

## Public Understanding of the Health Impacts of Climate Change

Slide 1: Introduction Slide

Victoria Ludwig: So, to kick it off with a bit of context of how the public perceives the health impacts of climate change, we are honored to have Connie Roser-Renouf from the George Mason University Center for Climate Change Communication, which is located in Northern Virginia. Connie is an associate research professor at the center.

And her research focuses on understanding how diverse audiences use, interpret and respond to information on the issue of climate change. The objective of her work is to identify effective communication strategies that inform and engage the public while contributing to the theoretical literature on science communication, risk communication and social marketing.

So, Connie, I'll let you take it away.

Connie Roser-Renouf: Thanks, Victoria. Can you hear me OK? Do I sound all right?

Victoria Ludwig: You sound good.

Connie Roser-Renouf: Great. OK.

I'm going to talk to you today about the American public's understanding of the impacts of climate change on human health and, specifically, people's understanding of its impact on heat-related illnesses. And if I were to give this talk a subtitle, it would be, "They Don't Know Much." Americans are more inclined to think about climate change as affecting polar bears than people, particularly people in the U.S.

And I want to start this talk by reminding all of us of a basic principle of effective communication. If we focus solely on what we believe that's important for the audience to know, we are more likely to fail in our communication effort. Effective communication has to begin with the audience, with understanding the audience, their interest, their informational need, their values, what sources of information they trust.

And that kind of information, that understanding, helps us frame messages, target our audiences appropriately, choose appropriate message content and sources and provide people with information they need in a form that they are more likely to accept. I'm going to try to help you with that by talking about some audience research.

Slides 2 and 3: Global Warming's "Six Americas"

Connie Roser-Renouf: We at George Mason has been collaborating with folks at Yale on the Climate Change in the American Mind research program since 2008. We have been tracking American climate change-related beliefs, values and behaviors in bi-annual surveys, and we have

segmented the American public into six audience segments that I will talk about later. Last fall, our survey focused on Americans' understanding of the health risks associated with climate change. And it's mostly data from that survey that I will be presenting to you today.

Slides 4 and 5: Only a Small Minority of Americans Have Thought a “Great Deal” about How Global Warming Might Affect People’s Health

Connie Roser-Renouf: Most Americans say they have thought about how global warming might affect people’s health not much or not at all. That’s 60 percent of the public. And only 10 percent say they have given it a lot of thought. And these figures are probably overestimates given people’s general unwillingness to tell survey researchers that they have given no thought for the topic that the researchers obviously care a lot about.

Slides 6 and 7: A Solid Majority of Americans Thinks Global Warming is Bad for the Health of People in the U.S.

Connie Roser-Renouf: But, Americans are ready to accept information on the health effects of climate change. When asked, they are inclined to think the effects will be negative. We asked them to rate how good or bad global warming will be for people’s health. And you can see here that close to two-thirds said it will be bad.

Slide 8: Nearly One in Three Americans Things Global Warming is Currently Harming the Health of People in the U.S. a “Great Deal” or “Moderate Amount”

Connie Roser-Renouf: Almost a third said they believe that the health of Americans is being harmed now by global warming, and 40 percent said Americans will be harmed over the coming decade. Seventeen percent said the health of people in their own household is being harmed, and over a quarter said it will be harmed. And on its own health, the numbers are comparable to what you see for health care in – of others in my household.

Slides 9, 10 and 11: When Asked in a Close-Ended Question Whether Climate-Related Health Conditions Will Increase or Decrease Over The Coming Decade, Large Numbers Say They Expect Increases.

Connie Roser-Renouf: We asked people in a closed-ended question. We gave them a list here of all these health threats, most of which are associated with climate change, whether they expect these health threats to increase over the coming decade or not if nothing is done to address global warning. And you can see here that between 20 and 40 percent of the respondents said all these health problems will become more common if nothing is done to address global warning. Over a third said they anticipate increases in the number of heat stroke.

But, many also said they anticipate increases in health problems that are unrelated to climate change. So, you can see almost 30 percent said flu is going to increase due to climate change. Twenty-two percent said infections with Ebola will increase. And neither of those have been linked in the literature to climate change. That’s a clue that accurate knowledge is lacking.

Slides 12, 13, 14 and 15: An Open-Ended Question Reveals Much Less Public Understanding of Climate-Related Health Impacts.

Connie Roser-Renouf: A more accurate picture emerges from an open-ended people. That is, we asked people before they saw the list that you just saw on the prior slide – before they saw that, we asked them, “In your view, what health problems related to global warming are Americans experiencing, if any?” And the answers there, then, reflect what they could come up with unprompted. So, these answers represent their deeper understanding of the health threat.

Over half – that’s 57 percent – either left the question blank or wrote that they didn’t know. Only one in four was able to correctly name a climate-related health problem. Four percent said something heat or cold temperature impact. So, I found that very surprising given that most of the American public think of this issue as global warming rather than climate change. I would have expected that more people would understand that heat health would be impacted than what we see here.

Slides 16 and 17: Few Americans are Aware of the Groups that are More Vulnerable to Global Warming-Related Health Problems

Connie Roser-Renouf: We also ask them if some groups or types of people were more vulnerable to climate-related health problems and, if so, who these people were. Two-thirds either gave no answer or they said no one is more vulnerable than anyone else. But, I’m sure that all of you listening to this webinar today are aware that heat-related illnesses are more likely to affect some populations than others.

This low understand has implications for both personal preparedness and for willingness to support societal preparedness. People who lack understanding of the threat are less likely to protect themselves or to support government action that would help to protect them.

Slide 18

Connie Roser-Renouf: So, these are results of our regression analysis. The numbers you see are standardized regression coefficients, and they vary from zero to one, with higher numbers indicating stronger relationship between the two variables linked by – linked with arrows.

And what we see here is that knowing the health impacts of climate change and knowing the vulnerable group that is responsive to the open-ended question – that’s the strongest predictor or taking appropriate action during extreme heat – staying in cool spaces and staying hydrated and things like that. Believing that global warming is harming other nations and that it’s likely to harm one’s own community – those are also significant predictors of the adaptive behavior.

Slide 19

Connie Roser-Renouf: Support for government action to protect people from the health impacts of climate change – that – by like elected officials like Obama, the Congress, government

agencies – that’s also strongly predicted by knowledge and by perception of the severity and likelihood of harm, both here in my own community in the U.S. and in other nations.

Slide 20

Connie Roser-Renouf: And, finally, support for increasing funding to the public health agencies at the federal, state and local levels most strongly predicted by support for government agents – action that’s not surprising. But, indirectly, what that means is that all four of the variables on the left increase support for funding by increasing the support for the desire for a government response. And, then, severity and probability of harm where you see the direct arrows have direct effects above their beyond their indirect effects through support.

So, the conclusion here is that knowledge matters. If we increase people’s understanding of the threats that we all face, they will more likely to protect themselves and to support government actions that will protect them.

Slide 21: Global Warming’s “Six Americas”

Connie Roser-Renouf: Now, let’s look at health perceptions among Global Warming’s “Six Americas”. In 2008, the American public into six groups that share common global warming beliefs, values and behaviors, and we’ve been tracking those groups ever since. Generally, the groups on the left have the highest belief in global warming. They are the most concerned, the most motivated to take action.

The groups on the right have the lowest belief in global warming. The dismissive, in particular, are inclined to believe that it’s a scientific hoax. And the groups in the middle are inclined to think that global warming is real, but they don’t think it has any personal relevance and they don’t have strong opinions on the topic one way or another.

Slide 22: Primary Differences between the Six Groups

Connie Roser-Renouf: An easy way to understand the differences among the segment is that understanding and concern decrease directly as you move from the left to the right and that personal involvement with the issue falls something like a U shape, with the middle segment and particularly the disengaged giving the issue no thought. I’ll show you just a couple of figures that illustrate this pattern.

Slides 23 and 24: Global Warming Belief Certainty and Understanding of Human Causation

Connie Roser-Renouf: Virtually, all of the alarmed are certain that global warming is happening while virtually none of the dismissive are. The same pattern here for understanding that humans are causing global warming. Ninety percent of the alarmed get it. Six percent of the dismissive do.

Slide 25: Over Three-Quarters of the Alarmed Say People in the U.S. are Being Harmed Now, But Close to Ninety Percent of the Dismissive Say People Will Never Be Harmed

Connie Roser-Renouf: In terms of the harm that global warming is causing, you can see that over three-quarters of the alarmed say people in the U.S. are being harmed now by global warming. But, close to 90 percent of the dismissive say people will never be harmed.

Slides 26 and 27: Issue Involvement and Low Ability, Interest, & Trust are Barriers to Communicating about Climate Change for All Six Americas

Connie Roser-Renouf: Here is the second pattern. You can see that the middle segment say they haven't given the issue much thought. And that translates into attitudinal uncertainty, which you can see on the right, where people in those middle segments are more likely to agree, "I could easily change my mind about global warming."

What that means about the middle segment is that it's hard to get their retention. It's pretty easy to change their minds on the issue because they are so uncertain. But, it's hard to make that change stick. They forget about it because they don't think about it and aren't interested. And, then, when they come across another message on the issue, say from a climate skeptic, they are likely to change their minds again.

And that highlights the importance of message repetition. You know Victoria said at the beginning simple messages repeated often through a variety of trusted sources. And this shows you why. Those middle group need many repetitions of the message before it's going to stick with them.

Slides 28, 29 and 30: Three-Quarters of the Disengaged Say They Have Trouble Understanding News on Global Warming

Connie Roser-Renouf: Let's look at barriers to communicating on the issue more generally. There are barriers to talking to all six groups about the issue. Three-quarters of the disengaged say they have trouble understanding news about global warming. But, notice that even among the alarmed, close to quarter agree with that statement. The majority of the disengaged, doubtful and dismissive say they don't want to hear anything about it. And the majority of every single segment believe that news reporting on the issue is biased.

Slides 31 and 32: A Solid Majority of Americans Thinks Global Warming is Bad for the Health of People in the U.S., but...

Connie Roser-Renouf: Let's look specifically at health perception among the segments. Recall earlier that I showed you a slide showing that a majority of Americans think global warming is bad for the health of people in the U.S. But, it's only among the alarmed that the majority thinks the effects will be very bad. That is, they rated it negative three. You can see 75 percent of the alarmed say that it will be very bad. Half of the concerned did. And 15 percent or fewer of the other segments said it will be very bad.

Slides 33 and 34: In the Close-Ended Measures, Close To 70% of the Alarmed Said Heat Strokes Will Increase, but...In the Open-Ended Question, Less Than 10 Percent of the Alarmed Mentioned Heat-Related Illnesses

Connie Roser-Renouf: In the close-ended measures where we gave them the list of health threats and said, “Do you think this will become more or less common over the coming decades?” close to 70 percent of the alarmed said heat strokes will increase and 60 percent of the concerned. But, in the open-ended question, less than 10 percent of the alarmed mentioned heat-related illnesses. You can see there are 7 percent, 4 percent of the concerned and 1 percent of the remaining four segments.

Slide 35: Economic & Demographic Characteristics Associated with Vulnerability are Recognized by Less than a Quarter of any Segment, Including the Alarmed

Connie Roser-Renouf: On the economic and demographic characteristics associated with vulnerability, the other open-ended question, we see that less than a quarter of any segment recognize that certain groups are more vulnerable than others to the effects of climate change.

Slide 36: Accurate Understanding of Health Impacts is Highest among the Alarmed and Concerned, but so is Inaccuracy

Connie Roser-Renouf: So, while accurate understanding of health impacts is highest among the alarmed and the concerned, so is inaccuracies. So, you can see that 60 percent of the alarmed were able to accurately name a health problem associated with climate change. But, 16 percent of them also gave an inaccurate response. Lots of people continue to confuse the ozone hole with climate change and their fears about other health threats, like Ebola, for example, get linked to climate change in their minds if they are already worrying about the subject of climate change.

So, there’s lots of room here for clarification and education among all the segments, including among the alarmed and concerned. And they are ones who are most likely to be receptive to this information. One of the very best things you can do is to get them to talk to their friends and family about what they know because we know from a century of research on public opinion that interpersonal communication is much more effective than mediated communication in reaching people and changing their minds. But, since you can’t rely solely on interpersonal communication, let’s look at sources.

Slides 37 and 38: Trust in Sources of Information on Health Problems related to Global Warming Varies Widely by Segment

Connie Roser-Renouf: Now, trust in information sources on the health problems related to global warming varied wildly by segment. We asked about over a dozen different sources. And I’m just showing you a few of them here. As you can see, the wide polarization here that climate scientists, for example, are trusted by 72 percent of the alarmed, 7 percent of the dismissive; CDC by 68 percent of the alarmed, 8 percent of the dismissive.

But, then, look at primary care doctors. They are in the middle. You see less polarization for primary care doctors than you do for any other source of – mediated source that we talked about or other than friends and family. So, while you can look at your – sorry – CDC and your local public health department to see the polarization. But, trust in a known health professional is less polarized.

What you've got there is interpersonal communication with someone who is trusted on health. And that – you know I don't have data on this. But, my thinking about this is that public health professionals at health department, when they are interacting interpersonally, are going to have comparable influence to primary care doctors. So, it puts you in a – in a pretty good position for talking to the public.

Slide 39

Connie Roser-Renouf: Now, let's talk about the actual content of a health framing of climate change. We have a couple of experiments here that I want to describe to you that show that framing climate change can be effective in reaching across the segments, even to the dismissive. These two experiments use similar methodology. Let me just describe it to you here quickly.

Slide 40

Connie Roser-Renouf: The respondents read a four-paragraph essay. And this one – the introduction frames it as a health problem – global warming is a threat to people to people's health, our health will suffer if we don't action. That's the threat statement in the second paragraph. The third goes on to talk about the benefits to people's health if we take action on climate change. And, then, the conclusion just repeats the framing of it as health.

Slide 41: Messages about Health Benefits of Climate Action were Positively Received Across Segments

Connie Roser-Renouf: The way respondents work with this essay is that they highlighted in pink the sentences that they like and in green the sentences that they didn't like. And when you look then here across the segment at the responses, their average number of positive and negative sentences, you can see that for the disengaged through the alarmed, the response to all four paragraphs was positive. For the disengaged and – I'm sorry. For the dismissive and for the doubtful, the opening paragraph and the threat paragraph evoked mostly negative responses.

But, then, when you've got the benefits – the benefits of taking action to protect people's health from climate change, they respond positively. And there, as a conclusion, they are ending up at a pretty neutral, which for the dismissive, are so hard to reach. That's really quite a promising outcome that they didn't hate it at the end.

Slide 42: Health Framing Elicited More Hopeful Feelings from Cautious, Disengaged & Dismissive

Connie Roser-Renouf: And we can contrast that with health framing in three different kinds of essays, a health essay, a national security essay and an environmental essay, that the health essay evoked hopeful responses from the cautious, disengaged and dismissive to a larger extent than either of the other kind, whereas the national security essay, which we expected to appeal to the dismissive, made them very angry. It backfired. Health worked better than national security.

#### Slide 43: Conclusions

Connie Roser-Renouf: So, the conclusions here – that Americans’ understanding of the health impacts of climate change including the effects on heat-related illness is very shallow that even the most concerned Americans, the alarmed, show little understanding of the health effects of climate change.

People who understand the health impacts of global warming are more likely to be taking action to protect themselves during extreme heat and they are more likely to support action by elected officials and public health agencies to protect the public.

Medical professionals are well positioned to increase people’s understanding of the health effects of global warming. And framing global warming as a public health issue is likely to engage segments of the public that are skeptical about climate change or disengaged from the issue.

I want to thank our collaborators at Yale and the other people at George Mason and, also, the funders who pay for these very expensive surveys that we do. Thank you.

Victoria Ludwig: Thank you, Connie. That was a really great presentation. I think, it helps to – and some fabulous. I think it really is great to have that research because it helps – I think it helps illustrate the need for collaboration even more which is – which is the point of this webcast.

It’s to promote collaboration. It also shows great guidance. I think it helps us give some guidance for crafting our messages, making them simple and positive, as you mentioned – hopeful.

But, it’s obvious that we all have a lot of work to do, particularly with that – those middle groups. But, knowing that the primary care doctors are a key trusted resource – I think that’s really great information for especially the environment professionals who may not really think about that. And so, hopefully, since we are in heat wave season around most of the country, folks can take this information and start crafting some messages to help leverage, basically, the heat wave season. So, thanks again, Connie.

Before we go on to the next speaker, just a quick reminder to send your question in throughout in the question pane on the right and try to direct your question to a specific presenter or presenters.

## Poll Question #2

Victoria Ludwig: We have another poll question before we go on to the next presenter. And, so, I'm going to read that. And, then, you'll have a chance to answer. The question is what do you see as the greatest barrier to action on climate change-related health impacts?

Is it that there is a lack of public attention or interest in the issue, there is a lack of belief in human-caused climate change, a lack of knowledge that climate change causes health problems, a lack of understanding of the likelihood or severity of those health impacts, and a lack of understanding of the vulnerability factors? Even though it might be hard to do, please just choose one. Go ahead.

OK. Great. Thanks for answering. We see some interesting results. The majority of you feel that there is a lack of knowledge that climate change causes health problems, which was reinforced, I think, by Connie's presentation. The next popular one is lack of understanding of the likelihood. That relates to the uncertainty, I think, that people have around the issue and lack of public attention. So, it gives us all some motivation for our work going forward.