

# Health + Equity: FINDING SOLUTIONS UPSTREAM

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In the documentary *Living Downstream* (2010), biologist and cancer survivor Sandra Steingraber eloquently describes a cautionary tale:

There was once a village along a river. The people who lived here were very kind. These residents, according to parable, began noticing increasing numbers of drowning people caught in the river's swift current. And so they went to work, devising ever-more elaborate technologies to resuscitate them. So preoccupied were these heroic villagers with rescue and treatment that they never thought to look upstream to see who was pushing the victims in.

As health advocates and funders, this tale is familiar to many of us. Often we are torn between meeting the immediate and critical needs of our communities, and focusing our attention upstream on root causes of problems. Twelve years ago, a group of funders interested in what was happening at the intersection of health and the environment pulled on our wading boots to journey upstream together.<sup>1</sup>

Along the way, we have found solid evidence that many health and equity problems being treated with health care downstream are triggered – and can be remediated – upstream.

We also have learned that some of the most creative and effective outcomes arise out of collaboration across a diversity of efforts, from service of immediate needs to strategic work on root causes. If we are truly rooted in caring for people, families, and communities, “upstream and downstream” are all parts of one river.

## MAPPING ROOT CAUSES UPSTREAM

In the parable above, the implication is that the answer is simple: someone is pushing the victims into the river. We know, however, that the root causes of poor and inequitable health outcomes are myriad and complex. Fortunately, thanks to over a decade of research in several disciplines, we

know far more today about what is happening upstream.

One key finding of research is that **a range of social and environmental conditions may lead to or exacerbate poor health outcomes**. The World Health Organization Commission on the Social Determinants of Health flagged these conditions of daily life – the environments in which people are born, grow up, live, work, and age – as the factors most likely to put them at risk of disease.

Researchers have demonstrated adverse health impacts from stressors such as poverty, lack of education, and violence (Woolf and Braveman 2011; Raphael 2011; Galobardes et al. 2006). For example, researchers have estimated that over 400 million quality-adjusted life years were lost in the United States between 1997-2002 because of families living on incomes of less than 200 percent of the federal poverty level. This translates into a greater impact on health from poverty than that of tobacco use and obesity (Muennig et al. 2010).

People's exposures to environmental hazards, such as air or water pollution, likewise have been linked to poor health. Numerous studies have found that living near pollution sources – such as hazardous wastes sites, industrial facilities, farms using pesticides, major transportation corridors, nuclear power plants, gas stations, and car repair shops – is related to an increased risk of poor health outcomes (Brender et al. 2011). Regarding the health costs of air pollution in California alone, the RAND Corporation estimated that “failing to meet air quality standards resulted in overall spending on hospital care in California of slightly more than \$193 million over the period 2005-2007. To put this number in perspective, the annual costs would be sufficient to pay for pediatric influenza vaccinations for 85 percent of California's under-15 population” (Romley et al. 2010).

Research linking environmental exposures to chronic diseases is a major and growing concern. In the United States and other industrialized countries, chronic diseases (such as cancer, heart disease, and diabetes) are the primary cause of

<sup>1</sup> In 1999 a group of funders from environmental and health grantmaking communities formed the Health and Environmental Funders Network (HEFN). For over a decade, HEFN and its funder participants have worked closely with Grantmakers In Health to deepen understanding of and strengthen investment in issues at the intersection of health and the environment.

death. By the year 2030, the mortality rate for these chronic diseases is projected to increase by as much as 20 percent globally (Mathers and Loncar 2006).

In May 2010 the President's Cancer Panel released its first-ever report on environmental contaminants and cancer: *Reducing Environmental Cancer Risk: What We Can Do Now*. The report concluded that environmental contributors to cancer have been grossly underestimated and urged action on toxic chemicals as part of an effective cancer prevention strategy. It called upon the President "to use the power of your office to remove the carcinogens and other toxins from our food, water, and air that needlessly increase health care costs, cripple our nation's productivity, and devastate American lives" (Reuben 2010).

Other chronic diseases have been the subject of this increased attention to environmental factors as well, and the evidence continues to grow. For example, a number of studies in recent years have examined the relationship between endocrine disrupting chemicals and diabetes, with startling results. One study conducted by the Centers for Disease Control and Prevention found that people with the highest levels of polychlorinated biphenyls (PCBs), pesticides, and dioxins were 38 times more likely to have diabetes than those with the lowest levels (Lee et al. 2006).

There is growing research interest in the fetal origins of disease (looking at lifelong health impacts of exposures *in utero* and in early childhood), with studies uncovering a trove of relationships among social and environmental factors and chronic diseases. One can find numerous references in the literature to fetal origins of cancer, asthma, heart disease, obesity, and diabetes (Paul 2010). Take obesity, for example. In the first prospective study of fetal exposures and obesity, scientists analyzed newborn babies' cord blood for hexachlorobenzene (HCB), a byproduct of chemical manufacturing processes that use chlorine. By age six, the children with the highest blood levels of HCB were significantly more likely to be overweight and obese (Smink et al. 2008).

An understanding of exactly how disease is related to environmental conditions is evolving along with studies of determinants, exposures, impacts, and outcomes. A 2006 World Health Organization study concluded that a quarter of all diseases globally and a third of children's diseases were environmentally attributable. In the global context, determinants driving high rates of disease and inequity include conditions such as poor sanitation and lack of access to safe drinking water, as well as poverty.

A second key finding of the burgeoning research on social stressors and environmental exposures is that **these different factors may interact to produce a cumulatively greater**

**health impact**. The combined impacts of stress and pollution are a growing concern in children's health research (Cooney 2011). For instance, a recently published study from Southern California reported that traffic pollutants had more adverse impact on the lung function of children living in high-stress households than those living in lower-stress households (Islam et al. 2011). To anyone who has lived with several simultaneous challenges, this idea of greater vulnerability under stress probably makes intuitive sense.

Research is finding an array of synergistic effects, including an interplay of toxins and genetics, such as findings that people have increased risk of Parkinson's Disease if they have both a certain genetic variant and pesticide exposures (Ritz et al. 2009).

A third key finding is that, taken together, **the cumulative impacts of these health determinants are creating health disparities** (Morello-Frosch et al. 2011). People of color and poor people experience much higher rates of exposure to unhealthy environments *and* to social and economic stressors – from poverty, to violence, to discrimination. The accumulated risk factors may have additive or synergistic effects, turning some differences in several areas of life experience into significant differences in health outcomes. For instance, a recent synthesis of studies related to African Americans' higher mortality rates from hypertension points toward a combined impact of environmental lead exposures and stress (Hicken et al. 2011).

Putting these puzzle pieces together, a map emerges of socioeconomic stressors and environmental hazards that affect everyone's health, and that have a disproportionately high impact on the health of vulnerable populations and communities of color.

These health determinants and resulting inequities are costing us dearly. In addition to an immeasurable human and societal toll, they levy a hefty financial price. The cost of certain environmentally induced diseases in children alone was recently estimated at nearly \$77 billion annually (Trasande and Yinghua 2011). The more effective our efforts to eliminate health disparities and inequities, the greater our societal savings will be in the long term.

## INTERVENTION AND PREVENTION

In parallel with providing an evidence base about social and environmental determinants and related health outcomes, the past decade's research also has demonstrated great potential for improving health outcomes by addressing upstream factors. The fact that a significant share of today's major diseases and disorders is not genetically predetermined, but rather caused by conditions of daily life, means we have

opportunities to intervene and reduce or prevent death, suffering, and injustice.

A good demonstration of this is in the work of the Columbia Center for Children's Environmental Health (CCCEH). The Mothers and Newborns Study at CCCEH follows a cohort of 725 African-American and Latino pregnant women and their children in low-income neighborhoods of New York from birth through 11 years of age. In their communities, these women and children are exposed to multiple common pollutants (including air pollution, pesticides, and second-hand smoke) that the study links to low birth weight, respiratory effects, neurodevelopmental disorders, and potentially increased cancer risk (CCCEH 2011).

The good news – yes, there is good news – is that this research already has played a key role in achieving positive policy change for health in New York City. Findings have helped inspire shifts away from diesel buses, extended bus and truck idling, and excessive congestion, and toward cleaner transit technology and policies. One result of this has been reduced personal prenatal exposures in the cohort of this study (Perera 2009). Another important aspect of this study is the role played by community partners in its design and execution. For over a decade, CCCEH has partnered with West Harlem Environmental Action for Environmental Justice on community-based participatory research, and this collaboration has engaged and empowered residents, enriched the science, and increased partners' capacity (Shepard 2009).

Recognizing such potential benefit for families and communities is powerful motivation for those of us working on environmental health and environmental justice. The societal incentives also include possibilities for reducing costs and strain on the health care system. A recent economic analysis published in *Health Affairs* assessed three strategies for addressing poor health outcomes: expanding health insurance coverage, delivering better preventive and chronic care, and enabling healthier behavior while improving environmental conditions. It concluded that only environmental protection slows the growth in the prevalence of disease and injury. In fact, when combined with the other two strategies, the study projected that in the first 10 years alone, environmental protection could save 90 percent more lives and reduce costs by 30 percent (Milstein et al. 2011).

When we first began traveling upstream, there was enough evidence to encourage that exploration. Today, environmental health science has progressed much further, strengthening the case for including upstream work in tackling health and equity concerns. Improved understanding of root causes,

together with better data and models, is helping funders evaluate, prioritize, and take action. As an example, the health team at The Kresge Foundation has launched a major initiative to improve health through improvements in housing conditions. They have identified benchmarks of progress (such as decreased lead exposure and reductions in asthma incidence and hospitalizations), along with return on investment indicators (such as costs for mitigation measures in a home in relation to lifetime benefits from reduced lead exposure and reduced health care costs related to asthma treatment) (The Kresge Foundation 2011).

## PHILANTHROPY UPSTREAM...AND DOWN

So what does this mean for grantmakers? Philanthropic approaches in this space are nearly as varied as the root causes and health outcomes of concern. But a few common themes emerge that offer potential lessons for others.

► ***Putting Communities at the Center*** – As we work to eliminate health disparities and inequities, we have few better allies than the organizations and community leaders seated in the neighborhoods most heavily affected. Capitalizing on local knowledge, expertise, and passion improves the effectiveness of our efforts, as well as building community capacity and resilience.

This lesson surfaced in a collaborative research project in California's San Joaquin Valley, initiated by community groups and involving a research team at the University of California-Davis (UC-Davis), with support from the Ford Foundation and The William and Flora Hewlett Foundation. The project compiled data on poverty, environmental conditions, and other factors to assess their cumulative impact on health outcomes. The UC-Davis researchers reported that community participants, given maps of federal and state data about local environmental hazards, documented and were able to fill in serious data gaps (London et al. 2011).

Cumulative impact assessment work in greater Los Angeles has similarly underscored the value of combining the knowledge base of a university consortium, community groups, funders, and public officials. The Los Angeles Collaborative for Environmental Health and Justice began with a review of environmental hazards in proximity to vulnerable populations, and has catalyzed a "clean up and green up" strategy to improve public health in particularly challenged neighborhoods through a mix of policies and actions (Los Angeles Collaborative for Environmental Health and Justice 2010).

With communities facing multiple stressors and

hazards, creating healthier daily conditions is a multifaceted, long-term effort. Philanthropic investment to strengthen local capacity can really help. So, too, can providing some flexibility of resources, especially to address problems or opportunities unforeseen at the outset.

The Gulf Coast Fund for Community Renewal and Ecological Health provides an acute illustration of this lesson. The fund, housed at Rockefeller Philanthropy Advisors, was born in the aftermath of Hurricanes Katrina and Rita. From its inception, it was designed in partnership with community leaders and crafted explicitly as a model of community-driven philanthropy, embedding local expertise in the fund allocation process. The fund also was designed with enough flexibility to deal with a wide array of problems, ranging from disaster relief services, to hazard monitoring, to long-term advocacy.

Grants from the fund address immediate health needs in communities across the region, such as support for local medical clinics, relief supplies, and safety equipment for residents cleaning out their homes and neighborhoods of toxic debris. It also has supported emergency housing for displaced residents, organizing and advocacy training, farm cooperatives and farmers markets, cultural programs, environmental health monitoring, and workforce development. The fund has increased support to a historically under-resourced region of the United States, as well as built capacity and relationships across the region that proved critical when the Deepwater Horizon drilling disaster occurred. (More information can be found at [www.gulfcoastfund.org](http://www.gulfcoastfund.org).)

Investing in community leadership and capacity can empower more effective responses to factors adversely affecting local health. It also tends to build resilience for addressing the next sets of challenges, whether from an economic downturn or an extreme weather event.

- ***Your “Health and Equity” Is Their “Environmental Justice”*** – One of our most encouraging discoveries in upstream work is that many potential allies and partners are out there. The communities that share health grantmakers’ core values extend far beyond health philanthropy. The landscape of work addressing determinants is surprisingly broad, crossing geographies, disciplines, and sectors. Such diversity and fragmentation expand possibilities but make it challenging to see the whole.

This positive reality also tends to be obscured by language. The ways foundations frame and describe their work are meaningful, but they also make it harder to see actual or potential connections across portfolio issues.

Quite often a project receiving support from a health funder focused on children’s health or health disparities may also attract grants (using a different proposal and vocabulary) from an environmental justice funder, a food systems funder, a community development or a social justice funder (and the list goes on).

Recognizing this dynamic, some funders focus more on shared concerns and objectives, and less on the words typically used to frame their work. They find grantmaking partners across traditional portfolio silos and new grantees across funding pools. These cross-cutting collaborations can bring critical resources to bear and improve the information base for decisions.

Work to improve health in communities of color and low-income communities provides a great example. For decades, community residents have organized around concerns about their families’ poor health and the dangerous and unjust concentration of environmental hazards around them. This “environmental justice” movement initially attracted funding mostly from environmental grantmakers. Still, the funding was disproportionately low: a study concluded that the environmental justice movement was seriously underfunded, receiving less than 5 percent of environmental grantmaking (Faber and McCarthy 2001).

Several funders seeking to broaden the pool of funding for environmental work recognized its public health value and worked to expand funding within health philanthropy, including in portfolios aimed at health disparities, vulnerable populations, and children’s health. Aided by collaboration between Grantmakers In Health and the Health and Environmental Funders Network, today the funding base for environmental justice is, while still far less than optimal, significantly diversified, with more support and leadership from health philanthropy (Bullard et al. 2011).

Many of health philanthropy’s contemporary concerns lend themselves to similar broadening of partnerships, whether around an intervention area (such as healthy eating and active living) or in efforts to mobilize civic engagement and political support for health care reform and implementation.

- ***Big Strategies for Big Problems*** – Some conditions worsening health and equity outcomes cannot be tackled by one sector or one local community. Many root causes of poor health have their own upstream story, whether it is economic forces or policy decisions at higher levels of political jurisdiction.

No single foundation can tackle these complex societal drivers in isolation. Health philanthropy, with its traditional orientation toward service and prevalence of geographic constraints, has been comparatively inhibited in seeing its place in strategic work around regional, national, or international systems change efforts. More and more health funders, however, are recognizing potential long-term health payoffs in broader systemic efforts.

For example, health funders now play active roles in multistakeholder collaborations and campaigns tackling specific determinants such as food access or substandard housing. Environmental health funders, drawing from both health and environmental interests, have partnered for years in a multifaceted strategy to tackle toxic threats to health from chemicals. This strategic collaboration has helped underwrite policy work from local to global jurisdictions, broad-based public engagement and consumer pressure, market shifts ahead of regulatory action, and innovative development of safer chemicals and materials.

We see similar potential for greater combined philanthropic impact on many major health issues. Strategies to address the alarming rates of asthma in communities of color, for example, could include work to improve access to care, treatment options, care giving, and impacted community capacity. This work would be complemented by efforts to reduce exposures to contaminants that trigger or exacerbate asthma, whether mold in housing, or particulate pollutants from diesel buses, or transportation corridors near homes and schools. Learning across these intervention areas could also identify new gaps or opportunities. Kids struggling to breathe do not care whether effective interventions fall into a “health,” “environmental,” or other portfolio. They want to breathe easily throughout their daily lives, which extend from home, to neighborhood, to school environments.

Likewise, philanthropic strategies to diminish the toll of breast cancer would include more and better screening for breast cancer, especially among communities of women experiencing higher rates of disease and mortality. It also should include more research and intervention on the preventable causes and support for campaigns to eliminate known carcinogens from our food, air, water, and personal care products. We cannot ignore the needs that exist downstream for early detection and better care. We also, however, need to focus upstream to stop preventable cases of breast cancer.

The point is that many discrete funding interventions alone can – and do – make a difference. But in combination and through collaboration, their cumulative impact

comes closer to matching the scale and complexity of the problem. Philanthropy can draw on – and needs to keep improving – the evidence base about both determinants and interventions. It also could be learning and working much more regularly in partnerships inside and outside philanthropy, toward more effective and strategic solutions.

### GRAB A PAIR OF BOOTS...

We know firsthand how overwhelming it can be to view health and equity in a broad social context. The forces constraining good health for all are numerous, complex, and powerful. The array of determinants can be daunting, and they often appear to be in arenas too far afield of a foundation’s mission and focus. Many health grantmakers seeking to follow an evidence base in guiding investments have, until recently, been on firmest ground staying within the familiar territory of access to care, quality of care, and service delivery.

For health philanthropy in particular, the urgency of meeting immediate needs has been a compelling preoccupation. It remains an essential focus. In fact, we often have found ourselves encouraging environmental grantmakers to extend their upstream focus on determinants to include downstream help for communities living in distress.

Recent progress toward more comprehensive health care coverage, however, may create space for additional health philanthropy upstream. The increasingly robust evidence base on health determinants has improved the case for doing so, and the landscape of new funding partners offers support and the chance for systemic impact.

So grab a pair of boots and look for us upstream. The water’s not bad, and together we can make it a lot healthier for everyone.

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