



December 13, 2021

**Comments in Response to Request for Information:  
AHRQ's Role in Climate Change and Environmental Justice**

The Institute for Policy Integrity at New York University School of Law (Policy Integrity)<sup>1</sup> offers the following comments in response to the Agency for Healthcare Research and Quality's (AHRQ) Request for Information on AHRQ's Role in Climate Change and Environmental Justice. Policy Integrity is a non-partisan think tank dedicated to improving the quality of government decisionmaking through advocacy and scholarship in the fields of administrative law, economics, and public policy. Policy Integrity's research and advocacy has examined the direct and indirect impacts of climate change on public health.<sup>2</sup> It has also sought to push federal and state agencies to do a better job of taking environmental justice into account with respect to broad approaches to decisionmaking and to particular decisions.<sup>3</sup>

AHRQ's mission is "to produce evidence to make health care safer, higher quality, more accessible, equitable, and affordable, and to . . . make sure that the evidence is understood and used."<sup>4</sup> This mission is entirely compatible with consideration for interactions between climate change and environmental justice and the healthcare system and healthcare outcomes. Indeed, even if President Biden's Executive Order 14,008 had not directed federal agencies to consider climate change and environmental justice,<sup>5</sup> AHRQ would be failing to carry out its mission if it neglected these issues, which bear directly and indirectly on healthcare quality.

Policy Integrity therefore encourages AHRQ to embed climate change and environmental justice in its work, to coordinate with other agencies on data collection and to ensure

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<sup>1</sup> These comments do not represent the views, if any, of New York University School of Law.

<sup>2</sup> E.g., Kevin Cromar et al., *Health Impacts of Climate Change as Contained in Economic Models Estimating the Social Cost of Carbon Dioxide*, 5 GEOHEALTH e2021GH000405 (2021); MATT BUTNER, ILIANA PAUL & BURCIN UNEL, INST. FOR POL'Y INTEGRITY, MAKING THE MOST OF DISTRIBUTED ENERGY RESOURCES: SUBREGIONAL ESTIMATES OF THE ENVIRONMENTAL VALUE OF DISTRIBUTED ENERGY RESOURCES IN THE UNITED STATES (2020).

<sup>3</sup> E.g., ILIANA PAUL, CHRISTINE PRIES & MAX SARINSKY, INST. FOR POL'Y INTEGRITY, IMPROVING ENVIRONMENTAL JUSTICE ANALYSIS: EXECUTIVE ORDER 12,898 AND CLIMATE CHANGE (2021); Comments of the Institute for Policy Integrity to the Nuclear Regulatory Commission re Providing for Meaningful Participation by Environmental Justice Communities, NRC-2021-0137 (Oct. 29, 2021).

<sup>4</sup> *Mission and Budget*, AGENCY FOR HEALTHCARE RSCH. & QUALITY, <https://www.ahrq.gov/cpi/about/mission/index.html> (last visited Dec. 9, 2021).

<sup>5</sup> Exec. Order No. 14,008, 86 Fed. Reg. 7619, 7622 (Jan. 27, 2021) (directing all elements of the federal government to "drive assessment, disclosure, and mitigation of climate pollution and climate-related risks").

interoperability, and to identify gaps in awareness and understanding about related topics that AHRQ is uniquely suited to fill. Specifically, we recommend that AHRQ:

- Collaborate with other agencies to address issues related to climate change, environmental justice, health, and disaster management;
- Inform and support efforts to reduce the healthcare sector’s energy use and contribution to greenhouse gas emissions;
- Help prepare healthcare providers, facilities, and their surrounding communities to respond to extreme heat; and
- Contribute to nationwide efforts to improve maternal and child health outcomes.

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**1. In general, AHRQ’s approach to its mission should reflect that climate change and environmental injustice affect healthcare quality**

Healthcare quality, the core of AHRQ’s mission,<sup>6</sup> overlaps with climate change and environmental justice in several ways:

*Climate change affects individual and public health.* The extent and degree of the adverse health impacts of climate change are increasingly well understood.<sup>7</sup> Heat and extreme weather, wildfire, flooding, and other effects have caused numerous leading experts to raise the alarm about what is in store for human health.<sup>8</sup>

*Climate change affects healthcare system capacity.* Climate change’s impacts on the healthcare system’s capacity to deliver quality care are significant and adverse.<sup>9</sup> They include the direct effects of extreme events, which can compromise facilities’ ability to operate and displace the healthcare providers who work in them.<sup>10</sup> They also include indirect effects like supply chain disruptions.<sup>11</sup>

*The healthcare system contributes to the greenhouse gas emissions that cause climate change.* While the healthcare sector in many countries consumes large volumes of energy and is thus responsible for sizable contributions to greenhouse gas emissions in much of the world, the U.S. stands out both for having a healthcare sector that is disproportionately large and emissions-intensive.<sup>12</sup>

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<sup>6</sup> AHRQ is guided by the Institute of Medicine’s characterization of healthcare quality, which encompasses six “domains:” safety, effectiveness, patient-centeredness, timeliness, efficiency, and equity. INSTITUTE OF MEDICINE, CROSSING THE QUALITY CHASM: A NEW HEALTH SYSTEM FOR THE 21ST CENTURY 5–6 (2001) [hereafter “IOM”].

<sup>7</sup> Kristie L. Ebi et al., Human Health, in IMPACTS, RISKS, AND ADAPTATION IN THE UNITED STATES: FOURTH NATIONAL CLIMATE ASSESSMENT VOL. II 572 (D.R. Reidmiller et al., eds. 2018) [hereafter NCA4]; ALLISON CRIMMINS ET AL., U.S. GLOBAL CHANGE RESEARCH PROGRAM, THE IMPACTS OF CLIMATE CHANGE ON HUMAN HEALTH IN THE UNITED STATES: A SCIENTIFIC ASSESSMENT (2016).

<sup>8</sup> Lukoye Atwoli et al, *Call for Emergency Action to Limit Global Temperature Increases, Restore Biodiversity, and Protect Health*, 385 NEW ENG. J. MED. 1134 (2021) (“Health is already being harmed by global temperature increases and the destruction of the natural world, a state of affairs health professionals have been bringing attention to for decades.”); Andy Haines et al., *Climate Change and Human Health: Impacts, Vulnerability, and Public Health*, 120 PUB. HEALTH 585, 586, 589 (2006).

<sup>9</sup> NCA4, *supra* note 7, at 550–51, Box 14.3 (Healthcare: Hospitals at Risk from Storm Surge by Hurricanes).

<sup>10</sup> Kevin Kloesel et al., *Southern Great Plains*, in IMPACTS, RISKS, AND ADAPTATION IN THE UNITED STATES: FOURTH NATIONAL CLIMATE ASSESSMENT, VOL. II, 987, 992–93 box 23.1 (D.R. Reidmiller et al. eds. 2018); Paul J. Schramm et al., Ctrs. for Disease Control & Prevention, *Heat-Related Emergency Department Visits During the Northwestern Heat Wave — United States*, 70 MORBIDITY & MORTALITY WEEKLY RPT. 1020 (2021), [https://www.cdc.gov/mmwr/volumes/70/wr/mm7029e1.htm?s\\_cid=mm7029e1\\_w](https://www.cdc.gov/mmwr/volumes/70/wr/mm7029e1.htm?s_cid=mm7029e1_w).

<sup>11</sup> NAT’L ACADEMIES OF SCIS., ENG’G & MED., STRENGTHENING POST-HURRICANE SUPPLY CHAIN RESILIENCE: OBSERVATIONS FROM HURRICANES HARVEY, IRMA, AND MARIA 37 (2020).

<sup>12</sup> Matthew J. Eckelman et al., *Health Care Pollution and Public Health Damage in the United States: An Update*, 39 HEALTH AFFAIRS 2071, 2075 (2020) (estimating that the U.S. healthcare sector accounts for about 8.5% of national greenhouse gas emissions, and that the level of those emissions grew by 6% from 2010 to 2018); *see also* Victor J. Dzau et al., *Decarbonizing the U.S. Health Sector — A Call to Action*, 385 NEW ENG. J. MED. 2117, 2117 (2021).

*Dealing with environmental injustice is integral to ensuring healthcare quality.* Equity is one of the six healthcare quality domains at the foundation of AHRQ’s mission—healthcare should “not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status.”<sup>13</sup> Environmental injustice, which has long been recognized as the root cause of higher rates of morbidity and mortality in low-income communities of color,<sup>14</sup> interacts with income and race-related inequities in the provision of healthcare to the further detriment of those burdened with disproportionate exposure to pollution.<sup>15</sup>

## **2. AHRQ should collaborate with other agencies to address issues related to climate change, environmental justice, health, and disaster management**

The Biden Administration’s climate change policy seeks to “implement a Government-wide approach that reduces climate pollution,” “increases resilience to the impacts of climate change,” “protects public health,” and “delivers environmental justice,” among other goals.<sup>16</sup> Agencies’ implementation of this directive in relation to public health issues and health outcomes will require access to robust and informative data sources, as well as interagency coordination to avoid duplication and take advantage of synergies. In its Request for Information, AHRQ asked what its role should be “at the intersection of climate change, healthcare, and environmental justice to maximize the agency’s impact.”<sup>17</sup> AHRQ can play an important role in this government-wide effort by gathering, organizing, analyzing, and providing access to data—and to its expertise on how to interpret and make use of this data. To be most effective, AHRQ should act in coordination with other agencies working on climate change, environmental justice, health, and disaster management.

### **A. AHRQ should identify and pursue opportunities to collaborate with other agencies that either maintain datasets relevant to its RFI or regulate in relevant areas**

Many agencies maintain data that could support efforts to “help build the healthcare system’s resilience to climate threats, reduce the healthcare industry’s contribution to climate

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<sup>13</sup> IOM, *supra* note 6, at 40.

<sup>14</sup> *Environmental Racism Collection: Exposure and Health Inequities in Black Americans*, ENV’T HEALTH PERSPECTIVES, <https://ehp.niehs.nih.gov/curated-collections/environmental-racism> (last visited Dec. 9, 2021) (listing recent studies that characterize nature, prevalence, and impacts of environmental racism on health outcomes); *see also* Paul Mohai, David Pellow & J. Timmons Roberts, *Environmental Justice*, 34 ANN. REV. ENV’T & RESOURCES 405 (2009) (discussing definitions of “environmental racism” and “environmental justice,” and the history of those terms).

<sup>15</sup> Renee N. Salas, *Environmental Racism and Climate Change — Missed Diagnoses*, 385 NEW ENG. J. MED. 967 (2021).

<sup>16</sup> Exec. Order No. 14,008, 86 Fed. Reg. 7619, 7622 (Jan. 27, 2021).

<sup>17</sup> Request for Information: AHRQ’s Role in Climate Change and Environmental Justice, 86 Fed. Reg. 56,953, 56,953 (Oct. 13, 2021) [hereinafter “AHRQ Request for Information”].

change while increasing sustainability, and address environmental justice issues in healthcare.”<sup>18</sup> Federal agencies maintain datasets relevant to climatic shifts, disaster response, energy consumption, and exposure to pollutants. We note six of these agencies here:

*The National Oceanic and Atmospheric Administration (NOAA)* maintains the National Centers for Environmental Information, which provide over 37 petabytes of data,<sup>19</sup> including daily temperature, degree day, precipitation, snowfall, and climate probability data for U.S. weather stations,<sup>20</sup> and both 15-minute and hourly precipitation data for weather stations across the United States.<sup>21</sup> These datasets—in addition to the many other climate-related datasets that NOAA maintains—could be useful to AHRQ in understanding the impacts of shifts in climatic factors on public health.

*The Federal Emergency Management Agency (FEMA)* coordinates the federal government’s response to disasters, many of which are growing in frequency and severity as a result of climate change.<sup>22</sup> FEMA maintains datasets related to disaster declarations, actions that have been taken that reduce risks from natural disasters, and flood insurance claims, among other data sources.<sup>23</sup> FEMA and AHRQ are natural partners when it comes to integrating preparedness and resilience into the work of ensuring healthcare quality. Collaborating with FEMA could also address important environmental justice issues that have arisen concerning FEMA’s response to natural disasters. For instance, as a March 2021 memorandum by the Texas Advisory Committee to the U.S. Commission on Civil Rights noted in assessing government responses to hurricanes, “there is minimal disaggregated FEMA data that would provide insight on disaster response or verify that procedures and operations are equitable.”<sup>24</sup> To further its environmental justice goals, AHRQ could help FEMA to address that data gap.

*The U.S. Energy Information Agency (EIA)* is an independent agency within the Department of Energy that “collects, analyzes, and disseminates independent and impartial energy information to promote sound policymaking” among other goals.<sup>25</sup> As AHRQ seeks to

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<sup>18</sup> *Id.*

<sup>19</sup> NOAA NAT’L CTRS. FOR ENV’T INFO., <https://www.ncei.noaa.gov/> (last visited Dec. 9, 2021).

<sup>20</sup> *Climate Data Online: Dataset Discovery*, NOAA NAT’L CTRS. FOR ENV’T INFO, <https://www.ncdc.noaa.gov/cdo-web/datasets> (last visited Dec. 9, 2021).

<sup>21</sup> *Id.*

<sup>22</sup> *U.S. Billion-Dollar Weather and Climate Disasters*, NOAA NAT’L CTRS. FOR ENV’T INFO., <https://www.ncdc.noaa.gov/billions/time-series> (last visited Dec. 9, 2021).

<sup>23</sup> *OpenFEMA Datasets*, FED. EMERGENCY MGMT. AGENCY, <https://www.fema.gov/about/openfema/data-sets> (last visited Dec. 9, 2021).

<sup>24</sup> TEXAS ADVISORY COMMITTEE TO THE U.S. COMMISSION ON CIVIL RIGHTS, GOVERNMENT RESPONSE TO HURRICANE DISASTERS: AN ADVISORY MEMORANDUM OF THE TEXAS ADVISORY COMMITTEE TO THE U.S. COMMISSION ON CIVIL RIGHTS 10 (Mar. 2021), <https://www.usccr.gov/files/2021/05-19-TX-SAC-Government-Response-to-Hurricane-Disasters-in-Texas.pdf>.

<sup>25</sup> *Mission and Overview*, U.S. ENERGY INFO. ADMIN., [https://www.eia.gov/about/mission\\_overview.php](https://www.eia.gov/about/mission_overview.php) (last visited Dec. 9, 2021).

understand and reduce the carbon footprint of healthcare systems in different regions, engaging with EIA could potentially provide important context on energy consumption patterns.

*The Centers for Medicare and Medicaid Services (CMS)*, a division of the Department of Health and Human Services, administers Medicare and assists with states' administration of Medicaid. It is responsible for nearly one-quarter of annual healthcare spending in the U.S.<sup>26</sup> CMS thus plays a vitally important role in procuring all types of medical services and equipment. As AHRQ seeks to reduce the carbon footprint of the healthcare sector, it could pursue multiple forms of collaboration with CMS.

*The Center for Disease Control and Prevention (CDC)* has established a climate change and health program, and maintains datasets related to drought, extreme heat, heat-related hospitalizations and mortality, flooding, and smoke exposure due to wildfire.<sup>27</sup> It is also well-positioned to make public recommendations on how individuals can protect themselves from climate-driven health threats. In addition, as discussed further below, we suggest that AHRQ use its unique competencies to help inform and support the CDC's work on maternal and child health.<sup>28</sup>

*The Environmental Protection Agency (EPA)* maintains a wide variety of datasets directly relevant to environmental justice and climate change. For example, EPA's Environmental Justice Screening and Mapping Tool (EJSCREEN) combines environmental and demographic indicators for particular geographic areas, and provides environmental justice indexes that highlight disparate outcomes for different demographic groups.<sup>29</sup> As AHRQ seeks to deepen its understanding of how environmental justice, climate change, and public health outcomes intersect, collaboration with EPA will be key.

Because data held by federal agencies is not necessarily always publicly available, this list merely provides a starting point: other agencies likely also maintain relevant datasets and work in relevant areas. AHRQ should conduct comprehensive outreach to agencies across the federal government to identify promising potential collaborations. AHRQ can also serve as a resource to other agencies fulfilling the Biden administration's mandate to incorporate climate and environmental justice considerations into their decisions.<sup>30</sup> For instance, earlier this year, the

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<sup>26</sup> CTRS. FOR MEDICARE AND MEDICAID SERVICES, *Nation's Health Dollar: Where It Came From, Where It Went*, CTRS. FOR MEDICARE & MEDICAID SERVS., <https://www.cms.gov/files/document/nations-health-dollar-where-it-came-where-it-went.pdf> (last visited Dec. 9, 2021) (showing that Medicare and federal Medicaid spending amount to 31% of health insurance expenditures, and thus 23% of national healthcare spending).

<sup>27</sup> *National Environmental Public Health Tracking: Climate Change*, CTRS. FOR DISEASE CONTROL & PREVENTION, <https://www.cdc.gov/nceh/tracking/topics/ClimateChange.htm> (last visited Dec. 9, 2021); *CDC's Climate and Health Program*, CTRS. FOR DISEASE CONTROL & PREVENTION, <https://www.cdc.gov/climateandhealth/> (last visited Dec. 9, 2021).

<sup>28</sup> See *infra* at 15.

<sup>29</sup> *EJSCREEN: Environmental Justice Screening and Mapping Tool, What is EJScreen?* U.S. ENV'T PROTECTION AGENCY, <https://www.epa.gov/ejscreen/what-ejscreen>; <https://www.epa.gov/ejscreen/environmental-justice-indexes-ejscreen> (accessed Dec. 9, 2021).

<sup>30</sup> Exec. Order No. 14,008, 86 Fed. Reg. at 7629 ("Agencies shall make achieving environmental justice part of their missions by developing programs, policies, and activities to address the disproportionately high and adverse human

Occupational Safety and Health Administration (OSHA) published an advanced notice of proposed rulemaking on extreme heat that directly seeks data sources and research regarding the impact of extreme heat on a workplace setting.<sup>31</sup> OSHA requested that commenters refer the agency to “data that provide . . . information about the scope of magnitude of injuries, illnesses, and fatalities related to occupational heat exposure;”<sup>32</sup> data (other than workers’ compensation data) about the incidence and prevalence of heat-related injuries, illness or fatalities in particular occupations and industries;<sup>33</sup> information on potential sources of underreporting of occupational heat-related injuries, illnesses, and fatalities;<sup>34</sup> and information relating adverse outcomes from heat to regional differences.<sup>35</sup> AHRQ’s expertise on health outcomes throughout the United States—along with its research and analytics capabilities—could be of use to OSHA as it engages with this topic through rulemaking. As the rest of the government responds to the Biden administration’s call to integrate climate change into its regulatory processes, similar opportunities to provide expertise to other agencies on the impact of climate change on health outcomes will likely continue to arise.

## **B. AHRQ should facilitate data collection and use across the federal government**

AHRQ has asked what role it should play in “identifying, gathering, and disseminating data on climate-related risks and impacts, and making the information timely and easily available for researchers, healthcare systems, and policy makers.”<sup>36</sup> AHRQ should consider applying its analytical and research expertise in one or more of the following ways to ensure that key data produced by government actors are available for researchers and decisionmakers.

*Identify opportunities to improve the compatibility of relevant datasets.* While the issues of climate change, environmental health, environmental justice, healthcare quality, and health outcomes are all related in numerous ways, the datasets developed by agencies and others to help understand those different areas of research and decisionmaking are often not developed with eventual interdisciplinary comparison in mind. AHRQ can survey agencies and non-governmental researchers to identify where greater compatibility would be helpful and then support agencies in making their datasets more compatible with other agencies’ datasets.

*Identify cross-cutting topics related to climate change, environmental justice, and health, and recommend coordinated approaches to data collection efforts across the federal government.* Through interactions with researchers and other agencies, AHRQ could identify

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health, environmental, climate-related and other cumulative impacts on disadvantaged communities, as well as the accompanying economic challenges of such impacts.”).

<sup>31</sup> Heat Injury and Illness Prevention in Outdoor and Indoor Work Settings, 86 Fed. Reg. 59,309 (proposed Oct. 27, 2021) (to be codified at 29 CFR pts. 1910, 1915, 1917, 1918, 1926, and 1928) [hereinafter “OSHA Advanced Proposal”].

<sup>32</sup> OSHA Advanced Proposal, 86 Fed. Reg. at 59,310.

<sup>33</sup> *Id.* at 59,322.

<sup>34</sup> *Id.* at 59,311.

<sup>35</sup> *Id.* at 59,313.

<sup>36</sup> AHRQ Request for Information, 86 Fed. Reg. at 56,953.



cross-cutting topics related to climate change, environmental justice, and health for which (1) agencies will need additional data to reach informed decisions and (2) there are persistent data gaps across the federal government that fall within the expertise of multiple agencies. In such interactions, AHRQ can make specific recommendations for coordinating interagency data collection efforts.

*Explore how non-traditional datasets might complement or improve federal statistical information on climate-related risks and impacts.* In recent years, the volume and frequency of data collected by non-government actors has increased dramatically.<sup>37</sup> When used ethically and in a way that adequately protects individual privacy, these data can provide valuable information during the immediate response to climate shocks. For instance, by monitoring and analyzing social media feeds, organizations can learn about infrastructure damage and needs on the ground.<sup>38</sup> Moreover, these data can provide important insights into public health issues, complementing traditional statistics.<sup>39</sup> For instance, the World Health Organization has highlighted the potential for data from social media to allow health organizations to better understanding the cause and extent of non-communicable diseases, such as heart disease and depression.<sup>40</sup> While taking account of potential bias in these datasets, AHRQ should explore whether data from these non-traditional sources could play a role in understanding climate resilience and impacts.

### **3. AHRQ should find ways to inform and support efforts to reduce the healthcare sector's energy use and greenhouse gas emissions intensity**

AHRQ is well-positioned to help inform the healthcare sector's efforts to improve the efficiency of care—one of the Institute of Medicine's six domains of quality<sup>41</sup>—and reduce the healthcare sector's contributions to climate change by improving energy efficiency and reducing the emissions intensity of facility operations and inputs. Engaging in this way would also comply with President Biden's Executive Order on Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability, which directs to agencies to increase the sustainability of federal supply chains and prioritize sustainable products in procurement.<sup>42</sup> AHRQ should consider the following steps.

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<sup>37</sup> NAT'L ACAD. SCI., ENG'G, AND MED., *INNOVATIONS IN FEDERAL STATISTICS: COMBINING DATA SOURCES WHILE PROTECTING PRIVACY* 55-71 (Robert M. Groves & Brian A. Harris-Kojetin eds., 2017), <https://www.ncbi.nlm.nih.gov/books/NBK425876/>.

<sup>38</sup> Amir Elichai, *How Big Data Can Help in Disaster Response*, SCIENTIFIC AMERICAN (Dec. 13, 2018), <https://blogs.scientificamerican.com/observations/how-big-data-can-help-in-disaster-response/>.

<sup>39</sup> NAT'L ACAD. SCI., ENG'G, AND MED., *supra* note 37, at 65.

<sup>40</sup> Ran Balicer et al., *Using Big Data for Non-Communicable Disease Surveillance*, 6 LANCET: DIABETES & ENDOCRINOLOGY 595, 596-97 (2018).

<sup>41</sup> *Six Domains of Health Care Quality*, AGENCY FOR HEALTHCARE RSCH. & QUALITY, <https://www.ahrq.gov/talkingquality/measures/six-domains.html> (last visited Dec. 9, 2021).

<sup>42</sup> Exec. Order No. 14,057, 86 Fed. Reg. 70,935, 70,937 (Dec. 8, 2021).



*Identify opportunities to contribute to or coordinate with the National Academy of Medicine’s Action Collaborative on Decarbonizing the U.S. Health Sector.*<sup>43</sup> An undertaking as ambitious as the Action Collaborative will benefit from the sort of authoritative inputs that AHRQ can provide regarding how different proposals might relate to one or more domains of healthcare quality. For instance, AHRQ might lead the development of a research agenda that aims to examine practices or procedures both in terms of health outcomes *and* energy or emissions intensity. The integration of such considerations for healthcare is nascent and would benefit from clear agenda-setting.<sup>44</sup>

*Work with the Centers for Medicare and Medicaid Services to explore how emissions intensity can inform procurement decisions.* Over 80% of the greenhouse gas emissions traceable to the healthcare sector are “scope 3,” meaning that they result from activities in the supply chains that feed into healthcare rather than, say, healthcare facility operations.<sup>45</sup> As such, procurement decisions are critically important to reducing the sector’s emissions intensity. Further, President Biden’s executive order on sustainability directs agencies making procurement and purchasing decisions to “prioritiz[e]” products that reduce waste and “maximiz[e] environmental benefits”<sup>46</sup> Integrating consideration for climate into procurement decisions means requiring bidders to indicate in meaningful ways the greenhouse gas emissions resulting from their operations and then giving weight to different bidders’ relative emissions intensities.<sup>47</sup> Specifying exactly what sort of information should be provided with bids and how purchasing institutions should interpret that information are each complex tasks that would benefit from guidance by an entity like AHRQ.

*Identify and promote existing rubrics, toolkits, and best practices.* AHRQ’s position and expertise enables it to examine critically various approaches currently in use in the healthcare sector and to identify those that improve the efficiency of healthcare. Thus, AHRQ should consider spotlighting exemplary approaches to emissions reduction and energy efficiency

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<sup>43</sup> *Action Collaborative on Decarbonizing the U.S. Health Sector*, NAT’L ACAD. MED., <https://nam.edu/programs/climate-change-and-human-health/action-collaborative-on-decarbonizing-the-u-s-health-sector/> (last visited Dec. 8, 2021); *see also* Dzau et al., *supra* note 12.

<sup>44</sup> *See* ALISON DELGADO, KEVIN KEENE & NORA WANG, PACIFIC NW. NAT’L LAB’Y, INTEGRATING HEALTH AND ENERGY EFFICIENCY IN HEALTHCARE FACILITIES (2021) (referring to healthcare facilities as an “opportunity space” and identifying limited research into healthcare-specific opportunities for improvements to building design with the dual aims of health and energy efficiency).

<sup>45</sup> Eckelman et al., *supra* note 12, at 2075.

<sup>46</sup> Exec. Order No. 14,057, 86 Fed. Reg. at 70,937.

<sup>47</sup> *See* MAX SARINSKY, BRIAN CANFIELD, BRANDON HO, & ANGELA PARNAY, INST. FOR POL’Y INTEGRITY, BROADENING THE USE OF THE SOCIAL COST OF GREENHOUSE GASES IN FEDERAL POLICY 26-28 (2021) (discussing the role that the social cost of greenhouse gases can play in incorporating consideration for climate change into federal procurement decisions).

improvement. Those approaches might be practices by particular institutions or facilities,<sup>48</sup> or rubrics like the one created by the American Society for Health Care Engineering.<sup>49</sup>

#### **4. AHRQ should explore ways to help prepare healthcare providers, facilities, and their surrounding communities to respond to extreme heat**

AHRQ should bring its capabilities to bear on the serious and worsening extreme heat threat. Extreme heat is already a significant public health problem in the United States: from 2004 to 2018, an average of 702 heat-related deaths occurred every year.<sup>50</sup> The deadly 2021 heat dome event in the Pacific Northwest illustrated what lies in store as warming trends continue, particularly in regions historically unaccustomed to extreme heat.<sup>51</sup> In addition to killing people, it can also make people sick, either by causing rashes, cramps, heat exhaustion, or heat stroke, or by exacerbating existing health conditions and thereby prompting emergency room visits and hospitalizations that otherwise might not occur.<sup>52</sup> Extreme heat also reflects and reinforces existing inequities, as in more than 70% of counties in the United States, neighborhoods with higher shares of non-white and lower-income residents are exposed to significantly greater ambient heat than wealthier, whiter neighborhoods.<sup>53</sup> In the years to come, as climate change causes more frequent, severe, and lengthy heat events in the United States,<sup>54</sup> increased morbidity and mortality will follow.<sup>55</sup>

AHRQ should mobilize the resources at its disposal to support the healthcare system in addressing heat crises. In particular, AHRQ should help develop the knowledge, tools, and data necessary to assist policymakers and healthcare professionals, who—as the effects of climate

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<sup>48</sup> Vardeep Singh Dhillon & Dilpreet Kaur, *Green Hospital and Climate Change: Their Interrelationship and the Way Forward*, 9 J. CLINICAL & DIAGNOSTIC RSCH. LE01 (2015).

<sup>49</sup> Press Release, Am. Soc’y for Health Care Eng’g, ASHE Launches Energy to Care Dashboard Tool: Hospitals Gain Improved Energy Efficiency (Sept. 23, 2019); *see also* Energy to Care Dashboard, <https://www.energytocare.org/dashboard> (accessed Dec. 10, 2021).

<sup>50</sup> Ambarish Vaidyanathan et al., Ctrs. for Disease Control & Prevention, *Heat-Related Deaths — United States*, 69 MORBIDITY & MORTALITY WEEKLY RPT. 729 (2020), <https://www.cdc.gov/mmwr/volumes/69/wr/pdfs/mm6924a1-H.pdf>.

<sup>51</sup> Paul J. Schramm et al., Ctrs. for Disease Control & Prevention, *Heat-Related Emergency Department Visits During the Northwestern Heat Wave — United States*, 70 MORBIDITY & MORTALITY WEEKLY RPT. 1020 (2021), [https://www.cdc.gov/mmwr/volumes/70/wr/mm7029e1.htm?s\\_cid=mm7029e1\\_w](https://www.cdc.gov/mmwr/volumes/70/wr/mm7029e1.htm?s_cid=mm7029e1_w).

<sup>52</sup> CTRS FOR DISEASE CONTROL & PREVENTION, CLIMATE CHANGE AND EXTREME HEAT EVENTS 4 (n.d.), <https://www.cdc.gov/climateandhealth/pubs/climatechangeandextremeheatevents.pdf>.

<sup>53</sup> Susanne Amelie Benz & Jennifer Anne Burney, *Widespread Race and Class Disparities in Surface Urban Heat Extremes Across the United States*, 9 EARTH’S FUTURE 1 (July 2021).

<sup>54</sup> CDC, *supra* note 52, at 2, <https://www.cdc.gov/climateandhealth/pubs/climatechangeandextremeheatevents.pdf>.

<sup>55</sup> *Id.* at 8-10.

change grow—will increasingly face decisions about what to do before, during, and after a heat event.<sup>56</sup> AHRQ should engage with this issue in one or more of the following ways:

*Publish an annual brief analyzing hospitalizations resulting from extreme heat and cold.* In 2005, AHRQ published a statistical brief that presented data from the Healthcare Cost and Utilization Project on hospitalizations resulting from excessive heat and cold due to weather conditions that year.<sup>57</sup> AHRQ should consider publishing this type of brief annually, whether on its own or in collaboration with another agency. In addition to helping to communicate the magnitude of the extreme heat threat to public health, this sort of annual publication could help government agencies and healthcare systems track the effects of extreme heat on health over time. Regionally specific reporting would likely be especially informative, given the important differences across regions with respect to climate, the built environment, and other factors that inform resilience to heat events.

*Expand the Surge Toolkit and Facility Checklist to address heat events.* This checklist recommends policies and procedures to assist healthcare staff responsible for management, legal issues, facilities, staffing, security, materials management, and transportation planning in the midst of a catastrophic event.<sup>58</sup> In expanding its *Toolkit*, AHRQ may want to look at heat crisis plans that have been developed across the country.<sup>59</sup> For example, Arizona has a comprehensive extreme weather preparedness plan that includes social vulnerability indicators, information about warning systems, and separate toolkits for schools, outdoor workers, and older adults.<sup>60</sup>

*Distill and disseminate information on the impacts of heat on mental health.* Extreme heat has been associated with a range of mental health impacts, including increases in rates of irritability and symptoms of depression, as well as an increase in suicide rates.<sup>61</sup> Extreme heat also poses a disproportionate threat to those suffering from mental illness and exacerbates

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<sup>56</sup> Agency for Healthcare Research and Quality: A Profile, AGENCY FOR HEALTHCARE RSCH. & QUALITY, <https://www.ahrq.gov/cpi/about/profile/index.html> (last visited Dec. 9, 2021).

<sup>57</sup> Chaya T. Merrill, Mackenzie Miller, Claudia Steiner, *Hospital Stays Resulting from Excessive Heat and Cold Exposure Due to Weather Conditions in U.S. Community Hospitals, 2005*, AGENCY FOR HEALTHCARE RSCH. & QUALITY (July 2008), <https://hcup-us.ahrq.gov/reports/statbriefs/sb55.pdf>.

<sup>58</sup> *Surge Toolkit and Facility Checklist*, AGENCY FOR HEALTHCARE RSCH. & QUALITY, <https://www.ahrq.gov/research/shuttered/toolkitchecklist/index.html#contents> (last updated July 2018).

<sup>59</sup> *Heat Wave Guidance for Service Providers*, NYC.GOV, <https://www1.nyc.gov/assets/doh/downloads/pdf/ehs/provider-heat-checklists.pdf> (last updated June 3, 2020); see also *Extreme Weather & Public Health*, ARIZONA DEP'T OF HEALTH SERVS., <https://azdhs.gov/preparedness/epidemiology-disease-control/extreme-weather/heat-safety/index.php#heat-home> (accessed Nov. 14, 2021).

<sup>60</sup> ARIZONA DEP'T OF HEALTH SERVS., *supra* note 59.

<sup>61</sup> *Extreme Heat Contributes to Worsening Mental Health*, AM. PSYCHIATRIC ASS'N (June 30, 2021), <https://www.psychiatry.org/newsroom/news-releases/extreme-heat-contributes-to-worsening-mental-health-especially-among-vulnerable-populations>.

existing mental health conditions.<sup>62</sup> AHRQ can assist healthcare providers by working with research institutions and healthcare administrators to determine how to use existing empirical evidence to better prepare hospitals to deal with the psychological impact that heat waves can have on the populace. The Agency also should consider partnering with the Substance Abuse and Mental Health Services Administration (SAMHSA) to support SAMHSA’s development of a strategy to inform the public of these same impacts.<sup>63</sup>

## **5. AHRQ should contribute to nationwide efforts to improve maternal and child health outcomes**

AHRQ should contribute to federal efforts to address maternal and child health, which is a pressing public health and environmental justice issue that will likely worsen as the climate changes.<sup>64</sup> The United States has the highest maternal mortality rate of any developed country<sup>65</sup>—with 17.4 deaths per 100,000 live births<sup>66</sup>—despite general improvements in healthcare, technology, and access. A shocking two-thirds of these maternal deaths are preventable.<sup>67</sup> Further, disparities exist across race, ethnicity, education level, and socioeconomic status.<sup>68</sup> For instance, non-Hispanic Black women are approximately three times more likely to die from pregnancy-related complications than their white counterparts, a statistic that is robust to controls for education level and socioeconomic status.<sup>69</sup>

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<sup>62</sup> *Id.*

<sup>63</sup> The Substance Abuse and Mental Health Services Administration (SAMHSA) is the agency within the U.S. Department of Health and Human Services that leads public health efforts to advance the behavioral health of the nation to improve the lives of individuals living with mental and substance use disorders and their families. Its mission is to reduce the impact of substance abuse and mental illness on American’s communities. SAMHSA has a number of advisory councils or committees staffed with public members and professions in the field of substance abuse and mental health that help to advance its goals. *See Who We Are*, SUBSTANCE ABUSE & MENTAL HEALTH SERVS. ADMIN., <https://www.samhsa.gov/about-us/who-we-are> (last visited Nov. 28, 2021).

<sup>64</sup> AHRQ has evidently recognized this unmet need. In the FY 2022 budget justification, AHRQ requested a new appropriation of \$7.4 million to “support the Administration’s initiative to improve maternal health.” AGENCY FOR HEALTHCARE RSCH. & QUALITY, BUDGET ESTIMATES FOR APPROPRIATIONS COMMITTEES, FISCAL YEAR 2022 (n.d.), [https://www.ahrq.gov/sites/default/files/wysiwyg/cpi/about/mission/budget/2022/FY2022\\_CJ.pdf](https://www.ahrq.gov/sites/default/files/wysiwyg/cpi/about/mission/budget/2022/FY2022_CJ.pdf)

<sup>65</sup> *See* Jamila K. Taylor, *Structural Racism and Maternal Health Among Black Women*, 48 J.L., MED. & ETHICS 506 (2020).

<sup>66</sup> Taylor, *supra* note 65, at 506.

<sup>67</sup> *See id.*

<sup>68</sup> *See* Elena Fuentes-Afflick et al., *Optimizing Health and Well-Being for Women and Children*, 40 HEALTH AFFAIRS 212, 212 (2021).

<sup>69</sup> *See id.*; Taylor, *supra* note 65, at 506 (citing CDC, NAT’T CTR. HEALTH STAT., MATERNAL MORTALITY (2019), <https://www.cdc.gov/nchs/maternal-mor-tality/index.htm>. Non-Hispanic Black women have worse outcomes than all other racial groups tracked by the CDC. *Id.*

## **A. Maternal and child health in the United States is an issue at the nexus of environmental justice, climate change, and public health**

Improving maternal and child health in the United States requires not only improving the quality of healthcare available to pregnant persons at all stages of pregnancy, but also tackling the longer-term impacts of environmental injustice on healthcare outcomes. Pregnancy makes women more vulnerable to risk factors arising from the local environment:<sup>70</sup> physiological changes during pregnancy, such as high respiratory rates and larger blood volume, can increase women’s vulnerabilities to environmental exposures.<sup>71</sup> Environmental injustice, helps to explain the existence and unequal distribution of the antecedent causes of poor maternal and child health outcomes.

Climate change exacerbates existing risks to pregnant and postpartum people and their infants.<sup>72</sup> Immediate causes of pregnancy-related death such as cardiovascular symptoms, sepsis, and hemorrhage are influenced and exacerbated by environmental causes such as extreme heat, air pollution, and natural disasters.<sup>73</sup> Pregnant women are particularly vulnerable to heat waves.<sup>74</sup> Exposure to high temperatures and air pollution make it more likely that women will give birth to premature, underweight, or stillborn infants—with Black women and babies experiencing higher levels of risk than the rest of the population.<sup>75</sup> Additionally, pregnant women of color will face the added obstacle of environmental injustice, which is associated with slower rates of community recovery from natural disasters.<sup>76</sup> Accordingly, as AHRQ takes steps to address climate change and environmental justice, improving maternal health should be a point of focus.

## **B. AHRQ is well-positioned to contribute to research concerning maternal and child health and improve patient outcomes**

AHRQ can help address factors that negatively affect maternal and child health by supporting research that teases out contributing causes so that they can be more readily addressed, and improving awareness within healthcare institutions and among healthcare

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<sup>70</sup> See Juanita Chinn et al., *Maternal Mortality in the United States: Research, Gaps, Opportunities, and Priorities*, 225 AM. J. OBSTETRICS & GYNECOLOGY 486, 489 (2020) (explaining that maternal mortality disparities are “closely linked with social, economic and/or environmental disadvantage”).

<sup>71</sup> *Id.*; Jacqueline Moya et al., *A Review of Physiological and Behavioral Changes During Pregnancy and Lactation: Potential Exposure Factors and Data Gaps*, 24 J. OF EXPOSURE SCI. & ENVT’L EPIDEMIOLOGY 449, 451-455 (2014).

<sup>72</sup> See Osub Ahmed, *5 Ways To Improve Maternal Health by Addressing the Climate Crisis*, CTR. AM. PROGRESS (2021), <https://americanprogress.org/article/5-ways-improve-maternal-health-addressing-climate-crisis/>.

<sup>73</sup> See *id.*

<sup>74</sup> Rebecca Pass Philipsborn et al., *Climate Change and the Practice of Medicine: Essentials for Resident Education*, 96 ACADEMIC MED. 355–67, 356 (2021).

<sup>75</sup> Bruce Bekker et al., *Association of Air Pollution and Heat Exposure with Preterm Birth, Low Birth Weight, and Stillbirth in the US: A Systematic Review*, 3 JAMA NETWORK OPEN 1 (2020).

<sup>76</sup> See Ahmed, *supra* note 72.

providers. One recent example of the latter type of measure was AHRQ’s 2019 Healthcare Cost and Utilization Project, which examined opioid-related hospital stays among pregnant women and published data revealing race and income disparities in rates of hospitalization.<sup>77</sup>

However AHRQ pursues this issue, it should devote particular effort to improving outcomes among non-Hispanic Black women, who have the worst maternal mortality rates of all racial groups.<sup>78</sup> AHRQ’s Policy on the Inclusion of Priority Populations in Research requires that all priority populations, including women and racial and ethnic minorities, be included in AHRQ research projects involving human subjects.<sup>79</sup>

Moreover, AHRQ can play a particularly important role in addressing this inequity because a large proportion of maternal deaths are preventable—particularly for Black women. For instance, one study of maternal deaths found that 46% of Black maternal deaths and 33% of white maternal deaths were potentially preventable.<sup>80</sup> Preventable maternal deaths often result from inappropriate or delayed diagnoses and treatments, communication failures, or failures to follow policies or procedures.<sup>81</sup> Accordingly, improving quality of care has frequently been found to be a key way to avoid preventable maternal deaths.<sup>82</sup> Indeed, a 2019 research article on this topic found that “[p]rotocols, checklists, triggers (such as maternal early warning criteria), simulation trainings, the provision of coordinated care and crew resource management, team training, staff training, credentialing, and the promotion of a safety culture” have all been recommended by researchers as key interventions to reduce disparities in outcomes.<sup>83</sup> Such interventions to improve the quality of care are also likely to be particularly effective at low-performing hospitals, which serve a disproportionate number of women from racial and ethnic minority backgrounds.<sup>84</sup>

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<sup>77</sup> *Opioid-related Hospitalizations in 2016 Involving Women Who Were Pregnant or Giving Birth*, AGENCY FOR HEALTHCARE RSCH. & QUALITY, (Jan. 2019), <https://www.ahrq.gov/data/infographics/opioid-related-hospitalizations-women-2016.html>.

<sup>78</sup> See Taylor, *supra* note 65, at 506.

<sup>79</sup> *AHRQ Policy on the Inclusion of Priority Populations in Research*, AGENCY FOR HEALTHCARE RSCH. & QUALITY (Feb. 27, 2003), <https://grants.nih.gov/grants/guide/notice-files/not-hs-03-010.html>.

<sup>80</sup> Elizabeth A. Howell, *Reducing Disparities in Severe Maternal Morbidity and Mortality*, 61 CLINICAL OBSTETRICS & GYNECOLOGY 387, 394 (2018).

<sup>81</sup> *Id.*

<sup>82</sup> *Id.*

<sup>83</sup> *Id.*

<sup>84</sup> *Id.*



### **C. AHRQ should support and help inform the CDC’s maternal and child health programs, toolkits, and awareness campaigns**

The CDC has taken on an important role in improving maternal and newborn health outcomes, and AHRQ has already demonstrated that its work can contribute to these efforts. CDC’s “Hear Her” campaign aims to raise awareness of life-threatening warning signs during and after pregnancy and to improve communication between pregnant patients and their healthcare providers. The campaign includes resources for pregnant and postpartum people as well as partners, friends and family, and healthcare providers. Hear Her relies on AHRQ’s Safety Program for Perinatal Care (SPPC), a toolkit which helps labor and delivery units improve patient safety, team communication, and quality of care for mothers and their newborns.<sup>85</sup> AHRQ should build on this work by finding additional ways to support the CDC’s maternal and child health programs.

The CDC’s Division of Reproductive Health has published a variety of reports, toolkits, and infographics to address maternal mortality in the United States with which AHRQ might productively engage. For instance, the Pregnancy Mortality Surveillance System (PMSS) tracks pregnancy-related mortality to better understand the risk factors associated with maternal deaths in the United States. PMSS collects data from death records, birth records, and additional state- and city-wide sources to calculate the pregnancy-related mortality rate. AHRQ should explore ways to supplement this effort by conducting or coordinating research into causes of maternal mortality.

Another potential point of collaboration is the Enhancing Reviews and Surveillance to Eliminate Maternal Mortality (ERASE MM) Program, which supports Maternal Mortality Review Committees (MMRCs), multidisciplinary committees in states and cities that perform reviews of death among pregnant women and women within a year of pregnancy. CDC works with MMRCs to improve review processes that inform recommendations for preventing future deaths. MMRCs include representatives from various branches of medicine, from doctors to midwives and patient advocacy groups.<sup>86</sup> AHRQ could provide targeted research support to MMRCs.

### **Conclusion**

Climate change and environmental justice affect healthcare quality both directly and indirectly. AHRQ should seek out opportunities to integrate climate and environmental justice considerations into its work, in collaboration with other federal agencies. In particular, AHRQ is well-positioned to contribute to efforts to reduce greenhouse gas emissions in the healthcare

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<sup>85</sup> *Safety Program for Perinatal Care*, AGENCY FOR HEALTHCARE RSCH. & QUALITY, <https://www.ahrq.gov/hai/tools/perinatal-care/index.html> (accessed Dec. 9, 2021).

<sup>86</sup> *Reproductive Health, Erase MMs*, CTRS. FOR DISEASE CONTROL & PREVENTION, <https://www.cdc.gov/reproductivehealth/maternal-mortality/erase-mm/index.html>, (accessed Nov. 28, 2021).



sector, prepare healthcare sector for extreme heat crises, and improve maternal and child health outcomes.

Respectfully submitted,

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