Climate Change and Health in New England: A Review of Training and Policy Initiatives at Health Education Institutions and Professional Societies

CALEB DRESSER, MD, MPH; EMILY GENTILE, BS; RACHAEL LYONS, BS; KALI SULLIVAN, BS; SATCHIT BALSARI, MD, MPH

ABSTRACT

BACKGROUND: There has been increasing interest in climate change among healthcare professionals, but it is unclear to what extent resources on this topic are available to students and clinicians in New England.

METHODS: Structured review of publicly available information regarding climate change and health activity at schools of medicine, public health, and physician assistant studies and in state medical and physician assistant societies in New England.

RESULTS: Of 39 programs reviewed, 18 (46%) had at least one climate-related initiative. Six universities accounted for 87% of climate change and health initiatives in the region. Three out of 12 state professional associations had committees or position statements addressing climate change.

CONCLUSION: There is substantial activity related to climate change and health in New England, but it is concentrated in a small number of locations. Opportunities exist to improve access to education on this topic and increase involvement of health professional associations.

KEYWORDS: climate change, health education, organized medicine, physician assistant, public health

INTRODUCTION

Climate change is a threat to health in New England. Climate-related hazards include heat, extreme rainfall, flooding, vector-borne disease, hurricanes, and sea level rise.[1] Rising awareness of climate change has been accompanied by increased recognition of its implications for patients and healthcare institutions.[2]

The past decade has seen increasing engagement with climate change issues in the regional healthcare community. Multiple academic institutions host centers working at the intersection of human health, healthcare, and climate change.[3,4,5] There have also been efforts to address healthcare-related greenhouse gas emissions[6,7] and medical waste,[8] improve resilience to climate health hazards,[9] and communicate climate change and health issues to clinicians, policymakers and the general public.[2,3]

There is increasing interest in curricula, courses, and training programs on climate change and health education.[10,11,12,13] Medical Students for a Sustainable Future, a student-driven organization founded in 2019, advocates for action and education on climate change and health; in the two years since its creation, it has expanded to 105 medical schools, including chapters in five of the six New England states.[14] New England now has free online climate and health courses,[15,16] a physician fellowship in Climate and Human Health,[17] and a steady stream of lectures and symposia on the topic.[18,19]

However, many health care workers remain unaware of how healthcare systems contribute to climate change and how climate change threatens their patients and healthcare institutions, or have difficulty engaging with this issue.[20,21] While it is clear that study of the intersection of climate change and health is increasingly prioritized at major academic centers in the region, it is less clear how available resources on this topic are to the bulk of students and practicing clinicians in the region.

The purpose of this review was to assess the extent of climate and health activities including educational offerings and policy statements at medical, physician assistant, and public health education institutions and within health professional societies in the New England region.

METHODS

This was a structured review of publicly available material describing educational offerings, academic centers, student organizations or committees, and position statements from educational institutions offering graduate degrees in medicine, public health, and physician assistant studies, state medical societies, and state physician assistant societies in New England. All institutions granting graduate degrees in Medicine, Public Health, or Physician Assistant Studies within the six New England states (Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island) were included. State medical associations and physician assistant associations for each of the six New England states were also included. Lists of institutions were obtained from the Association of American Medical Colleges (AAMC), the American Association of Colleges of Osteopathic Medicine (AACOM), the Accreditation Review Commission on Education for the Physician Assistant (ARC-PA), the Physician

Assistant Education Association (PAEA), and the Council on Education for Public Health (CEPH).

Due to the wide variety of website designs and online platforms, ascertainment of the presence of publicly available information on items of interest could not be performed reliably via institutional website navigation. Instead, a methodology employing standardized search terms was implemented via internet search engine. Search terms consisted of "[Name of Institution]" + "climate" + "class" OR "course" OR "elective" OR "center" OR "curriculum" OR "statement" OR "student organization" OR "student group" for educational institutions, and "[Name of Association]" + "climate" + "committee" OR "position" OR "statement" OR "policy" for state associations. The first 30 results were reviewed for relevance to these climate and health activity areas. For educational institutions, activity areas included the following categories: an elective course in climate change and health, the inclusion of climate change topics in the core curriculum, an institutionally-recognized student organization focused on climate change, a center focused on climate change and health, and the existence of an institutional position statement on climate change and health. For associations, activity areas included the existence of a committee or sub-committee focused on climate change and health and the existence of a formal position statement or other policy statement regarding climate change.

Results were tabulated, and summary statistics regarding specific areas of activity, institutional subsets, and geographic regions were computed. All searches were performed in the standard public Google search engine, and reflect the top results displayed via Google search engine prioritization as of July 2021.[22] Analysis was performed in R v3.1.0.[23] All materials reviewed in this study were publicly available and were accessed remotely via public-facing websites. This study was exempt from IRB review as it did not involve human subjects research.

RESULTS

A total of 51 separate institutions or associations were included in the analysis. These consisted of 11 institutions offering degrees in medicine, 13 institutions offering graduate degrees in public health, and 15 institutions offering degrees in physician assistant studies within the six New England states, as well as 6 state medical associations and 6 state physician assistant associations (**Table 1**).

Of the 39 degree granting institutions, 18 (46%) had at least one climate change and health initiative, 9 (23%) had two or more, and 21 (54%) had none. Institutions with education or advocacy activities related to climate change and human health were located in Massachusetts (n=8), Connecticut (n=5), New Hampshire (n=3) and Rhode Island (n=2), principally in coastal cities (**Figure 1**).

Table 1. Climate and health activities at educational programs in New England

	Medical Schools	Physician Assistant Programs	Public Health Programs
Elective	2	0	4
Position Statement	0	1	1
Core Curriculum	1	0	4
Student Group	7	1	4
Center	2	2	2
None of the Above	3	12	6
Total Programs	**11**	**15**	**13**

Figure 1. Climate Change and Health Initiatives in New England

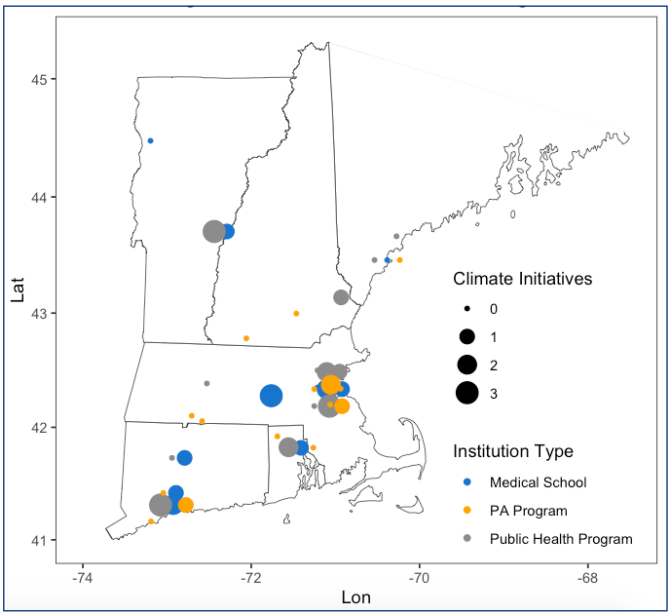

Figure 2. Climate Change and Health Initiatives at Educational Institutions

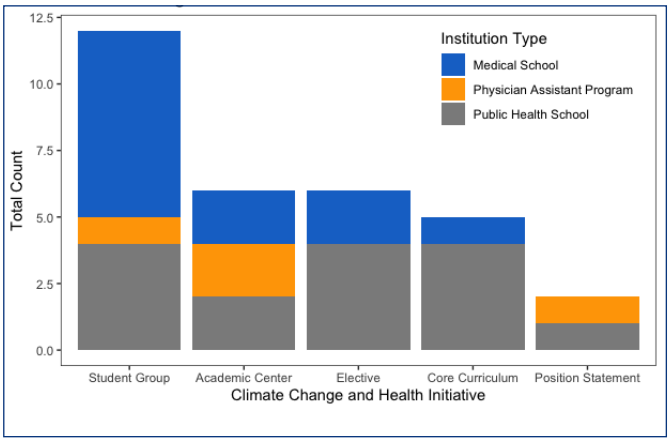

Table 2. Climate and health initiatives at educational programs in New England

Institution	Degree Program	Climate Change and Health Initiatives
Boston University School of Medicine	Medicine	The Climate Action Group, a student, staff, and faculty organization engaged in "environmental advocacy through a variety of climate initiatives including climate change education for health professionals, improving campus sustainability and reducing the University's use of nonrenewable energy, and exploring the role of climate change in impacting human health and wellbeing."
Frank H. Netter MD School of Medicine at Quinnipiac University	Medicine	Human Health and Climate Change medical student group.
Geisel School of Medicine at Dartmouth	Medicine	Chapter of Medical Student for a Sustainable Future whose goal is to "integrate climate change competencies into the medical education curriculum."
Harvard Medical School	Medicine	In addition to an active student group, an academic center focused on climate change and health activities hosts workshops and training programs, a physician fellowship that includes research and public communication, and courses on climate change and health. Additional climate and health initiatives at the university level and at individual teaching hospitals exist but did not meet inclusion criteria. A course on climate change and health is known to the authors but was not identified via structured search methodology.
The Warren Alpert Medical School of Brown University	Medicine	Students can take an elective on Climate Change and Health that provides "an overview of the wide-ranging health impacts of climate change as well as the impact of healthcare on the environment."
UMass Chan Medical School	Medicine	A chapter of Medical Students for a Sustainable Future is active. Students created a Climate Change and Medicine elective. The core curriculum is being updated to include climate change topics.
University of Connecticut School of Medicine	Medicine	Active student group; Medical Students for a Sustainable Future has been active on sustainability at UConn Health organization meetings
Yale School of Medicine	Medicine	There is an active student group, and students have access to an academic center on climate change and health that houses a wide range of initiatives including courses, a student associate program, and a certificate program in climate and health.
Boston University	Physician Assistant	The Climate Action Group, a student, staff, and faculty organization engaged in "environmental advocacy through a variety of climate initiatives including climate change education for health professionals, improving campus sustainability and reducing the University's use of nonrenewable energy, and exploring the role of climate change in impacting human health and wellbeing."
MGH Institute of Health Professions	Physician Assistant	Students have access to a Center for Climate Change, Climate Justice, and Health; the core curriculum may include climate change in future years. Official Institute materials describe climate change as "a threat to the health of individuals, families, communities, and populations worldwide."
Yale School of Medicine	Physician Assistant	Students have access to an academic center on climate change and health that houses a wide range of initiatives including courses, a student associate program, and a certificate program in climate and health.
Boston University School of Public Health	Public Health	In addition to student involvement in the Climate Action Group (above), the BU School of Public Health offers an MS in Climate and Health, a Program on Climate and Health, a climate change elective course, and includes climate change topics in the core curriculum.
Brown University School of Public Health	Public Health	Students have the opportunity to take an elective titled "Climate Change and Human Health", which is also a substantial content area in other courses and faculty research. The School of Public Health urges "policy action to mitigate the negative health impacts of climate change."
Dartmouth Geisel School of Medicine MPH Program	Public Health	A course on "Public Health Impacts of Climate Change" is included in the second-year curriculum and student organization is active on climate change issues.
Harvard T.H. Chan School of Public Health	Public Health	An academic center focused on climate change and health activities hosts workshops and training programs, a physician fellowship that include research and public communication, and courses on climate change and health. There is also organized student activity. Additional climate and health initiatives at the university level did not meet inclusion criteria. A course on climate change and health is known to the authors but was not identified via structured search methodology.
Simmons University Public Health Program	Public Health	Core curriculum includes climate change topics as part of an Environmental Health & Justice course.
University of New Hampshire	Public Health	Curriculum includes a Climate Change and Health course that teaches "an environmental epidemiology framework for analyzing the direct and indirect impacts of climate variability to public health as well as appropriate public policies."
Yale School of Public Health	Public Health	A degree concentration in climate change and health is offered. There is an active student group, and students have access to an academic center on climate change and health that houses a wide range of initiatives including courses, a student associate program, and a certificate program in climate and health.

Table 3. Number of climate and health activities aggregated by academic affiliation of educational institutions.

Institutional Academic Affiliation	Total Climate and Health Activities
Yale University	6
Harvard University	6
Boston University	5
Dartmouth	4
University of Massachusetts	3
Brown University	3
All Others	4

A total of 31 climate change and health initiatives were identified, of which 12 (39%) were student groups, 6 (19%) were electives, 6 (19%) were climate change and health centers, 5 (16%) involved inclusion of climate change in the core curriculum, and 2 (6%) were position statements (**Figure 2**). These initiatives are summarized in **Table 2**. A total of 27 (87%) of the climate change and health initiatives were located at sites affiliated with one of six large research universities (Harvard University, Yale University, Boston University, Dartmouth, the University of Massachusetts, and Brown University), each of which hosted at least three initiatives; the remaining 4 initiatives were located at Simmons University, the University of New Hampshire, Quinnipiac, and the University of Connecticut (**Table 3**).

Climate change and health initiatives varied substantially across the programs reviewed. At several sites, the sole on-campus offering was a chapter of Medical Students for a Sustainable Future[14] or another student organization; these were typically set up by students with limited institutional support and were focused on advocacy including requests for inclusion of climate change topics in the core or elective curriculum. In some cases, these efforts were successful; for example, at the UMass Chan Medical School, students recruited external lecturers to create an elective in Climate Change and Medicine,[24] and efforts to include climate change in the core curriculum are ongoing.[25] Academic centers dedicated to climate change and human health tended to offer a range of activities that included research programs, CME courses, elective courses, fellowships in Climate and Human Health for physicians, and a range of climate change and health policy and advocacy material.[3-5,15-17,19]

Of the 12 state-level medical and physician assistant associations reviewed, three medical associations (Maine, Massachusetts, and Vermont) had position statements regarding climate change. Two statements included language on the implications of climate change for the health of patient populations, one called for reductions in greenhouse gas emissions, and one called for investment in climate change adaptation as a means to protect health. All three position statements were issued in 2017 or later. Two state medical associations (Maine and Massachusetts) had committees whose goals included addressing climate change issues.

DISCUSSION

This review describes climate change and health activity in a set of health education institutions and professional societies in New England. The burgeoning number of educational offerings, their uneven distribution, and the lack of public action from most regional medical and physician assistant societies are of significance to educators, students, advocates, and policymakers.

Climate change and health has clearly gained attention as an educational topic and object of organized student and professional activity. While this subject was largely absent from discussion outside specialist circles for many years, nearly half of the educational institutions assessed in this review now host some form of climate change and health education or advocacy activity, and the past four years have witnessed the first statements on climate change from medical societies in the region.

However, most climate change and health activity identified in this review was concentrated at large research universities; the majority of medical, public health, and physician assistant education institutions in the region do not publicly describe any climate-related activities. The concentration of initiatives at coastal, urban institutions may impede clinicians and students in rural or interior locations from accessing these resources and presents an important opportunity for growth. Climate change will have substantial effects on health throughout New England during the decades in which clinicians who are being trained today can expect to practice,[1] and it is important that opportunities for climate change education and action reach clinicians training and practicing in communities throughout the region.

Students, faculty, and administrators interested in implementing climate change and health curricula or other offerings at their institutions now have access to a wide variety of materials to support their efforts. Organizations including Medical Students for a Sustainable Future,[26] Healthcare Without Harm,[27] several academic centers,[3,4] and the Medical Society Consortium on Climate and Health[28] offer model curricula, educational content, templates for action, networking opportunities, remote courses, and other resources. Recent academic work provides needs assessments, guidelines on program design, and case studies of climate change and health education and advocacy in action.[2,11-13,29-32] For residents, fellows, and practicing clinicians, resources ranging from career planning tools[33] to federal guidance on the specific health impacts of climate change are also available.[1,34]

There are abundant opportunities for professional societies to increase their engagement; only three of the twelve professional societies reviewed were active on climate change

issues. Policy statements can provide an authoritative voice in support of climate and health education, climate smart healthcare systems, and climate resilient communities. Affiliation with national organizations such as the Medical Society Consortium on Climate and Health is another avenue for action – one that the medical societies in Vermont, Rhode Island, and Massachusetts have already taken.[35]

While uneven, the overall trajectory of climate change and health activity in New England is one of rapid expansion and improving capabilities. In the brief period since completion of data collection for this review, a new regional fellowship program focused on climate and health advocacy has become available.[36] In addition, the climate and health activity of nursing programs, hospitals, and other organizations that were not reviewed in this study is substantial; examples include the Nurse's Climate Challenge,[37] hospital programs,[38] state government programs,[39,40] the launch of the *Journal of Climate Change and Health*[41], the inclusion of the climate crisis as key topic area in the *New England Journal of Medicine*,[42] and special issues of regional publications focused on climate change.[43,44] While many of these initiatives are associated with large research universities that are already active in this area, they provide a model for future engagement with this issue throughout New England.

Students, trainees, and healthcare professionals now have access to an increasing variety of education and policy materials related to climate change and health. As New Englanders face escalating health risks from hurricanes, extreme rainfall, heat waves, vector-borne disease, sea level rise, and other hazards, it is important that these education and policy resources be extended to benefit health professionals and patients throughout the region.

LIMITATIONS

As a review of publicly available material rather than a survey of educators and administrators, our methodology assesses information that is accessible to the general public and intentionally mimics the approach students, prospective students, and healthcare workers may take when seeking information on offerings at their institutions, but also has several limitations. All information was gathered from public internet sources, and as such may have missed initiatives that were not described on the internet or were behind firewalls, password protection, or other barriers. Some relevant programs may not have been prioritized by search engines using our search criteria; the term "environment" was not used in structured searches as it led to a large number of results unrelated to climate change. As searches were restricted to health education institutions, some potentially relevant initiatives did not meet inclusion criteria. As a result, initiatives including an elective course on climate change and health,[15] a chapter of Medical Students for a Sustainable Future,[14] and a university-level center working on environmental issues including health impacts of climate change[45] were not identified by structured searches or included in our analysis.

CONCLUSION

Climate change threatens patients, healthcare systems, and future clinicians. This review reveals uneven access to education and policy guidance on the subject of climate change and health; while some academic centers have many climate-related initiatives, the majority of the institutions reviewed do not publicly describe any offerings at all, and only a quarter of the medical and physician assistant associations reviewed are publicly engaged with this issue. Health professionals, administrators, and students have an opportunity to make education on this topic more accessible and to advocate for climate change action through state medical and physician assistant associations.

References

1. USGCRP, 2018: Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, 1515 pp. doi: 10.7930/NCA4.2018.
2. Salas RN, Friend TH, Bernstein A, Jha AK. Adding A Climate Lens To Health Policy In The United States. Health Aff (Millwood). 2020 Dec;39(12):2063-2070. PMID: 33284694.
3. C-CHANGE Center for Climate, Health and the Global Environment. Harvard T.H. Chan School of Public Health. 2021. Accessed September 10, 2021. URL: https://www.hsph.harvard.edu/c-change/
4. Yale Center on Climate Change and Health. Yale School of Public Health. 2021. Accessed September 10, 2021. URL: https://ysph.yale.edu/climate/
5. Program on Climate and Health. Boston University School of Public Health. 2021. Accessed September 10, 2021. URL: https://sites.bu.edu/climateandhealth/
6. Boston Hospitals Cut Energy Use by 6% Despite Continued Facility Growth. Healthcare Without Harm. December 11, 2014. Accessed September 10, 2021. URL: https://noharm-uscanada.org/articles/press-release/us-canada/boston-hospitals-cut-energy-use-6-despite-continued-facility-growth
7. Sherman J, Le C, Lamers V, Eckelman M. Life cycle greenhouse gas emissions of anesthetic drugs. Anesth Analg. 2012 May;114(5):1086-90. doi: 10.1213/ANE.0b013e31824f6940. Epub 2012 Apr 4. PMID: 22492186.
8. Hsu S, Thiel CL, Mello MJ, Slutzman JE. Dumpster Diving in the Emergency Department. West J Emerg Med. 2020 Aug 24;21(5):1211-1217. doi: 10.5811/westjem.2020.6.47900. PMID: 32970577; PMCID: PMC7514403.
9. Municipal Vulnerability Preparedness Program. Commonwealth of Massachusetts. 2021. Accessed September 10, 2021. URL: https://www.mass.gov/municipal-vulnerability-preparedness-mvp-program
10. Howard, B. Climate change in the Curriculum. AAMC News. October 10, 2019. URL: https://www.aamc.org/news-insights/climate-change-curriculum
11. Ryan EC, Dubrow R, Sherman JD. Medical, nursing, and physician assistant student knowledge and attitudes toward climate change, pollution, and resource conservation in health care. BMC Med Educ. 2020;20(1):200. Published 2020 Jun 23. doi:10.1186/s12909-020-02099-0
12. Kotcher J, Maibach E, Miller J, Campbell E, Alqodmani L, Maiero M, Wyns A. Views of health professionals on climate change and health: a multinational survey study. Lancet Planet Health.

2021 May;5(5):e316-e323. doi: 10.1016/S2542-5196(21)00053-X. Epub 2021 Apr 8. PMID: 33838130; PMCID: PMC8099728.
13. Lemery J, Balbus J, Sorensen C, Rublee C, Dresser C, Balsari S, Calvello Hynes E. Training Clinical And Public Health Leaders In Climate And Health. Health Aff (Millwood). 2020 12; 39(12):2189-2196. PMID: 33284695.
14. Medical Students for a Sustainable Future: Partnerships. 2021. Accessed September 10, 2021. URL: https://ms4sf.org/partnerships/
15. The Health Effects of Climate Change. Harvard University. 2021. Accessed September 10, 2021. URL: https://online-learning.harvard.edu/course/health-effects-climate-change?delta=0
16. Climate Change and Health Certificate. Yale School of Public Health. 2021. Accessed September 10, 2021. URL: https://ysph.yale.edu/cchcert/
17. Climate and Human Health Fellowship. Beth Israel Deaconess Medical Center. 2021. Accessed September 10, 2021. URL: https://www.bidmc.org/medical-education/medical-education-by-department/emergency-medicine/emergency-medicine-fellowship-programs/climate-and-human-health-fellowship
18. Climate Change & Health Symposium 2021: The Intersection of Climate Change, COVID-19, and Structural Racism. MGH Institute of Health Professions. 2021. Accessed September 10, 2021. URL: https://www.mghihp.edu/climate2021
19. The Climate Crisis and Clinical Practice Symposium. Harvard T.H. Chan School of Public Health. 2019. Accessed September 10, 2021. URL: https://www.hsph.harvard.edu/c-change/events/the-climate-crisis-and-clinical-practice-symposium/
20. Hathaway J, Maibach EW. Health implications of climate change: a review of the literature about the perception of the public and health professionals. Curr Environ Health Rep. 2018; 5: 197-204
21. Hubbert B, Ahmed M, Kotcher J, Maibach E, Sarfaty M. Recruiting health professionals as sustainability advocates. Lancet Planet Health. 2020; 4: e445-e446
22. How results are automatically generated. Google. 2021. Accessed September 10, 2021. URL: https://www.google.com/search/howsearchworks/how-search-works/ranking-results/
23. R Core Team (2019). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/.
24. Medical Students Organize Climate Elective. UMass Chan Medical School. 2021. Accessed September 12, 2021. URL: https://www.umassmed.edu/growinggreen/newsletter/student-climate-elective/
25. Climate Change Curriculum. UMass Chan Medical School. 2021. Accessed September 12, 2021. URL: https://www.umassmed.edu/oume/initiatives/climate-change-curriculum/
26. Climate and Health Curriculum Reform Guide. Medical Students for a Sustainable Future. 2021. Accessed September 13, 2021. URL: https://ms4sf.org/climate-and-health-curriculum-reform-guide/
27. Physician Network Resource Library. Healthcare Without Harm. 2021. Accessed September 13, 2021. URL: https://sites.google.com/hcwh.org/physiciansnetwork/home
28. GCCHE Knowledge Bank. The Medical Society Consortium on Climate and Health. 2021. Accessed September 13, 2021. URL: https://medsocietiesforclimatehealth.org/educate/health-educators/
29. Lemery J, Sorensen C, Balbus J, Newman L, Davis C, Reno E, Salas R, Hynes EC. Science Policy Training for a New Physician Leader: Description and Framework of a Novel Climate and Health Science Policy Fellowship. AEM Educ Train. 2019 Apr 1;3(3):233-242. doi: 10.1002/aet2.10323. PMID: 31360816; PMCID: PMC6637012.
30. Limaye VS, Grabow ML, Stull VJ, Patz JA. Developing A Definition Of Climate And Health Literacy. Health Aff (Millwood). 2020 Dec;39(12):2182-2188. PMID: 33284692; PMCID: PMC8428792.
31. Cook C, Demorest S, Schenk E. Nurses and Climate Action. AJN, American Journal of Nursing: April 2019 - Volume 119 - Issue 4 - p 54-60 doi: 10.1097/01.NAJ.0000554551.46769.49
32. Neal-Boylan L, Breakey S, Nicholas PK. Integrating Climate Change Topics Into Nursing Curricula. J Nurs Educ. 2019 Jun 1;58(6):364-368. doi: 10.3928/01484834-20190521-09. PMID: 31157907.
33. Rublee C, Dresser C, Linstadt H, Dahl R, Moretti K. RAMS Roadmaps: Climate Change. Society for Academic Emergency Medicine. 2021. Accessed September 13, 2021. https://www.saem.org/detail-pages/publication/rams-roadmaps-climate-change
34. Climate and Health. United States Centers for Disease Control and Prevention. 2021. Accessed September 13, 2021. https://www.cdc.gov/climateandhealth/default.htm
35. Affiliates. The Medical Society Consortium on Climate & Health. 2021. Accessed September 10, 2021. URL: https://medsocietiesforclimatehealth.org/about/affiliates/
36. Climate Health Organizing Fellows Program. Cambridge Health Alliance Center for Health Equity Education and Advocacy. 2021. Accessed September 10, 2021. URL: https://www.healthequity.challiance.org/climate-health
37. Nurses Climate Challenge. 2021. Accessed September 10, 2021. URL: https://nursesclimatechallenge.org/
38. Center for the Environment and Health. Massachusetts General Hospital. 2021. Accessed September 10, 2021. URL: https://www.massgeneral.org/environment-and-health
39. Climate and Health. Commonwealth of Massachusetts. 2021. Accessed September 10, 2021. URL: https://www.mass.gov/climate-and-health
40. Climate Change and Health Program. State of Rhode Island. 2021. Accessed September 10, 2021. URL: https://health.ri.gov/programs/detail.php?pgm_id=174
41. The Journal of Climate Change and Health. Elsevier. 2021. Accessed September 10, 2021. URL: https://www.journals.elsevier.com/the-journal-of-climate-change-and-health
42. Climate Crisis and Health. The New England Journal of Medicine. 2021. Accessed September 13, 2021. URL: https://www.nejm.org/climate-crisis?query=main_nav_lg
43. Climate Change and it's Impact on Public Health. Worcester Medicine, 72:2. May/June 2011. Accessed September 13, 2021. https://www.wdms.org/wp-content/uploads/2020/08/womed_may-jun11.pdf
44. Climate Change. Worcester Medicine, 90:2. March/April 2021. Accessed September 13, 2021. URL: https://issuu.com/wdms/docs/wdms_worcestermedicine_marapr_v09digitaledition
45. Human Health Programs. Harvard University Center for the Environment. 2021. Accessed September 14, 2021. URL: https://environment.harvard.edu/human-health

Acknowledgment

This project was supported by the CrisisReady initiative at Harvard and Direct Relief. Dr. Caleb Dresser's work was also supported by the Climate and Health Foundation.

Authors

Caleb Dresser, MD, MPH, Instructor of Emergency Medicine at Harvard Medical School.

Emily Gentile, BS, MD candidate at University of Massachusetts Chan Medical School.

Rachael Lyons, BS, MD candidate at University of Massachusetts Chan Medical School.

Kali Sullivan, BS, MD candidate at Tufts University School of Medicine.

Satchit Balsari, MD, MPH, Assistant Professor of Emergency Medicine at Harvard Medical School and Harvard T.H. Chan School of Public Health.

Disclosures

The authors have no relevant financial disclosures.

Disclaimer

The views expressed herein are those of the authors and do not necessarily reflect the views of the institutions with which they are affiliated.

Correspondence

Caleb Dresser, MD, MPH
Department of Emergency Medicine
1 Deaconess Road, Boston, MA 02215
cdresser@bidmc.harvard.edu