Role of Academia in Combatting the Impact of Climate Change on Health

ASSOCIATION FOR PREVENTION TEACHING AND RESEARCH

APTR calls upon medical and health professions schools and their academic units that teach prevention and public health to take proactive responsibility for teaching about the human-environment interaction and the impact of climate change on public and population health from a scientific and evidence-based perspective.

WHEREAS climate change is defined as extreme and abrupt weather alterations in the natural patterns and trends for temperature, rain levels, snow amounts, storms, and wind speeds that is generated from human energy production and consumption (NASA, 2017);

WHEREAS scientific evidence is clear that climate change is a serious threat to all human health, particularly vulnerable are populations such as children, the elderly, and underserved and minority communities;

WHEREAS climate change threatens to disproportionately harm the poor, vulnerable, and disadvantaged; strategies to address climate change must link with efforts to address health, social inequities, and human rights;

WHEREAS climate change has ecological impacts at the primary (i.e., heating and cooling for temperature regulation, transportation at personal and industrial levels) and secondary levels (i.e., food production processes and manufacturing of goods and services); these impacts act independently and synergistically to emit energy that alter environmental conditions thus generating a broader carbon footprint and resultant greenhouse emissions;

WHEREAS climate change requires personal and collective discourse, change in governmental public policies, and institutional practices to address energy expenditures to reduce the impact of carbon dioxide emissions;

WHEREAS educators, public health professionals, and health professionals can play a vital role in addressing climate and climate change by providing a forum for discourse, teaching, research, practice and policy development;

WHEREAS inadequate lesson plans and educational materials exist in health professions general curriculum to promote student discovery and learning about the complex interactions between climate change, the environment and human health;

THEREFORE

APTR calls upon health professions schools and programs, including clinical programs and public health programs to:

- Provide curricular opportunities, as appropriate, that expose students to the interrelated impacts of climate change from an ecological framework for human population, animal, and environmental health.
- Include competencies and learning outcomes in human/environmental interaction and climate change for all related academic subjects (e.g., through practical application).
- Encourage and support research efforts by faculty and students directed to better understanding climate change, its causes, and effects.

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- Ensure adequate opportunities for faculty development on human-environment interaction and the impact of climate change to enhance knowledge.
- Promote community education and dialogue about climate change, through a variety of channels including service on boards and taskforces.
- Share best scientific and educational practices and curricula.
- Develop core sets of knowledge for graduates and students.
- Foster the development of global academic partnerships to support training of health professionals, practitioners, and climate and health-related specialists.
- Create classroom environments where innovation and opportunities are offered that allow for advancement of the field of climate science while encouraging and supporting freedom of thought and expression.
- Foster the development of academic partnerships to support training of health professionals and climate and health-related specialists.
- Incorporate into the curriculum the following elements:
    - Social determinants of health equity and its relationship to climate impact on health.
    - Public health roles and skills in responding to climate change including research, surveillance, and generation of new knowledge.
    - Incorporate the relationship of environmental health, chronic disease, emergency management, and climate change in health research that uses geospatial (GIS) locations as indicators.
    - Unique stressors on all populations experienced during times of natural disasters and extreme weather events.
    - Systems thinking, policy and program development, planning, and evaluation for climate change related issues.
    - Psychological and mental health needs that arise during natural disasters and the repercussions of post-traumatic stress syndrome related to extreme weather events.
    - Faculty should ensure that the future population health workforce is prepared, through education and training, to effectively address the consequences of human-environmental interaction and the health impacts of climate change.

APTR Will:

- Disseminate best scientific and educational practices, curricula, and evidence.
- Promote and support adoption of human-environment interaction and climate change policies by academic institutions throughout the United States.
- Facilitate academic units of public health and prevention to conduct research in health and health-related climate change impacts.
- Advocate for resources in academic and health care settings for investigating, teaching, and acting in favor of actions that mitigate climate change impacts.
- Engage stakeholders through professional organizations, educational community outreach, institutional & organizational policy development.
- Advocate for accrediting bodies across the health science professions to include competencies and/or student learning outcome in human-environment interaction and climate change.

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WHY APTR IS DISSEMINATING THIS POLICY

Teachers and researchers of public health and preventive medicine are well-placed and well trained to bring clarity to the research agenda, teaching curriculum, and evaluation of policy and program outcomes necessary to create meaningful change on the road to eliminating the harmful effects of climate change. Health outcomes and health disparities are relevant to all health professionals across the spectrum of care. As an interdisciplinary organization, APTR calls upon the entire academic health professions community to address these issues. Academics are uniquely situated to frame questions and investigations in ways that can create a new and evolving framework for making meaningful policy changes so that all individuals can expect to enjoy the full benefits of health and wellbeing without the experience of structural or interpersonal climate change.

Public health as a science has long represented the integration of multiple scientific professions and recognized the integration of human, animal, and environmental health. Climate change represents a present and continuous threat to the health across the system of the earth's ecology. Failure to address the threat of climate change upsets the ecological balance for sustaining life as it currently exists for generations to come. Climate change outcomes can be resolved when we develop collaborative partnerships across educators and researchers, states and nations, private and public institutions, and as individuals to establish standards to reduce the carbon footprint of human activities. It is the obligation of the health sciences community to provide educational opportunities on every sociological level to empower individuals and populations to take actions that result in reduction of the manifestations of climate change. The health professions community holds an imperative responsibility for managing the health consequences of climate change and for preparing for future educators and researchers equipped with the knowledge and skills to advance climate change science.

BACKGROUND AND RATIONALE

Climate change is an ecological phenomenon that impacts human societies as well as natural structures within the boundaries of the earth's system. Scientific evidence is the most concrete and sound way to validate climate change. Science allows us to determine best practices in research, teaching, and program development for prevention interventions to ameliorate the consequences of climate change. Climate change has ecological impacts at primary (i.e., heating and cooling for temperature regulation, transportation at personal and industrial levels) and secondary levels (i.e., food production processes and manufacturing of goods and services); it is noted that these impacts act independently and synergistically to emit energy that alter environmental conditions thus generating a broader carbon footprint and resultant greenhouse emissions.

The Panel on Advancing the Science of Climate Change (National Research Center (NRC), 2010a) found that climate change is:

1. Largely caused by human activities that pose a broad range of significant health risks to humans and the natural environment and
2. Requires a comprehensive and integrated climate change science enterprise to direct fundamental understanding and to inform action. Evidence supplied by science supports that: a) the earth is warming, b) warming is produced from increased Co2 and Green House Gases (GHG) emitted from human and industrial activities, c) natural climate changes are altered by this warming trend, d) warming has synergistic and exponential effects such as decreased snow caps, increased sea levels, increased rain, variability in storm generation, and ocean acidification, e) subsequent climate change alterations take decades or centuries to

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reverse posing a wide spectrum of risks to human and natural systems, and f) there is viability to improve on these negative trends and the severity of negative impacts that is based on the magnitude of human response to research, educate, and implement programs to respond to these risks (NRC, 2010a).

Thus, climate change holds immediate and long-term consequences for current and future generations. While climate change impacts all the earth's population, it disproportionately impacts those in lower socioeconomic levels whose geographic location is often substandard, whose educational level impairs their capacity to respond, whose access to health resources is limited, and who lack basic securities for housing, green spaces, and food. The structures of climate change and the resulting inequities in social determinant status persist; thus, it is incumbent on the health care and education sectors to recognize this issue, to educate their students and the public, and take action to ensure that the health and education sectors they participate in are part of the solution and not part of the continuing problem. The Columbia University Mailman School of Public Health (2017) has created a Global Consortium on Climate and Health Education to carry forward the Health Educators Climate Commitment to action. In 2015, more than 118 medical, public health, and nursing schools around the world signed onto the Obama Administration's *Health Educators Climate Commitment* to ensure their students, the next generation of health professionals, are prepared, through education and training, to effectively address the health impacts of climate change, and to ensure that the world has a cadre of climate change and health experts. The National Research Council (NRC, 2010b) recommends that new curriculum be designed that teaches future generations about climate change issues from historical, current, and future impacts. Further, NRC (2010b) advocates for the use of modeling and emerging technologies to explore and project possible climate related scenarios. Equipping future health scholars with the knowledge and skills to address the climate change issues is essential to the sustainability of human life and the balance of the earth's natural systems.

Supporting Articles

Columbia Climate and Health Program Mailman School of Public Health (2017). Global Consortium on Climate & Health Education. Retrieved from https://www.mailman.columbia.edu/research/global-consortium-climate-and-health-education.

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