

## Preparing for Heat: MN Climate & Health Program Activities

### Slide 1: Introduction Slide

Victoria Ludwig: Now, we are going to hear from the state of Minnesota about the on-the-ground work that their climate and health program within the state Department of Public Health has been on the issue – on these issues and how to – how to prepare for heat. Our presenter is Kristin Raab, who is the planning director for the Minnesota Climate and Health Program at the Department of Health.

She has worked in public health for over 10 years and has presented on the health impacts of climate change at numerous local, state and national conference. She has also published articles on the topic. And in addition to her work at the state, she serves as an adjunct professor at the University of Minnesota in the Landscape Architecture Department.

Go ahead, Kristin.

Kristin Raab: Great. Thank you.

Welcome, everyone. It is a pleasure to be speaking with you today. And thank you to EPA for arranging this webinar.

### Slide 2: Outline

Kristin Raab: I'm going to start my presentation with a quick description of the Minnesota Climate and Health Program and why we are interested in preparing for extreme heat events. Then, I'd like to talk about the development of several heat-related resources and our progress in disseminating and communicating about these resources.

Before launching into our program, I've been asked to speak briefly about our relationship with our state's environmental agency. I'm happy to say that in Minnesota, we are fortunate to have a strong collaborative relationship with the Minnesota Pollution Control Agency. The Pollution Control Agency leads the Interagency Climate Adaptation Team, or ICAT, which includes all of the state agencies.

MDH actively participates in ICAT and has help author ICAT's most recent report on adapting to climate change in Minnesota. The report identifies ways in which state agencies can work together to improve climate adaptation in Minnesota. Staff from the Pollution Control Agency have also served as technical experts informing some of our tools of development. And that report – the link is on your slide.

### Slide 3: CDC's Climate-Ready States & Cities Initiative Grantees

Kristin Raab: So, the Minnesota Public Climate and Health Program began in 2010 when MDH received funding from the CDC through its Climate-Ready States and Cities initiative. The CDC's Climate-Ready States and Cities initiative, which includes BRACE, which Surili just mentioned, is currently funding 16 states and two cities to develop ways to adapt to the public health effects of climate change by applying climate science predicting health impacts and implementing flexible programs. I'd like to thank CDC for the funding, without which we would not have such a robust program.

#### Slide 4: MN Climate & Health Program

Kristin Raab: The Minnesota Climate and Health Program focuses on five main areas – education, tool and product development, research, policy analysis and providing technical assistance. We work with the Minnesota Pollution Control Agency on several of these areas.

Examples of our work related to education include development of six training modules on topics related to climate change and health, including water quality and quantity, extreme heat events, air quality, agriculture and food security, mental health and a basic climate change and public health 101. We have also developed a health and climate film available online at the Web address listed on the slide.

Developing tools has been an important service that we can provide to local public health and other agencies that are working on climate change mitigation and adaptation. We have developed the Minnesota Extreme Heat Toolkit, which I will be talking about in more detail soon, to help local public health, emergency managers and others prepare for and respond to extreme heat events.

Recently, we have released two substantive reports, the Minnesota Climate and Health Profile and the Minnesota Climate Change Vulnerability Assessment that I will describe later. We partner with universities, national, state and local agencies to research and better understand the impact of a changing climate on health.

One of our projects is working with the National Weather Service to ensure that their current thresholds for heat warnings are protective for health. We also assess and encourage policies to protect the public's health from climate change. For example, we have developed protective health strategies to include comprehensive planning processes. And we provide technical assistance to local governments and other institutions interested in planning for climate change. We have helped several counties and cities use GIS to map vulnerable populations in their communities.

#### Slide 5: Advancing Health Equity in Minnesota: MDH's Call

Kristin Raab: One of the fundamental goals of our program is to advance health equity. In 2014, MDH produced a report titled, "Advancing Health in Minnesota – Report to the Legislature." That has since become a cornerstone of our work. Our motto is we all do better when those that are less fortunate do better. Climate change disproportionately impacts people who are poor, people of color or people who have pre-existing diseases or illnesses.

So, it is important that we utilized our resources in a way that benefits the people who need them most.

We do this by increasing awareness of the disproportional impacts of climate change in specific populations and by mapping the resources and vulnerable populations to see where there is a mismatch to ensure that places that have more vulnerabilities have the resources to deal with the health impacts of climate change.

Slides 6, 7 and 8

Kristin Raab: So, why focus on heat in Minnesota? When people think of Minnesota, they typically think of its long, hard and cold snowy winters. They don't think about it like this. Central Minnesota is warmer than Florida and Texas. But, Minnesota's climate is changing. Heat waves have considerable impact on human health and our ecosystem. In July 2012, it was so hot that hundreds of fish in Northern Minnesota died because of the hot temperature.

Slide 9: Heat and Health in MN

Kristin Raab: This is a chart from 2000 to 2012 that shows an association between the average summer temperatures in Fahrenheit in orange and the rate of emergency department visits due to heat-related illnesses in purple. The largest spikes of emergency department visits were in 2001, 2011 and 2012. In 2001, there were 1,087 visits. In 2011, there were 1,255. And in 2012, there were 1,198 visits due to heat-related illnesses. During that same time period between 2001 and 2012, there were 42 deaths due to heat.

Clearly, heat is a problem in Minnesota. We determined that one of the best ways we could help reduce this preventable heat-related illnesses and death was by developing resources and providing training.

Slide 10: Minnesota Extreme Heat Toolkit

Kristin Raab: So, in order to help local government agencies, emergency planners and public health professionals reduce heat-related morbidity and mortality, MDH developed the Minnesota Extreme Heat Toolkit. We use the communication of strategies to define the objectives and assign and understand your audience as a guide for both the development of the toolkit and our communications strategy. Our objective was not just to increase awareness of the health impacts of heat, but to increase the planning for these events as well.

The toolkit was developed by working with several partners, including doctors, emergency planners, researchers at the University of Minnesota and local public health.

We were particularly interested in having emergency planners and local public health participate in the development as they were able to help us understand these audiences and to ensure that the toolkit was useful to these audiences. We used EPA's Excessive Heat Events Guide Book from 2006 as a model.

The toolkit contains almost anything a planner needs to prepare for extreme heat events and focuses on practical implementable steps and strategies based on best practices.

The toolkit includes an introduction of extreme heat events and Minnesota's warming trend, an explanation of the health impacts from heat, a description of factors that put certain populations more at risk for heat-related illnesses, key steps for planning for and responding to heat events, instructions on how to develop a heat response plan, a list of strategies to prevent heat-related illnesses and several appendices, including a draft heat response plan, a tip sheet for staying cool and a sample media release.

#### Slide 11: Strategies for Preventing Morbidity and Mortality

Kristin Raab: As already mentioned, the toolkit contains a lot of strategies that can be implemented to prevent heat-related illnesses and death. This is just a few of the strategies found in the toolkit. We have recognized that not all jurisdictions in Minnesota will be able to implement all the strategies.

Plans at the local level depend on local resources, constraints and vulnerable populations within the community. The toolkit provides suggested strategies that can be tailored to meet local needs.

#### Slide 12

Kristin Raab: This is a chart in the toolkit that shows planning for extreme heat events by two different jurisdictions in Minnesota, Omsted County and the city of Minneapolis. It shows the elements in the response plan, as well as strategies. This was important to demonstrate that the toolkit provides strategies for urban and rural areas in Minnesota, making it relevant to everyone.

#### Slide 13: Identification of High-Risk and Vulnerable Persons

Kristin Raab: As part of the toolkit development, MDH worked with the city of Minneapolis to develop pilot maps of vulnerable populations and environmental characteristics. The maps focused on the elderly, the elderly living alone, population in poverty, buildings with air conditioning, location of public air-conditioned spaces and impervious surfaces as a proxy for the heat island effect and more.

The map on your left shows the percentage of impervious surface over the city of Minneapolis demonstrating where the urban heat island may have the biggest effect. It also shows where cooler areas might be in bright green. The map on your right shows the percentage of residential building with air conditioning and the percent of people who live at or below the poverty line.

It is interesting to note that there is a slight association between the percent of people below the poverty and the percent of buildings with central air conditioning. The greater the percentage of poverty, the less likely it is to have central air conditioning in buildings. A limitation to this data is that we do not know which residential units are using window air conditioners.

The city of Minneapolis used the map to determine areas that may be more impacted by heat, that have higher concentrations of vulnerable populations and that lack resources to cope with extreme heat. The Minneapolis maps are included in the toolkit as an appendix.

#### Slide 14: Minnesota Extreme Heat Toolkit

Kristin Raab: Because the toolkit was developed for emergency planners and public health, MDH prepared a targeted market media campaign. The toolkit was released as part of the CDC Climate and Health Program webinar series in April 2012. On April 24, MDH presented the toolkit to local public health professionals, emergency planners and elected officials via statewide video conference. The video conference hosted 20 sites throughout the state with over 85 people viewing the video conference.

Additionally, when the Minnesota Extreme Heat Toolkit was released, it was featured in several articles in newspapers in Minnesota. Since its initial release in April 2012, there have been over 9,800 views of the Extreme Heat Web site and over 4,600 views of the toolkit. We also presented the toolkit at several public health conferences.

When Minnesota began its work on extreme heat, only two health departments in Minnesota had a heat response plan or an annex to their hazards plan. Now, over eight local public health jurisdictions have completed an extreme heat assessment and/or a heat response plan.

The Minnesota Extreme Heat Toolkit can be used as a basis to develop your own extreme heat toolkit. We encourage people to take whatever might be useful to their jurisdictions and edit and modify it so it reflects the needs of your communities and your assets and vulnerabilities.

#### Slide 15: Extreme Heat Training Module

Kristin Raab: Another resource MDH developed is the Extreme Heat Events Training Module that is available for free on our Web site. The Extreme Heat Events Module is a one-hour fully-scripted presentation intended for public health professionals and the public to increase their awareness of the intersection of climate change, extreme heat and public health.

It also provides strategies that health departments can use to protect their communities during an extreme heat event. This resource can again be tailored to meet your organization's audiences. As I mentioned earlier, we have also developed five other climate and health modules that are available online for use and modification.

#### Slide 16: MN Climate and Health Profile Report

Kristin Raab: Two most recent releases that more broadly describe the health impacts of climate change, including extreme heat, are the Minnesota Climate and Health Profile Report, which we call the Profile Report, and the Minnesota Climate Change Vulnerability Assessment. The Profile Report featured here provides a comprehensive assessment of both the indirect and direct health outcomes of climate change in Minnesota.

Unlike previous reports, the Profile Report uses projections, not just historical data, to describe climate change. In the past, we have avoided talking about projections. We grounded our discussion of health impacts like heat-related illnesses in historic and current trends that are difficult to argue with especially when dealing with climate skeptics.

We now have furthered our discussion of climate change by discussing projections which can be more politically risky in states that deny the existence of climate change. Obviously, like we have talked about today, you must know your audience to craft messages that are more likely to be heard and accepted.

Slide 17: Profile Release: Feb 9, 2015

Kristin Raab: We have a relationship with the Minnesota Public Radio, and we ended up delaying the release of the Profile Report to maximize our impact. Minnesota Public Radio planned a week-long special series on climate change in Minnesota in February, and they wanted to highlight the public health impacts of climate change in one specific day.

We gave them an embargoed copy of the report a few weeks in advance so they could read the report and interview before they ran their special series.

On the day of the release, there was article released on their Web site as well as a live interview on the radio. We also provided a few newspapers a copy of the embargoed document so they could prepare stories. Several other newspapers around the state and online journals picked up the story. We even had an interview on TV.

And, to my knowledge, it is rare that a public health document gets face time on TV. We also used our programs newsletters to broadcast the release. Evidence of our successful can be gleamed from the fact that we've had over 14,000 views of the report on our Web site since February of this year.

Slide 18: MN Climate Change Vulnerability Assessment

Kristin Raab: In 2014, MDH released the Minnesota Climate Change Vulnerability Assessment that describes the past occurrence of five key climate hazards – extreme heat, air pollution, vector-borne diseases, flooding and drought and vulnerable populations to those climate hazards.

MDH used GIS to display vulnerable populations by county and the occurrence of climate hazards at varying geographic scales across the state. MDH produced several composite maps overlaying the occurrence of a particular climate hazard with the corresponding vulnerable populations for extreme heat, air quality and flash floods.

Additionally, the assessment produced two final composite maps, one combining all the climate hazards and one of all the vulnerabilities. MDH used existing statewide datasets of the current population and the historic occurrence of climate hazards.

The maps do not predict future occurrence of climate hazards, nor future changes in population composition. The methodology to develop the vulnerability assessment and the data sources used are well described in the document and can be replicated in other states or at the local level.

The assessment is meant to provide a baseline information for certain climate hazards and the populations vulnerable to those hazards. Our hope is that the report will be used by state and local governments, companies, institutions and community organizations to begin important discussions about the risk of climate to their communities, how best to prepare for them, how to protect everyone including the most vulnerable to ensure a healthy state. So far, we have had over 29,000 views of the report online.

Slide 19: Taking the Show on the Road

Kristin Raab: As part of our process to help communities plan for climate change and extreme heat, we began listening sessions, travelling to the eight regions in Minnesota to share results from the Profile Report and the Vulnerability Report to learn about their priorities and what they are doing to address climate change, to learn about the barriers they are facing and to find out how we might be able to assist them to plan and prepare for climate change.

The audience for the listening sessions has been primarily related to public health and health care, including local public health directors and staff, hospital administrators, emergency managers and EMS staff.

We have also had environmental agencies such as the Department of Natural Resources join these local meetings. So far, we have visited four regions – Northeast, Northwest, Central and South Central – and talked to over 100 people. We asked participants to take a short survey after our discussion.

So, what you'll see is some of the results on your slide. Please note that these are really preliminary results, and they will most likely change as we reach out to more communities.

The first questions we asked was, "In your opinion, is climate change a threat to human health and well-being?" And, fortunately, over 90 percent said yes. If they answered yes, we asked, "Do you think that your organization should begin or continue to prioritize efforts to address climate change impacts on health and well-being?" And 82 percent said yes.

Slide 20: Is your organization/agency/company already planning for climate change?

Kristin Raab: We also asked, "Is your organization, agency or company already planning for climate change?" Less than half said yes. Of those that did say yes, the top two responses were preparing for climate change through either their hazards mitigation plan or their emergency preparedness plan.

Slide 21: What Barriers do you face planning for climate change?

Kristin Raab: Maybe, of most interest is the question we asked on what barriers do you face planning for climate change. The number one response was lack of time and resources. That was described as “Do not have money or staff to work on this.” The second response was lack of awareness. That was defined as “Community does not identify this as a problem.” You will see that, still, 13 people responded that politics is an issue for planning for climate change.

#### Slide 22: Lessons Learned

Kristin Raab: We have learned several lessons from developing resources and communicating about extreme heat and climate change. First, it is extremely important to work with partners when developing resources and communication. In developing the Minnesota Extreme Heat Toolkit, we had representatives from several different disciplines participate on the review committee, as well as stakeholders that would be using the toolkit. The collaborating and the input from everyone created a much stronger document, and it was well received by its intended audience.

On the other hand, we did much of the work on the Profile Report in-house. And because it was largely based on literature and not input from practitioners, we missed an important climate hazard in Minnesota, wildfires, that we will be adding in the future.

Second, when we began talking about climate change as early as 2009, we discussed observed trends in temperature and precipitation. We did not talk about climate modeling and we certainly did not talk about what is causing climate change. We stuck to local empirical measured observations to show trends. This, in general, was pretty safe and compelling. It hasn't been until recently that we have ventured into the realm of anthropogenic climate change and discussing future climate projections.

For those of you working in an environmental agency or organization, I highly encourage you to work with your state or local public health departments on projects. As we heard earlier from Connie, leading with health when discussing extreme heat or climate change can be much more persuasive and can reach a wider political audience than leading with climate change.

Third, if you are thinking about developing resources or communications around extreme heat and/or climate change, don't reinvent the wheel. There are so many great resources already available that, sometimes, it is simply a matter of using what already exists or tailoring existing tools and resources to your communities.

#### Slide 23: Thank You! Questions?

Kristin Raab: The Minnesota Climate and Health Program supports a Web site where you can find all of our tools and resources developed thus far. It is listed on the slide. And there is a link on the right hand of the Web site that you can click to sign up for e-mail updates that highlight our latest releases to research and events on climate change. So, thank you very much for allowing me to share some of our information today.