



Translating Climate and Health Research into Action: A Webinar Series on Heat-Related Health Risks

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DOI: 10.59450/HHOC6120

PUBLICATION DATE:

TAKE HOME POINT – Climate change and health webinars with subject matter experts bridge gaps between health professions, support translation of current research into clinical practice, and leverage clinical and community experience to pose new research questions.

ABSTRACT

Introduction: Emory's National Institutes of Health-funded Climate and Health Actionable Research and Translation Center aims to generate new knowledge about health risks associated with heat exposure in urban areas and translate knowledge into action. The Center's Research Capacity Building Core develops trainings to translate climate change and health research discoveries into practice.

Description of Innovation: The Climate and Health Actionable Research and Translation Webinar Series followed an innovative continuing education model using results from a data-driven needs assessment to inform series development. The needs assessment survey was distributed to stakeholders to determine what topics would be most valuable for this free, open-access resource. Participants were invited

were invited to evaluate the first three webinar events.

Results: The webinar needs assessment survey resulted in 35 responses. The most requested topics were mental health effects of climate change (86%), guidance for individuals with chronic conditions in extreme heat (83%), and environmental justice (69%). The first three live virtual events hosted a total of 162 participants and included health professionals, researchers, community members, and media. Forty participants provided feedback. Webinar satisfaction was consistently high with over 90% of respondents expressing improved understanding of and ability to address the topic, increased ability to apply information learned, and a positive overall webinar experience.

Conclusion: The Climate and Health Actionable Research and Translation model helps fill a training gap and creates infrastructure for clinical translation of climate change and health science through the development of a community of collaborators for education, application, and capacity building.

INTRODUCTION

As average temperatures continue to rise and extreme heat events become more frequent due to climate change, an increasing number of people living within urban settings are at risk of excessive heat exposure. Heat harms health through direct and indirect pathways, interfacing with air pollution, vector-borne illnesses, waterborne diseases, and mental health (Tuholske et al., 2021). With global shifts towards urbanization, urban populations are becoming increasingly vulnerable to environmental health hazards due to compact urban settings, fragile infrastructural systems, and health risks related to climate change and the urban heat island effect (Tuholske et al., 2021; Wahba Tadros et al., 2021). The impacts of heat are disproportionately felt by individuals with pre-existing health conditions and by people living in lower-income and under-resourced neighborhoods already burdened by structural discrimination (Chakraborty et al., 2019).

Although many health professionals understand that climate change can influence health risks, they often lack

specific knowledge or strategies to educate patients in a clinical setting, and they may not feel prepared to advocate for community health needs related to climate change (Kotcher et al., 2021). While health professional schools are incorporating climate change and health (CCH) into curricula, these topics often compete with others in rigorous graduate and postgraduate schedules. Health professionals also note challenges due to government policies, climate skepticism, lack of time, shifts in best practices, and more (Kotcher et al., 2021; Lemery et al., 2020; Nicholas & Breakey, 2017).

In response to the escalating need to understand health risks associated with heat exposure in urban areas and to translate this knowledge into action, Emory University's Rollins School of Public Health developed the interprofessional, National Institutes of Health (NIH)-funded Climate and Health Actionable Research and Translation (CHART) Center (CHART, n.d.). The Research Capacity Building Core (RCBC) is one of four cores within CHART with its own unique aims. One of these aims is to increase the number of individuals equipped to address this complex public health challenge. To do this, we used the Public Health Learning Agenda Framework to identify stakeholder training and technical assistance needs and developed webinars to meet these needs (Welter et al., 2020; Welter et al., 2023). The resulting CHART Webinar Series serves as a pipeline to build community and

accelerate bi-directional communication between clinicians, researchers, and community members (entities serving and/or individuals living in at-risk communities in Atlanta and beyond).

DESCRIPTION OF INNOVATION

Innovation – RCBC’s target audience consists of various health professionals including CCH researchers, clinicians, and entities serving at-risk communities in Atlanta and beyond. The RCBC’s CHART Webinar Series serves as an innovative model for continuing CCH education because its content is driven by a needs assessment of health and research professionals hoping to further incorporate CCH into their work. The series seeks to help participants understand (1) those most at-risk of heat-related health outcomes, (2) how an individual’s resource constraints, perceptions, and behaviors impact heat exposure, and (3) what physical environment attributes modify an individual’s heat exposure. Compared to resources that target a national or international audience, CHART’s localized focus on extreme heat in under-resourced urban communities in Atlanta is unique. At the time of writing, CHART is the only NIH-funded P20 center in the Southeastern United States.

The CHART Webinar Series is free and open to the public. It is designed to fill knowledge gaps among professionals and community members and to give

researchers the opportunity to share evolving best practices to inform clinical care and outreach. The aims of the series are to (1) meet needs of clinicians aiming to adapt current best practices, (2) bring translational CCH research into a clinical setting, and (3) engage those aiming to become more involved in CCH research. This innovation report focuses on CHART’s progress to date on these first two aims.

Needs Assessment Survey – To understand the training needs of the local community on CCH heat-related topics, RCBC distributed an electronic survey to health professionals, researchers, and community members through several pathways targeting (but not limited to) local stakeholders. These included internal and external Emory listservs and direct emails to contacts shared by CHART members. The survey was open from mid-June to early July 2024 and administered through Qualtrics (Provo, Utah). We collected data on job position/role, organization, CCH topics of interest, observed health impacts within the community, and recommendations for subject matter experts (SMEs). The list of 18 professions and 15 topics was based on previous needs assessments conducted among similar populations and on CCH expertise within RCBC. Refer to Appendix A for the complete survey. IRB approval was not required.

CHART Webinar Series – Topics of interest were selected for the six-part CHART Webinar Series based on the needs assessment results and CHART network connections. RCBC selected one to two SMEs per webinar based on their topical experience and applicability of their work to health professionals and investigators in the local area. The SMEs represent various health professions such as nursing, primary care, pediatrics, and obstetrics, as well as the federal government, public health research, and community organizations. RCBC worked with presenters to develop unique titles, descriptions, and learning objectives. In addition to presenting aspects of CCH that are ripe for intervention or clinical translation, each webinar discussed current research gaps and priorities on CCH topics, as well as opportunities for clinical and community collaboration.

To promote the series, flyers were disseminated through listservs internal and external to Emory and through emails distributed by CHART members. Job position and student status of participants were obtained at registration.

As of December 2024, three out of six webinars had been hosted and two were in development. CHART records and posts each webinar on its website, and, as of October 2024, each live and recorded webinar became eligible for Continuing Nursing Education (CNE) credits through

the Emory Nursing Professional Development Center.

The August webinar titled “Navigating Summer’s Heat: CDC Tools and Resources on Heat and Health” highlighted the CDC Heat and Health Tracker (National Center for Environmental Health, n.d.) and provided key screening materials, heat action plans, and heat and medication guidance for patients and community members (CDC, n.d.; CHART, 2024a). The September webinar titled “Heat Risk and Pregnancy: Translational Research and Practice from a Social Determinants Perspective” highlighted the epidemiological and clinical influence of heat on pregnancies (CHART, 2024b). The October webinar titled “Heat Exposure and Health: Addressing Challenges for Children and Farmworkers” highlighted the impact of heat on vulnerable populations, while emphasizing community engagement and anecdotal storytelling (CHART, 2024c). The next two upcoming webinars will cover environmental justice, as well as youth mental health and climate change.

Evaluation – After each individual webinar, attendees received a follow up email with presentation materials and were invited to complete an evaluation survey. As illustrated in Appendix B and C, the survey collected attendee demographics and elicited feedback on the presentation and achievement of learning objectives. Respondents were

also asked to prioritize CCH topics of interest for future webinars. For evaluation of the second and third webinars, CHART added two questions that were designed to assess change in knowledge related to each session's learning objectives. Respondents completed a single evaluation survey per webinar and were asked to rate their own achievement of each learning objective 'before' and 'after' the webinar. A Likert scale ranging from strongly disagree to strongly agree was converted into a quantitative scale from one to five and averaged across participants and across webinars.

RESULTS

Needs Assessment – There were 35 responses to the needs assessment. The top five CCH-related topics included risks and preventive guidance for individuals with chronic conditions in extreme heat (86%), mental health effects of climate change (83%), environmental justice – redlining, urban heat islands: why certain communities are exposed to more heat (69%), how common medications affect susceptibility to heat (63%), and tips for developing interdisciplinary relationships to improve care due to environmental and climate-related issues (63%). They are shown, broken down by respondents' professions, in Figure 1.

Innovation Outcome – The first three live webinars had 162 total attendees.

Participants included health professionals (medicine, nursing, public health, and allied health), researchers, community members, and media. Of those attendees, 40 provided feedback on a post-webinar evaluation (25%), with 39 complete and one partially complete evaluation.

Webinar satisfaction was consistently high with over 90% of respondents agreeing or strongly agreeing that information was well presented (n=36/39); their understanding of and ability to address topics improved (n=38/40; n=37/39); they would apply information learned (n=37/40); and they were satisfied with the training overall (n=36/39) (Figure 2).

For webinars two and three, questions on pre-post knowledge of the learning objectives were included for CNE accreditation, and this improved our ability to assess webinar impact. Post-webinar, respondents (n=23) reported improvements across the three learning objectives. This included improvements in their ability to identify knowledge and care gaps on the topic (51% increase), describe current research on the topic (44% increase), and access tools and resources on the topic (38% increase). Percent increase was based on the percentage of participants that improved their level of understanding after the webinar compared to before the webinar.

Figure 1: The top five climate change and health topics of interest on needs assessment

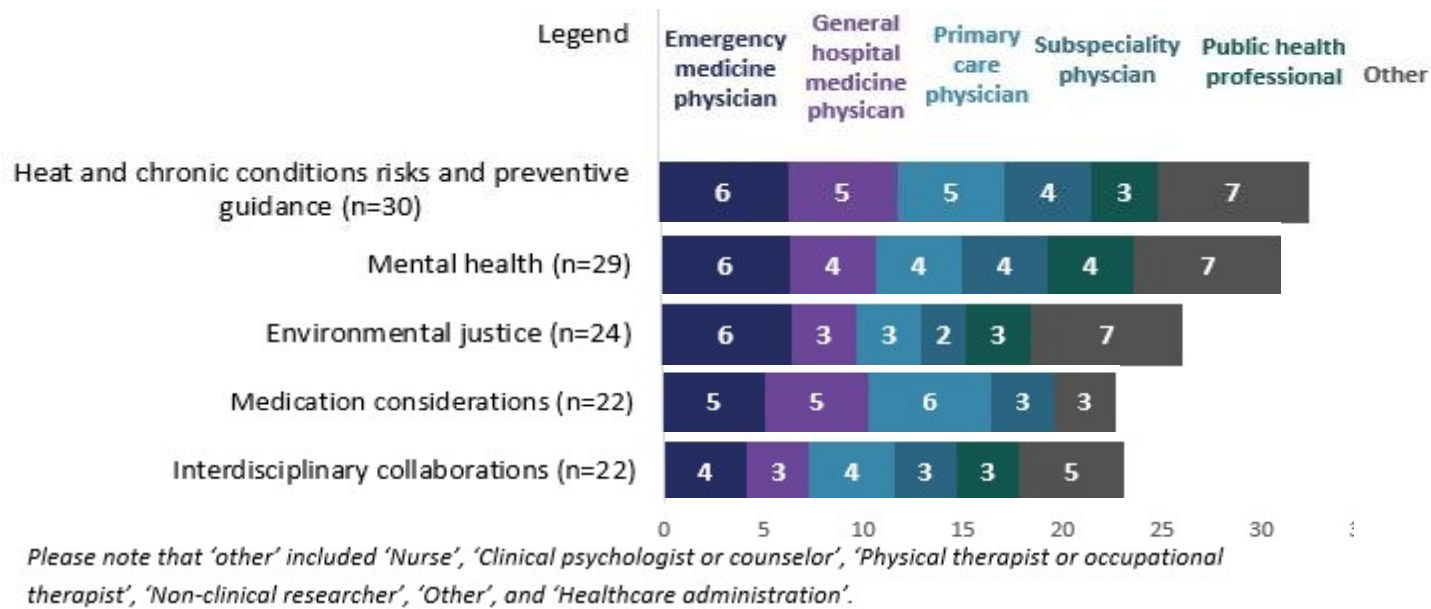
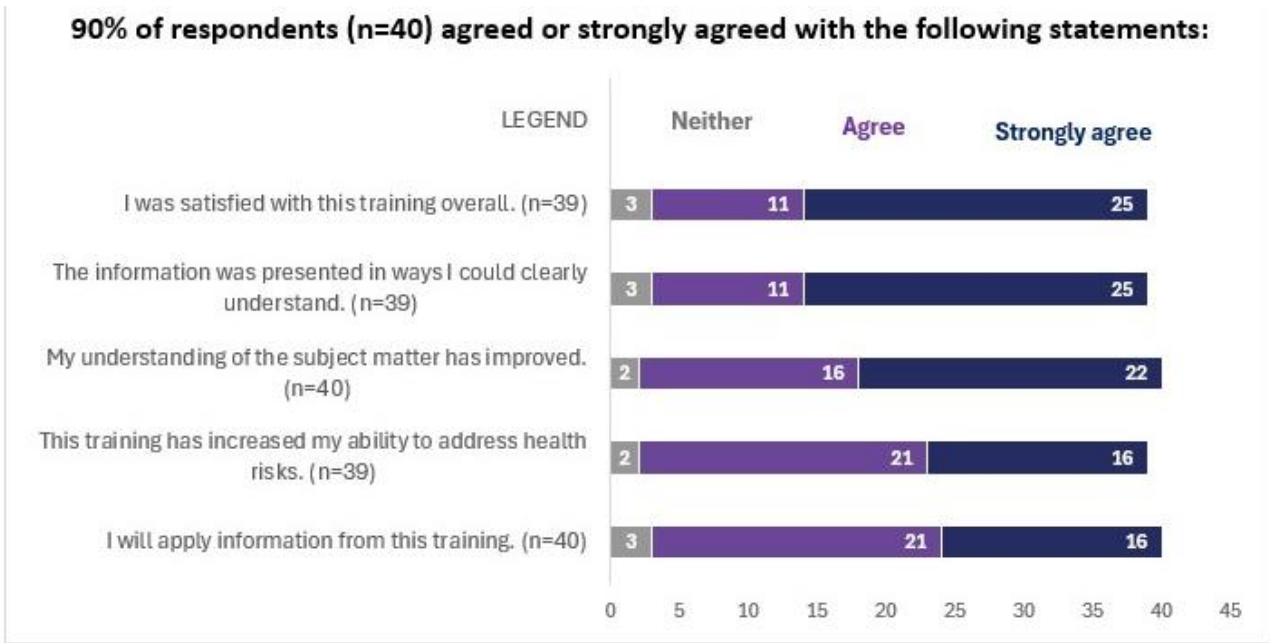


Figure 2: Post-webinar satisfaction



DISCUSSION

Main Finding – CHART developed a webinar series on CCH topics with interprofessional SMEs to bridge gaps between professions, accelerate the

translation of current research into clinical best practices, and leverage clinical and community outreach to better inform research. The series has reached a wide array of health

professionals, investigators, and community members hoping to learn more about current CCH research and how to incorporate it into their practice. Data was collected for each individual webinar, and –across the series--post-webinar survey respondents expressed high levels of satisfaction and reported knowledge growth based on learning objectives.

Knowledge, Skills, and Attitudes – Many health professionals understand that climate change is a health risk and have cited continuing professional education as a method to address challenges in educating patients about climate change in a clinical setting and advocating for community health needs related to climate change (Kotcher et al., 2021; Lemery et al., 2020). Based on our post-webinar evaluations, attendees felt as though they had improved their ability to describe current research, access tools and resources, and identify knowledge and care gaps on CCH topics—knowledge and skills that may support their application of CCH in practice to improve health care services and outcomes. Our ultimate goal is that CHART webinar attendees apply knowledge gained from the series to patient care, educating others, research and/or advocacy within their professional or community setting.

Limitations – Of the 162 attendees across the three webinars, just under a quarter

completed a post-webinar evaluation. Although findings may not be representative of all attendees and each webinar was evaluated individually, the series overall has received positive feedback, and CHART is pursuing additional approaches to promote completion of the evaluation survey.

Due to the change in knowledge questions between the first and second webinars, data reflects individual webinars as opposed to the series as a whole. Nevertheless, the addition of the pre-post questions was valuable in understanding attendee knowledge growth and obtaining CNE accreditation. Finally, this initial evaluation focuses on near-term goals (increasing knowledge and access to resources), rather than long term goals (application of this knowledge and resources), which we hope to explore in the future.

When distributing flyers and information about the webinar series, CHART utilizes its listserv, and other listservs internal and external to Emory. Our initial needs assessment had a higher potential of reaching and eliciting responses from individuals already interested in or engaged in climate and health. While the insight of this core group of stakeholders was critical to our efforts, their responses may not reflect those of the broader health professional and Atlanta-area communities. Finally, the data collected and analyzed thus far are from the first

half of our continuing series and may not be applicable to later webinars.

Next Steps – The initial CHART Webinar Series served as a pilot and invited professionals from different backgrounds to present as SMEs. A second series will expand its SME pool by inviting more diverse health professionals and community members. CHART’s reach continues to grow as CHART fosters partnerships, expands its network, and promotes the Center. As of early December 2024, CHART developed an Instagram account, and the webinars have been promoted via CHART and its partners on social media. As CHART continues to gather feedback from live and asynchronous participants, discussions are ongoing to ensure that the webinars’ impact is measured and tracked, that evaluation strategies evolve to assess desired outcomes, and that RCBC can utilize data to further meet the needs of the audience. This may mean diving deeper into certain topics, applying modalities that enable

participants to practice skills and engage more actively with content, or altering how participants interact with SMEs on the webinar.

CONCLUSION

The CHART model helps fill a training gap, build clinical and research capacity, and create infrastructure for CCH science translation. This model may be generalizable to other emerging translational topics that rely heavily on interprofessional collaboration and community engagement. In addition, CHART fills an important faculty development role in that a perceived lack of knowledge is often cited as a limiting factor for faculty addressing CCH in their curricula. RCBC plans to offer a second CHART Webinar Series based on the needs and interests of CCH researchers, health professionals, and entities serving at-risk communities in Atlanta and beyond, further developing a community of potential collaborators for CCH education, application and capacity building.

ACKNOWLEDGMENTS

The authors declare they have no conflicts of interest in regard to this work. The authors are grateful for the following members of the Climate and Health Actionable Research and Translation Center for their support with the CHART Webinar Series and with this publication: Dr. Yang Liu, Dr. Noah Scovronick, and Almaas Alam.

Research reported in this publication was supported by the National Institute of Environmental Health Sciences of the National Institutes of Health under Award Number P20ES036110. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health. It is subject to the NIH Public Access Policy. Through acceptance of this federal funding, NIH has been given a right to make this manuscript publicly available in PubMed Central upon the Official Date of Publication, as defined by NIH.

Dr. Philipsborn would like to acknowledge funding support from the Josiah Macy Jr. Foundation.

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