, but we actually got started as individuals with doing what we needed to do to meet these mandates as early as July of 2021.

This is a slide of selected HHS accomplishments. It's selected, it's a little bit with a window of what our office has had a hand in, in partnership or directly. The figure that you see is a figure that comes from the National Institutes of Health Strategic Framework and I put it here because it emphasizes a couple of important points in thinking about how we pivot to action. Now we move from talking about the problem to addressing the problem and it reflects the interdisciplinary nature of it that we need to be bringing together public health and clinical health, we need to be bringing in engineers and social scientists and NIH has captured this within their framework and they've captured it in the sense that we have to deal not just with the environmental health aspects of climate change, but the fundamental health equity and health disparities that create the differences in risks and outcomes and a lot of this has to do with training and capacity building.

In terms of the accomplishments, this gives a sense of how we're operating. We have been involved in a National Academy of Medicine action collaborative on decarbonizing the health system, many of you may be aware or involved in that, and role of being co-chairs that many HHS leaders are actually actively involved as one way of manifesting that public private partnership. We're also working on that public private partnership in collaboration with ASPR, the Assistant Secretary for Preparedness and Response and all of the governing councils and public-private partnerships that ASPR maintains.

One of the ways that we're working is through signaling the intent of HHS, in this case, the Center for Medicare and Medicaid Services to be looking at how Medicare, Medicaid can make a difference for community and health system resilience on climate change; in this case, through a request for information published in December on a Notice of Proposed Rulemaking, NPRM. We're working in partnership with the other federal health systems, the Department of Defense, the Veterans Health Affairs, the Indian Health Service and others to create a learning network to implement another executive order for decarbonizing the federal facilities and federal agencies which includes those health systems to be able to enhance the learning, to be able to catalyze that process, make it go as quick as we can. And then that March item is the convening of representatives of all the operating divisions, so that's things like the Food and Drug Administration, Center for Medicare and Medicaid Services, the CDC, the National Institutes of Health, all the operating divisions, as well as many of the staff divisions to work together on a coordinated suite of programmatic enhancements to address the resilience of communities and health systems for climate change.

Next slide, please. So, how do we go about this pivot? What's the basis for making our health systems more resilient? This slide shows one attempt to codify that from the World Health Organization. If you look at those inner circles and it's a little hard to read, it involves everything from the financing and leadership and governance to the green block in terms of health information and data and actual service delivery, also of course, including, as we know, from COVID, the need to pay close attention to the resilience, the well being and also the training of the health workforce and then that bottom purple part of the pie is very important. I like the terms at the bottom there, the climate resilient and sustainable technologies and infrastructure.

So, we not only need to be able to understand the health risks to be able to predict the patient surges, to be able to have early warning systems for heat waves, or for outbreaks of infectious diseases through our information systems, but we also have to work with the brick and mortar, we have to work with the social systems, with the communication systems, the energy systems that are essential parts of our healthcare delivery to ensure that they are made as resilient and able to continue operations in the face of those ramping up billion dollar disasters, and also sustainable and part of the solution space. So, that's a framework for what we're doing with health systems.

Next slide. What about with the communities? We don't have quite as nice a picture, but I want to share some of the current thinking that we have and that is that we need to do this from the bottom up. With the health systems, you know, the policies, the finance, the organizational structure of a health system has a strong top down component, as well as a bottom up, but when we talk about the resilience of communities, I think what COVID has taught us is that we have to be really focused, you know, on the bottom-up approach, on the empowerment of the people and communities to start with and one of the ways of doing this is through the creation of something called a resilience of the urban sustainability development.

Urban Sustainability Directors Network has piloted this over the last decade and this is an infographic from an organization using this concept that pulls together a lot of different kinds of resources, communication hubs, an off grid source of continuous power if the grid goes down, water sources, as well as a place of shelter, a place of training, and risk reduction and disaster

even a place where we could grow healthy food. These resilience hubs are being built in some ways around, you know, with the existing community-based organizations, the faith-based organizations addressing the COVID pandemic. We don't need to create a whole new set of institutions for climate change, but we need to have an integrated approach where we're addressing the empowerment of communities to address all the social determinants of health, along with the climate change related ones, the threats in the natural and built environment.

Next slide, please. And we should be matching this up at the closest connection to the communities that the health systems provide, you know, as well as the rest of the health system, but there's this concept of climate resilient community health clinics. This is a pilot program at the Harvard Center for Climate Change in the natural environment, I'm sorry, in the global environment sea change has been piloting with Biogen. This is a concept that I think is starting to take hold in a lot of different health systems of training up community health workers who are out assessing people's social determinants of health status, to address those health disparities. That's a locale where we can connect to the communities and start to empower both the health systems, but also the patients themselves, connect them to the resources they need in order to be more resilient to health impacts.

Next slide. So, these are just some of the things we're doing and some of the thoughts we have. We're working again in partnership with ASPR and the CDC to make sure that the major national security and preparedness strategies and the guidance they provide to the health systems and public health departments isn't just looking backward, but it's looking forward in the way we need to for climate change adaptation and that includes national health security strategy, hospital preparedness program, public health. We're working with ASPR on toolkits. We're working to explore whether we can enhance the emergency preparedness regulations that the health systems work with to make sure that they're looking forward as well for climate change-related threats. We're working closely with Medicaid in the states to identify program flexibilities that can support resilience among the beneficiaries, looking at the avenue of community health needs assessments and community benefits, to be able to enhance the resilience of the communities that health systems serve and then thinking about this development of community resilient hubs with community health centers.

So, with that, I'll close. Next slide, please and we can just, I think that my points can be seen in the handout. Next slide. I just want to encourage everybody to sign up for our listserv. We have exciting outlooks and bulletins that are coming out from our office, including some exciting ones coming out just in the next several weeks. So, don't hesitate to contact us with questions or comments or suggestions and please do sign up and with that, I'll close and hand it back to Dr. Hicks.

Dr. Hick: Great, thank you so much, John, really great perspectives and we've got a number of questions that we'll jump right into here. So, the first question is for Lindsay. There's obviously a lot of at-risk populations that are affected by the impacts of climate change and these have significant equity issues. Have you been involved with any specific disability organizations with your work and also what consideration has been given to the impact of climate change on rural populations, which often get less attention in the planning phase and you know, some of our urban populations.

Lindsay: That's a great question. We haven't worked specifically directly with any disability organizations that I'm aware of. We do have a lot of our nonprofit partners that work closely with different disability organizations. So, for example, we recently had a webinar with one of our nonprofit partners in the Massachusetts area that works with intellectually disadvantaged adults and we went and talked with them about environmental health, but we don't have any direct relationships in the disability community beyond that at the moment and for us, we, I would say for most of our environmental justice work, it is a little bit more centered in urban populations just because those are some of the more impacted communities in the Massachusetts region.

Dr. Hick: Great, thanks, Lindsay. I think I'll throw this one to David first and then perhaps John can tag on there. Obviously, as a good return on investment case to be made for, you know, infrastructure planning as new or remodel construction occurs when we think about climate, you know, preparedness, but are there any funding or other incentive opportunities that you all are aware of or maybe coming?

David: Sure. Actually, the infrastructure bill that should be actually going out the states is one of those areas that there is available funding there. Again, it's kind of piecing at least to directly address it. It's kind of piecing existing legislation and existing funding opportunities with kind of as we talked about today. I think the current administration certainly is a supporter, as we know, seeing Dr. Balbus' office, the Office of Climate Change and Health Equity and the overlap that infrastructure in of itself is not just limited to brick and mortar and steel and rubber. So, I would recommend looking at the infrastructure bill, but there may be some other ones. At the moment, off the top of my head, I'm not as aware, but maybe Dr. Balbus may know as well.

John: Thanks. I mean, it's an important question and we're doing a lot of exploration as that as David has said, there are opportunities to a certain extent within existing funding resources that are being implemented now through the CDC for public health infrastructure through HRSA for the community health centers, etc. Of course, Congress is the one that controls the funding of these kinds of entities and so, you know, it has to do with congressional intent. We're working on three levels there, you know, we want to be able to assure that – we will have to ensure there's funding, especially for those health systems that are already financially stressed in order to enhance resilience and some of that can take the form of incentives. We're also working with the provision of technical assistance because it costs money to get the experts to help to go into a facility or go into a system and work with them as well. And so we're looking at the existing technical assistance mechanisms that are available to health systems as well and seeing if we can find ways to make them applicable for these kinds of issues.

Dr. Hick: Great, thanks, John and question for you. Are there any specific environmental justice resources that you could recommend for educating healthcare system staff or potentially for community members?

John: So, that's a question specific to environmental justice resources. We are in our office putting together a set of online training resources for the health professions that will include the this nexus of climate change in health equity and environmental justice resources. There is an environmental justice unit that has been stood up within our office and an environmental justice

request for information has just gone out. I want to make sure people are aware of that, but we're in the process now, you know, in our process of establishing and battling with many things at one time, of creating those educational resources, and we will be posting those over the coming months.

Dr. Hick: Great, thank you, John. A question for Lindsay, if a health care facility was interested in creating an environmental stewardship program, or a climate change working group, who are some key individuals and domains that you would include in that group?

Lindsay: That's a really great question. You know, I really believe that these sort of sustainability efforts need to not be siloed in one part of the organization, but really be integrated across the organization and you know, really become a part of the organizational ethos. And so I would say there's a way that this, the climate crisis sort of touches every part of an organization, but a key place to start is sort of your corporate real estate or whoever is responsible for the care of your buildings and they can help you, you know, gather data about your electricity usage, your water usage, so corporate real estate or facilities is one key partner. A second one is supplier and purchasing, so making sure that you have the right supplier diversity practices in place, then that you're watching out for that environmentally responsible procurement.

So, like I've also said, whoever does your procurement is another key one, and also HR. You know, it's really interesting, by the end of 2025, I believe it's about 75% of the global employee population will be Gen Z and millennials and environmental stewardship is very important to them. In fact, recently 75% of millennials in one survey said that they would choose one job over the other because of sustainability practices. So, engaging HR and using sustainability practices as a way to enhance employee engagement, and employee retainment is also a really critical piece of the puzzle.

Dr. Hick: Great, thank you, Lindsay. I'll just add your emergency management team to that group here too. John, I'll throw this question to you. Local public health sometimes feels like extreme heat planning covers a lot of this landscape. How do we make sure that the scope is broadened to include, you know, other aspects of climate change and disaster planning?

John: So, there's a lot of aspects to that. Part of that is the guidance that's provided to the local public health departments from the CDC. The CDC, of course, has the BRACE program in its climate and health program that's been providing a lot of that kind of information on how to do a comprehensive assessment of climate and health risks, but the second piece of that is also, you know, quite obviously the needed resources, local public health departments are incredibly strapped, especially now. And so, you know, I'm optimistic that the investments being made in the public health workforce and the public health infrastructure will be inclusive of climate change-related threats, so that we can, you know, not just provide the, you know, the how to, but provide a little bit more of the with what.

Dr. Hick: Great, thank you, John. We have a few other specific questions that we will make sure to get answered from our speakers and put in the notes for this presentation is archived. I just want to kind of summarize a couple of key areas that I heard here that when we're thinking about domains for a healthcare system to look at, looking at our infrastructure, how we protect that

from, you know, future extreme climate-related emergencies, as well as greening that infrastructure now to reduce some of our impact. Looking at decarbonization efforts across the health system through supply chain and other aspects, we can get that 10% carbon footprint from the healthcare system down, and then really looking at our patients and what their needs are as we disseminate information, prepare for disasters, both within and giving them information to prepare as well as meeting their daily healthcare needs that may be changed as climate change continues to affect our communities. So, it has so much to do cross the healthcare system and so grateful for the partnerships from the local level up. That's unfortunately all we have time for today. I'll turn it back to Audrey Mazurek for closing comments. Thank you.

Audrey: Great. Thank you so much, Dr. Hick and thank you to all of our panelists today. This is all the time we have for this webinar. It will be archived and posted on our website at asprtracie.hhs.gov within 24 hours. On behalf of the ASPR TRACIE team, all of the panelists today, thank you for joining, have a great day.