

CLIMATE CHANGE AND CALIFORNIA'S LOCAL HEALTH OFFICERS

A Role for Scientists

BY LOUISE WELLS BEDSWORTH

California is already experiencing effects from climate change, such as earlier spring runoff and decreasing snow levels in low- and mid-mountain elevations. Recent climate modeling projects that these changes will grow larger over the coming century, depending on the path that global emissions take in the future.¹ Even if global greenhouse gas emissions are reduced significantly, there will still be some amount of climate change because of inertia in the climate system. Therefore, in addition to developing programs to reduce emissions (i.e., mitigation), the state also needs to consider policies to respond to climate change (i.e., adaptation).

These changes could have large impacts on public health both directly due to increases in heat-related illness and indirectly through changes in vector-borne disease, the increased frequency and severity of air pollution episodes, more severe wildfires, and

other impacts. Prevention and preparedness are two pillars of public health. The state's public health infrastructure needs to be prepared to respond to these challenges, which—though already evident—will likely be amplified by a changing climate.

Much of the day-to-day protection of public health falls in the hands of the state's local health officers who oversee county-level public health agencies. Each county in California, as well as three cities (Berkeley, Long Beach, and Pasadena), has its own department of public health (a total of 61 local health agencies). These local public health agencies are the institutions likely to be on the front line, managing the health risks associated with climate change.

We conducted a survey of local health officers in order to gain a better understanding of how the threat of climate change is perceived by local health agencies. We also wanted to learn what tools are in place that could help local health agencies respond to the threat of climate change. Finally, we wanted to learn whether local health officers feel that they have adequate information and resources to respond to the public health threats associated with climate change, and what information and resources they feel that they need. This final question is the focus of this piece.

The survey results reveal that local health officers believe that climate change is a serious risk to human health. Yet most health officers feel that they lack adequate information and resources to respond to this threat. Health officers indicate that information from the scientific community is an important element that can help them to feel more prepared to handle the public health risks associated with climate change.

BACKGROUND. Climate change is a global phenomenon, and reducing future emissions requires global cooperation. But even with aggressive global emission reductions, California is predicted

¹ The models used include: the Parallel Climate Model from the National Center for Atmospheric Research and the Department of Energy, NOAA's Geophysical Fluid Dynamics Laboratory CM2.1 model, and the Hadley Center Climate Model, version 3. The emission scenarios that have been modeled are based on the Intergovernmental Panel on Climate Change's Special Report on Emission Scenarios and include a high-emission scenario (A1fi), a lower-emission scenario (B1) and a medium-high-emission scenario (A2). The results of these scenarios have been downscaled to provide estimates of climate impacts on a regional scale in California.

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DOI:10.1175/2008BAMS2745.1

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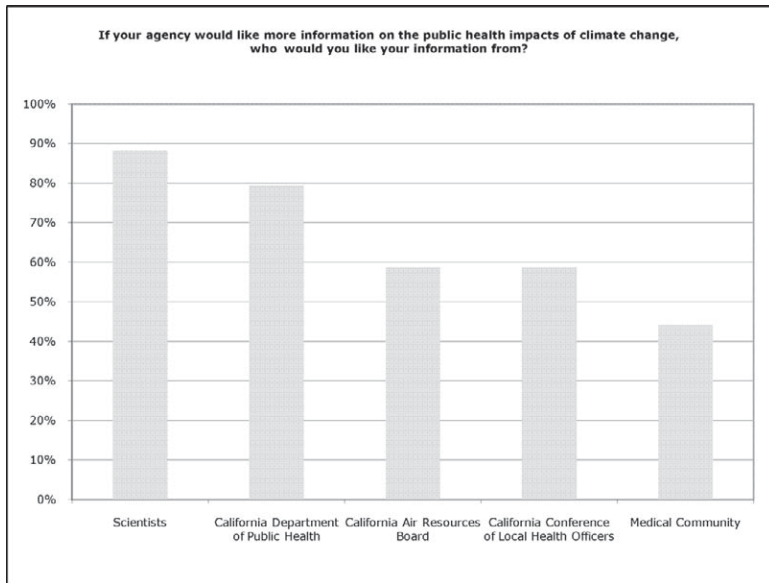


FIG. 1. Sources of information preferred by local health officers (respondents could choose more than one response).

to experience the effects of climate change over the coming century. Many of these impacts of climate change—such as those related to water supply, flood management, coastal management, and public health—will need to be managed on a regional or local scale.

Local public health offices provide direct services to citizens. While activities vary by agency, this can include services for the elderly, emergency medical services, and programs for the homeless and other vulnerable populations. These are the populations most likely to be susceptible to the risks posed by climate change. Climate change is likely to amplify many of the problems currently faced by public health agencies, such as heat-related illness and vector-borne disease. Public health institutions can adapt to protect against these variations in “normal” events by developing and enhancing existing response and preparedness tools (e.g., heat emergency plans and disease tracking systems) and making use of existing information resources (e.g., heat data from the National Weather Service or NOAA smoke plume forecasts in the case of wildfire).

But climate change will also affect the occurrence of extreme events. Considering the challenges that the public health infrastructure faces in handling everyday surges and the large uncertainties around such events, it is unlikely that the community can prepare for such events at this point. The survey focuses on the changes in variability that the public health community will experience.

METHODS. The survey was conducted electronically and was sent to all 61 local health officers in the state (58 counties and 3 cities). We received completed surveys from 34 of the health officers, representing just over three-quarters of the state’s population. In addition to the surveys, we conducted interviews

with 10 public health practitioners (health officers and others) to discuss the development and results of the survey. The 10 interviewees were selected to provide context for the development of the survey questions and interpretation of the results.

SURVEY FINDINGS—A ROLE FOR SCIENTISTS. Of the survey respondents, 94% indicated that climate change was a “serious” (56%) or “somewhat serious” (38%) threat to public health.

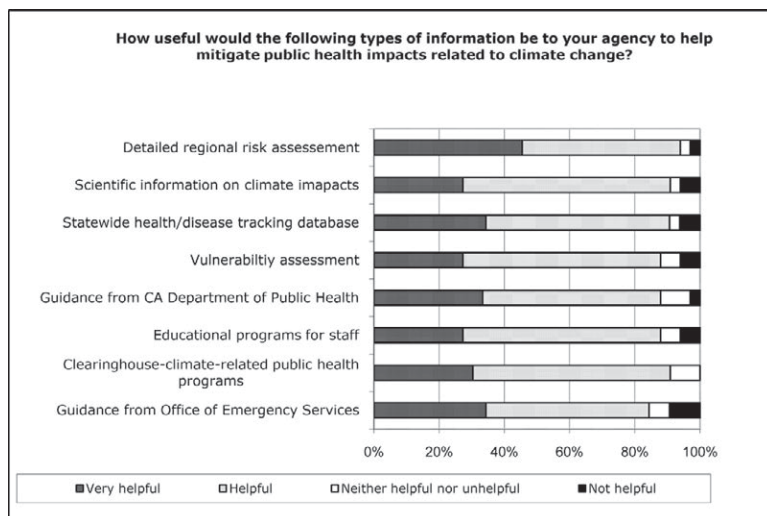


FIG. 2. The value of different information sources according to local health officers (respondents could choose more than one response).

When asked to name the largest risk in their region related to climate change, public health officials most often mentioned extreme heat followed by water-related issues including supply, flooding, and risks to agriculture. When provided a list of health risks, extreme heat was believed to be the most serious risk to human health, followed by wildfires, air pollution, and vector-borne illness.

Most health officers (68%) indicated that they do not have enough information to respond to climate-related public health threats. While health officers recognize the risks posed by climate change, they generally feel that they lack actionable information about climate change. The respondents also indicated that they do not have adequate resources (e.g., staff or funding) to respond to the public health risks posed by climate change.

The scientific community was identified as having a role to play in filling these perceived gaps. When asked from whom they would like to receive more information, almost 9 out of 10 respondents indicated that they would like information from scientists, followed by the California Department of Public Health (79%) and then the California Air Resources Board (59%) (Fig. 1). The two types of information that were indicated by the respondents to be the most helpful were detailed regional risk assessment and scientific information on climate impacts (Fig. 2). In terms of resource needs, health officers identified these as the top four: technical/analytical resources to assess health impacts (96%); dedicated funding for climate activities (93%); staff with expertise in climate science (79%); and technical/analytical resources to assess vulnerability (64%) (Fig. 3).

DISCUSSION. The results of this survey indicate that local health officers in California perceive climate change to be a serious risk to public health, but that they feel ill-equipped to handle that risk. The results of the survey indicate that local health

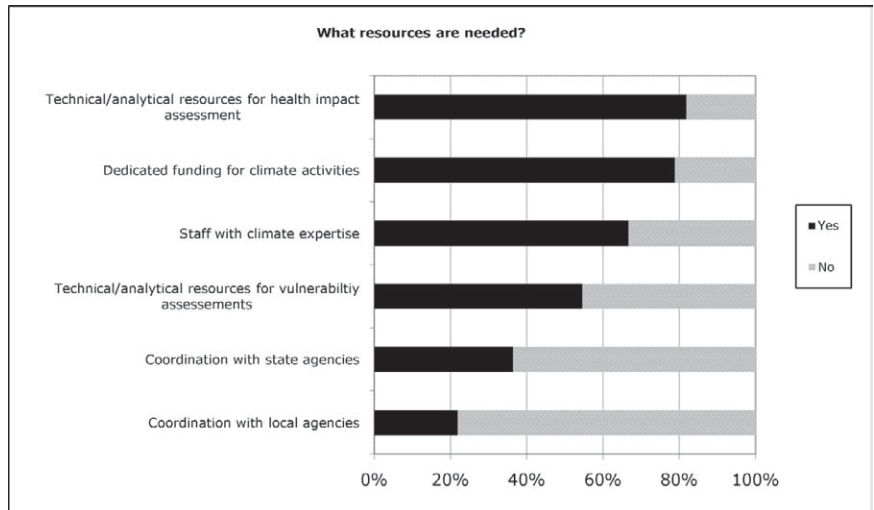


Fig. 3. Resources needed by local health officers (respondents could choose more than one response).

officers are looking to scientists to provide information and resources to help them prepare to manage that risk. More specifically, interviews with local health officers indicate that they would like practically oriented, local-scale information that can help to inform them about risks from climate change specific to their community.

Increased research collaboration between the climate change science and public health communities could facilitate this exchange of information, particularly as it relates to adaptation to climate change. In California, for example, there is a robust climate science and policy process. The state is currently developing a strategy to reduce emissions, as well as a climate adaptation strategy. As part of the process, the governor has asked for a biennial assessment of climate impacts and adaptation needs for the state. The first biennial assessment was completed in 2006, and it generated a tremendous amount of information on the potential impacts of climate change on the state's environment and resources. To date, the process has been primarily science-driven. As the state moves ahead to develop its adaptation strategy, it will be critical that front-line actors like the public health community become involved to communicate their information and research needs. Similar opportunities could exist on the national and international levels through the U.S. Climate Change Science Program and the Intergovernmental Panel on Climate Change, respectively.

FOR FURTHER READING

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