

# Health in All Policies: Improving Health Through Intersectoral Collaboration

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September 18, 2013

*\*Participants in the activities of the IOM Roundtable on Population Health Improvement*

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# Health in All Policies: Improving Health Through Intersectoral Collaboration

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## WHAT IS HEALTH IN ALL POLICIES?<sup>3</sup>

Health in All Policies is an approach to improving the health of all people by incorporating health considerations into collaborative decision-making across sectors and policy areas (Rudolph et al., 2013). The goal of Health in All Policies is to ensure that decision makers are informed about the health, equity, and sustainability consequences of various policy options during the policy development process (California Health in All Policies Task Force, 2010a). This approach is based on the premise that good health is fundamental for a strong economy and vibrant society, and that health outcomes are largely dependent on the social determinants of health, which in turn are shaped primarily by decisions outside of the health sector. Incorporating health and health equity into decision making across sectors requires intersectoral collaboration as well as changes in government organizational structures and processes, in order to clarify, support, and advance achievement of the priority goals of diverse stakeholders in and out of government (Ståhl et al., 2006).

*“Health in All Policies (HiAP) is an approach to public policies across sectors that systematically takes into account the health and health systems implications of decisions, seeks synergies, and avoids harmful health impacts, in order to improve population health and health equity. A HiAP approach is founded on health-related rights and obligations. It emphasizes the consequences of public policies on health determinants, and aims to improve the accountability of policy-makers for health impacts at all levels of policy-making” (WHO, 2013, p. 2).*

Health in All Policies builds on a long and successful public health tradition of intersectoral collaboration based on the wide-ranging issues that fall under the purview of public

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<sup>1</sup> Participants in the activities of the IOM Roundtable on Population Health Improvement.

<sup>2</sup> The authors also acknowledge the members of the California Health in All Policies Task Force and policy leaders of the External Stakeholder Group, Dr. Mary Pittman, CEO and President of the Public Health Institute, and Dr. Ron Chapman, Director of the California Department of Public Health, The California Endowment, and Kaiser Community Benefits Foundation, for their ongoing commitment to this work.

<sup>3</sup> For additional details about implementation of HiAP, please refer to the forthcoming publication: Rudolph, L., J. Caplan, K. Ben-Moshe, and L. Dillon. 2013. *Health in All Policies: A Guide for State and Local Governments*. Washington, DC and Oakland, CA: American Public Health Association and Public Health Institute. Visit <http://www.apha.org/hiap> and <http://www.phi.org/resources/?resource=hiapguide>.

health and also touch on other sectors, including efforts to fluoridate tap water, reduce lead exposure, restrict tobacco use in workplaces and public spaces, improve sanitation, prevent drunk driving, and require use of seatbelts and child car seats. Health in All Policies takes project-by-project collaboration further by formalizing structures and mechanisms to incorporate a health, equity, and sustainability lens across the whole of government.

## **THE NEED FOR HEALTH IN ALL POLICIES**

The greatest health challenges for the nation today are complex, inextricably linked, and have no easy solutions, such as chronic illness, obesity, health inequities, rising health care costs, an aging population, and growing inequality. At the same time, urgent environmental problems such as climate change, water shortages, and the loss of habitat and other natural resources threaten to exacerbate existing health problems and create new health challenges.

Medical services, while vitally important, play a lesser role in overall population health improvement than the social determinants of health—the environments in which people live, work, learn, and play. Economic status, educational attainment, structural racism, and neighborhood characteristics are critical determinants of health and health inequities. Improvements in a community’s economic, physical, social, and service environments can help ensure opportunities for health and support healthy behaviors. However, health agencies rarely have the mandate, authority, or organizational capacity to make the policy, systems, and environmental changes that can promote healthy living through healthy environments. That responsibility falls to housing, transportation, education, air quality, parks, criminal justice, agriculture, energy, and employment agencies, among others.

Solutions to these complex and urgent problems will require collaborative efforts across many sectors at the local, state, regional, and federal levels, including government agencies, businesses, and community-based organizations. Collaboration across sectors can also promote efficiency by identifying opportunities to share resources and reduce redundancies, thus potentially decreasing costs and improving performance and outcomes in a time of great pressure on government resources.

The Institute of Medicine (2011) has addressed the need for and benefits of the Health in All Policies approach, including recommendations that

- “states and the federal government develop and employ a Health in All Policies (HiAP) approach to consider the health effects—both positive and negative—of major legislation, regulations and other policies that could potentially have a meaningful impact on the public’s health” (p. 9); and
- “state and local governments create health councils of relevant government agencies convened under the auspices of the Chief Executive; engage multiple stakeholders in a planning process” (p. 10).

Health in All Policies is being implemented in various ways, including through the National Prevention Council (HHS, 2011), in cities and counties across the nation (e.g., Chicago, Illinois; Baltimore, Maryland; and King County, Washington), and throughout California. In this paper, we describe the experiences of the California Health in All Policies Task Force, identify

five key elements of a Health in All Policies approach based on those experiences, and, finally, explore a number of challenges in implementing the Health in All Policies approach.

## **THE CALIFORNIA HEALTH IN ALL POLICIES TASK FORCE**

California's Health in All Policies Task Force (Task Force) was established by a governor's executive order in 2010, on the eve of a summit on obesity and healthy living (California Executive Order, 2010). This executive order grew out of discussions within the California Department of Public Health (CDPH) and the California Health and Human Services Agency about landmark climate legislation that required better coordination of land use and transportation planning (California Sustainable Communities and Climate Protect Act of 2008). Implementation of this law offered opportunities to promote active transportation with its concomitant increases in physical activity, as well as other strategies to reduce greenhouse gas emissions that also offer chronic disease prevention co-benefits (see Box 3).

The executive order placed the Task Force under the auspices of the Strategic Growth Council (SGC) and required facilitation by CDPH. The SGC is a cabinet-level body established by legislation in 2008 to support coordination of state agency work on climate change and sustainability (California Public Resources Code, 2008). The SGC's goals include "improving air and water quality, protecting natural resources and agricultural lands, increasing the availability of affordable housing, improving infrastructure systems, promoting public health, planning sustainable communities, and meeting the state's climate change goals."

The executive order (California Executive Order, 2010) called for the California Health in All Policies Task Force to

- identify priority programs, policies, and strategies to improve the health of Californians while advancing the other goals of the SGC;
- submit a report to the SGC recommending programs, policies, and strategies to improve the health of Californians while advancing the SGC's goals;
- describe the benefits for health, climate change, equity, and economic well-being that may result if the recommendations are implemented;
- review existing state efforts, consider best/promising practices used by other jurisdictions and agencies, identify barriers to and opportunities for interagency/intersectoral collaboration, and propose action plans;
- convene regular public workshops to present its work plan; and
- solicit input from stakeholders in developing its report.

In March 2010, the SGC convened 19 California state agencies, departments, and offices to participate in the Health in All Policies Task Force.<sup>4</sup> CDPH partnered first with the University of California, San Francisco, and then with the Public Health Institute (PHI) and procured fund-

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<sup>4</sup> The Health in All Policies Task Force is made up of the following State of California departments, agencies, and offices: Air Resources Board, Office of the Attorney General, Business, Transportation, and Housing Agency, Department of Community Services and Development, Department of Education, Environmental Protection Agency, Department of Finance, Department of Food and Agriculture, Department of Forestry and Fire Protection, Health and Human Services Agency, Department of Housing and Community Development, Labor and Workforce Development Agency, Department of Parks and Recreation, Office of Planning and Research, Department of Social Services, Department of Transportation, Office of Traffic Safety.

ing for “backbone” staff from The California Endowment. From June to December 2010, the Task Force met five times as a full group. Staff also met multiple times with each individual agency, held three well-attended regional stakeholder workshops (California Health in All Policies Task Force, 2010a, 2011), and established an external stakeholders group. Over just a few months, staff collected more than 1,200 ideas for possible Task Force action. Using criteria such as impact on population health and health equity, co-benefits, feasibility, and collaborative focus, the Task Force narrowed the ideas to 34 recommendations that were submitted for approval to the SGC (California Health in All Policies Task Force, 2010). After another round of stakeholder input, 11 priority recommendations were selected for implementation, and Task Force members created implementation plans that identified action steps, timelines, responsible agencies, and deliverables. By May 2012, the implementation plans were approved by the SGC; each plan addressed action steps, responsible agencies, and four cross-cutting concerns: (1) interagency collaboration, (2) equity, (3) community engagement, and (4) data (California Health in All Policies Task Force, n.d.).

The Task Force is now carrying out these implementation plans through interagency teams coordinated by Health in All Policies staff. Implementation relies heavily on the existing resources of participating agencies, with the exception of three plans for which staff have secured additional funding (“farm-to-fork” policies, healthy and sustainable food procurement, and community safety through violence prevention).

The Task Force continues to evolve as relationships deepen and new partnerships and projects are formed. The initiative has proven its ability to successfully cultivate increased collaboration among multiple state agencies, and the fruits of that collaboration are already evident. An independent process evaluation of the Task Force found that almost all participants felt the process had resulted in recommendations benefiting their own agencies and contributed to greater trust in and collaboration with other agencies. The Task Force is now considering issues such as necessary infrastructures and resources for the long term, processes for identifying new recommendations and priorities for action, ongoing stakeholder engagement, and the possibility of adding new members. The California legislature endorsed and encouraged Health in All Policies through Senate Concurrent Resolution 47 (see Appendix I) (California Health in All Policies, SCR 47, 2012). The Task Force was also referenced in 2012 legislation that created a new Office of Health Equity within the California Department of Public Health and placed the Task Force staff within that office (California Health and Safety Code, 2012).

Examples of specific accomplishments of the Task Force to date include

- Establishment of a Farm to Fork Office, which is jointly funded and staffed by the California Departments of Food and Agriculture, Education, and Public Health, with the intention of promoting policies and strategies to improve access to healthy, affordable food;
- Incorporation of language and criteria into 2012 SGC Sustainable Communities Planning and Urban Greening grants programs to encourage regional and local entities applying for funding to incorporate health and equity into their planning and decision-making processes and to partner with local health agencies;
- A commitment by the Governor’s Office of Planning and Research to embed health considerations into the state’s General Plan Guidelines, which provide guidance to local jurisdictions for development of the comprehensive plans that serve as a blueprint for future development; and

- Creation of a multiagency food procurement working group that is exploring opportunities to integrate health and sustainability criteria into state contracts for food purchasing.

In the past few years, Health in All Policies initiatives have been launched in various forms across California, including several jurisdictions that have expanded intersectoral collaboration as a part of their regular business practices. For example

- A dozen local health departments in California agreed to incorporate Health in All Policies as a crosscutting theme in their Community Transformation Grants implementation plans.
- After the Board of Supervisors passed a Healthy Design Ordinance (County of Los Angeles, 2013), Los Angeles County initiated a multiagency Healthy Design Workgroup.
- The City of Richmond has adopted a Health in All Policies strategy and hired a Health in All Policies coordinator to implement it across city departments (City of Richmond, 2013).
- Rural Del Norte County has hired a staff person to focus on Health in All Policies (Del Norte County and Adjacent Tribal Lands, n.d.).
- The Monterey County Board of Supervisors approved a strategic plan for the health department that includes Health in All Policies as a key focus (Monterey County Health Department, 2011).
- The Southern California Association of Governments has created a public health subcommittee to support its Regional Transportation Plan in order to help the region make links to health and equity as it develops transportation and land use policy proposals.
- Sonoma County’s Health Action Council, a multisectoral initiative involving government, private, and community-based organizations, is moving forward with a 2013-2016 action plan focused on education, income, and health systems (Sonoma County Department of Health Services, n.d.).

## **KEY ELEMENTS OF HEALTH IN ALL POLICIES**

Five key elements have emerged from the work of the California Health in All Policies Task Force:

### **1. Health, Equity, and Sustainability**

“Health in All Policies,” in the authors’ view, is actually shorthand for “Health, Equity, and Sustainability in All Policies.” A Health in All Policies approach maintains a focus on improving health outcomes for the whole population by promoting equity and sustainability. These three principles are inextricably linked.

#### *Health*

Health is a fundamental component of quality of life, and a healthy population is a critical building block for a sustainable and thriving economy and society. Economic productivity, educational performance, civic engagement, and social resiliency depend upon a healthy population,

so putting health at the forefront of government decision making is a key strategy for promoting a broad range of societal goals.

How “health” is defined impacts the actions taken to promote it. The World Health Organization defines health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (WHO, 1946). However, the default view of health in the United States often only considers the absence of illness—resulting largely from access to curative medical services—while ill health is largely attributed to individual behavior choices.

During the early days of the California Health in All Policies Task Force, in order for partners from nonhealth sectors to understand their roles in creating the conditions for health and to understand the value of Health in All Policies, a shared vision for health was developed. The California Health in All Policies Task Force asked member agencies, public health officials, and a broad array of community leaders, “When you hear the term ‘healthy community,’ and you think about your health and the health of your family and kids, what comes to mind?” The answers were culled and collated over time and became the Task Force’s Healthy Communities Framework (see Box 1) (California Health in All Policies Task Force, 2010a).

**BOX 1**  
**Healthy Communities Framework**

**What is a healthy community?**

**Meets basic needs of all**

- Safe, sustainable, accessible, and affordable transportation options
- Affordable, accessible, and nutritious foods and safe, drinkable water
- Affordable, high-quality, socially integrated, and location-efficient housing
- Affordable, accessible, and high-quality health care
- Complete and livable communities including high-quality schools, parks and recreational facilities, child care, libraries, financial services, and other daily needs
- Access to affordable and safe opportunities for physical activity
- Able to adapt to changing environments, resilient, and prepared for emergencies
- Opportunities for engagement with arts, music, and culture

**Quality and sustainability of environment**

- Clean air, soil, and water, and environments free of excessive noise
- Tobacco- and smoke-free
- Green and open spaces, including healthy tree canopy and agricultural lands
- Minimized toxins, greenhouse gas emissions, and waste
- Affordable and sustainable energy use
- Aesthetically pleasing

**Adequate levels of economic and social development**

- Living wage, safe and healthy job opportunities for all, and a thriving economy
- Support for healthy development of children and adolescents
- Opportunities for high-quality and accessible education

**Health and social equity**

### **Social relationships that are supportive and respectful**

- Robust social and civic engagement
- Socially cohesive and supportive relationships, families, homes, and neighborhoods
- Safe communities, free of crime and violence

SOURCE: California Health in All Policies Task Force, December 3, 2010. Health in All Policies Task Force Report to the Strategic Growth Council. Retrieved from [http://sgc.ca.gov/hiap/docs/publications/HiAP\\_Task\\_Force\\_Report.pdf](http://sgc.ca.gov/hiap/docs/publications/HiAP_Task_Force_Report.pdf). Used with permission.

Based on the Healthy Communities Framework, the Task Force developed a set of six aspirational goals (see Box 2). The goals use plain language, which made it easy for staff, other agencies, the public, and policy makers to share a cohesive vision with the Task Force. Together, the Healthy Communities Framework and aspirational goals serve as a touchpoint for Task Force members and as a reminder that addressing the social determinants of health is the shared purpose of Health in All Policies efforts.

### **BOX 2**

#### **Aspirational Goals of the California Health in All Policies Task Force**

- **Active transportation.** All residents have the option to safely walk, bicycle, or take public transit to school, work, and essential destinations.
- **Healthy housing and indoor spaces.** All residents live in safe, healthy, and affordable housing.
- **Parks, urban greening, and places to be active.** All residents have access to places to be active, including parks, green space, and healthy tree canopy.
- **Community safety through violence prevention.** All residents are able to live and be active in their communities without fear of violence or crime.
- **Healthy food.** All residents have access to healthy, affordable foods at school, at work, and in their neighborhoods.
- **Healthy public policy.** California's decision makers are informed about the health consequences of various policy options during the policy development process.

SOURCE: California Health in All Policies Task Force, 2010a.

The California Task Force developed aspirational goals for only a subset of the components of the healthy communities framework, where the nexus between other SGC goals and health cobenefits are the most direct. Illustrative examples of other possible goals include

- All children and youth will receive high-quality child care and educational opportunities that foster and promote their ability to develop, be healthy, and achieve to their highest potential.
- All residents will have preparation and opportunities to engage in meaningful work with living wages and healthy, safe, and family-friendly working conditions.
- All residents will live in communities free of racism and discrimination.
- All residents will have opportunities for meaningful engagement and input into civic affairs and the policy decisions that impact their lives and futures.

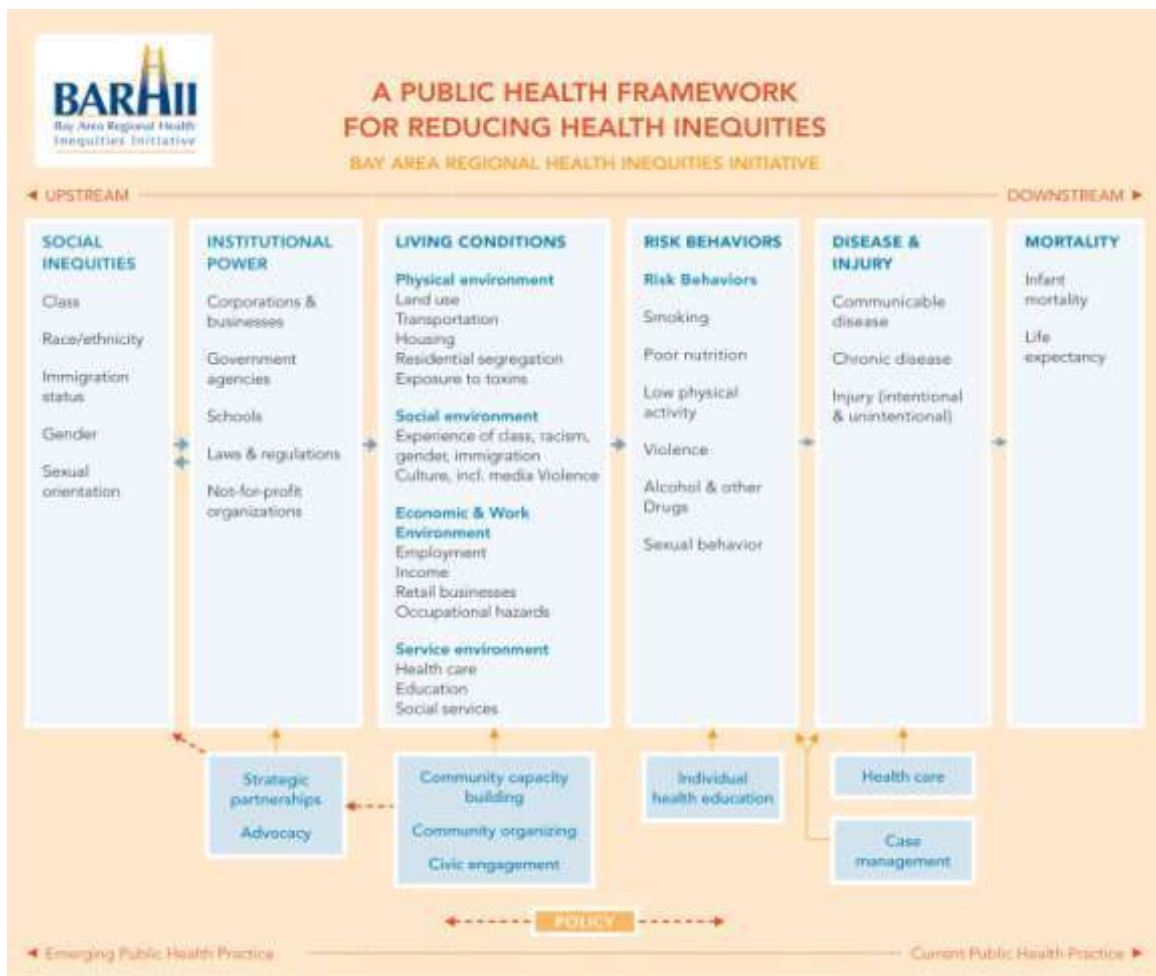


## *Equity and Health Inequities*

“Health disparities” are “differences in the presence of disease, health outcomes, or access to health care between population groups” (Center for Health Equity and Social Justice, n.d.); “health inequities” are differences in health “that are a result of systemic, avoidable and unjust social and economic policies and practices that create barriers to opportunity” (Virginia Department of Health, 2012). Health inequities “reflect an unfair distribution of the underlying social determinants of health” (Kawachi et al., 2002), for example, income, wealth, or education. Several studies suggest that addressing social and economic inequities would contribute substantially more to overall population health than the emergence of new medical advances (Bottle et al., 2008; Braveman et al., 2011; Muennig and Woolf, 2007; Raphael, 2006; Woolf et al., 2007; Woolf et al., 2008; Woolf et al., 2010). Economic inequality is increasing in the United States and is likely to lead to worsening health inequities (Woolf, 2007); greater economic and social inequity in the United States is associated with worse health indicators when compared with other developed nations (NRC, 2013).

Although policy, systems, and environmental changes generally have a larger impact on population health than other public health interventions (Kawachi et al., 2002; Frieden, 2010), policy interventions often do not reduce health inequities without intentional efforts to do so. Tobacco control efforts, for example, have led to very large declines in tobacco use across all racial and socioeconomic groups, yet significant inequities in tobacco use and harms persist, most likely due to persistent underlying inequities in the social determinants of health (Pampel et al., 2010).

The Bay Area Regional Health Inequities Initiative (BARHII), a collaboration of 11 local health departments in the San Francisco Bay Area, developed the following framework (Figure 1) to illustrate how the social determinants of health are linked with poor health outcomes. This framework builds on a 1991 model by Dahlgren and Whitehead to convey how social inequities and institutional power can affect living conditions, risk behaviors, disease, injury, and ultimately mortality. This model is foundational to CDPH and PHI’s approach to Health in All Policies.



**FIGURE 1** A public health framework for reducing health inequities.  
 SOURCE: Adapted from A Public Health Framework for Reducing Health Inequities, Bay Area Regional Health Inequities Initiative, June 2010.

*Sustainability*

Sustainability refers to the ability to meet the needs of the present without compromising the needs of the future (United Nations World Commission on Environment and Development, 1987) and requires the reconciliation of environmental, social, and economic demands (United Nations General Assembly, 2005). “Sustainability creates and maintains the conditions under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic and other requirements of present and future generations” (EPA, n.d.). Climate change and other global environmental challenges have direct impacts on health, for example, through extreme heat events, and also threaten the life-supporting systems on which human beings depend. The direct and indirect health effects of climate change, such as declining access to clean water, air pollution, crop loss, stratospheric ozone depletion, sea level rise, and collapse of fisheries all suggest that “environmental sustainability must itself be a key health goal, particularly because all forms of ecosystem collapse will have grave impacts on health equity, with greater impacts on the most vulnerable communities” (Poland et al., 2011).

*“Nature's goods and services are the ultimate foundations of life and health, even though in modern societies this fundamental dependency may be indirect, displaced in space and time, and therefore poorly recognized....ecosystems are the planet's life-support systems for the human species and all other forms of life. Human biology has a fundamental need for food, water, clean air, shelter and relative climatic constancy”* (Millennium Ecosystem Assessment, 2005, pp. iii, 1).

Many strategies to address chronic illness simultaneously address environmental challenges (see cobenefits below) and vice versa. In California, the nexus between health, equity, and sustainability was rooted in the structural placement of the Health in All Policies Task Force under the auspices of the Strategic Growth Council, whose core function as a cabinet-level body is to ensure coordination across agencies on issues related to sustainability. In other jurisdictions, Health in All Policies initiatives may need to intentionally consider sustainability throughout their work.

## **2. Intersectoral Collaboration**

At its core, Health in All Policies is a strategy to improve population health through intersectoral collaboration with partners who have the ability to impact the social determinants of health. Health in All Policies asks those in other sectors to recognize the impact their own work has on health, break down silos, build new partnerships to promote health, equity, and sustainability, and increase government efficiency.

A Health in All Policies approach focuses on collaboration through relationship building, rather than sporadic or single project coordination. Collaboration requires partners to understand both the vision and the goals of the group as a whole, the goals and objectives of each of the partners, as well as the unique perspectives, specialized expertise, concerns and constraints, and potential contributions that each partner brings. Health in All Policies collaborative relationships depend upon not only shared vision and common goals, but also on the practices of trust, reciprocity or generosity, and mutuality (Keast and Mandell, 2010).

*“The expectation that collaboration can occur without a supporting infrastructure is one of the most frequent reasons why it fails”* (John Kania and Mark Kramer, Stanford Social Innovation Review, 2011, p. 40).

Collaboration requires “backbone” staff (Kania and Kramer, 2011) who are skilled in facilitation and consensus building, preparation of briefing materials for discussion, policy analysis, engagement and linking of resources, communications management, and much more. Each of these takes time and resources, and in most settings, training and capacity development to enable staff to work in new ways.

### 3. Cobenefits: Benefit Multiple Partners

*“A good solution solves multiple problems”* (Larry Cohen, Prevention Institute [as cited in Jackson and Sinclair, 2011, p. xxv]).

Intersectoral collaboration generally works best when partners from all sectors can see tangible gains for themselves; although this may appear self-serving, it is often simply a response to the pressures of resource scarcity and limited flexibility of funding and program mandates. Health in All Policies provides opportunities to identify strategies that address multiple goals at the same time, and provide “cobenefits”—benefits in an area different from that for which the strategy was developed (see Box 3). Finding win-win strategies that benefit multiple partners and simultaneously address the goals of public health can help establish buy-in, allow partners to leverage resources, and increase efficiency by pursuing multiple goals through one effort. Identifying co-benefits across sectors is an essential strategy for building a mutual vision, shared goals, and synergistic outcomes.

#### BOX 3

##### Examples of Cobenefits and Win-Win Strategies for Health, Equity, and Sustainability

**Climate change and health.** Although climate change is “the biggest global health threat of the 21st century,” policy makers and the public are often unaware of the impacts of climate change on health (Costello et al., 2009). Climate change has direct impacts on health, such as heat illness or injuries from flooding and other extreme weather events and indirect impact through effects on the life-supporting systems on which our basic security depends, including food, water, air, and shelter. Many strategies to address climate change have important health cobenefits. For example:

- Reducing greenhouse gas emissions by shifting transportation mode from driving to active transportation (walking, bicycling, public transit) can yield huge health benefits through reducing air pollution and increasing physical activity, which reduces cardiovascular disease, diabetes, osteoporosis, and other chronic illnesses (Maizlish et al., 2013). Recent studies project that the magnitude of the health benefits of active transportation would rival those of our most successful public health campaigns, with 14 percent reductions in heart disease and significant projected reductions in diabetes, stroke, and depression (Maizlish et al., 2013).
- Reduced meat consumption can both reduce heart disease risk in human populations and reduce the livestock population need, limiting methane emissions from cattle livestock production and livestock digestion processes (McMichael et al., 2007; Micha et al., 2010; Younger et al., 2008).
- Planting shade trees reduces urban heat islands (EPA, 2008), reduces stormwater runoff, provides watershed and groundwater benefits (Center for Urban Forest Research, 2002), may improve air quality (Nowak, 2002), and lowers energy costs (Pandita and Labandb, 2010), freeing up resources of low-income people for other basic needs.

**Community safety.** Violence is a leading cause of injury, contributes to significant stress, and reduces social and community cohesion. Violence or fear of violence can make people less willing to take public transportation, less supportive of high-density living, or less likely to engage in community activities, all of which can also impact health and healthy behaviors (Loukaitou-Sideris and Eck, 2007; McConnell and Wiley, 2010). Increased community safety thus has many poten-

tial co-benefits, including

- increased use of public and nonautomobile modes of transportation, with decreased traffic and automobile emissions;
- reduced crime rates with concomitant improvements in local business and higher property values; and
- increased social and civic engagement.

**Farm-to-fork.** “Farm-to-fork” policies and programs make it easier for people and institutions to purchase produce from local farmers. Cobenefits include

- Farm-to fork policies and programs can support the local agricultural and food economy (Curtis et al., 2010).
- Supporting local agriculture helps to preserve agricultural lands.
- Agricultural lands may support habitat conservation and “ecosystem services,” the ways that human communities benefit from nature, such as “through clean water, timber, habitat for fisheries, and pollination of native and agricultural plants” (Ecological Society of America, 2000).
- Healthy eating is an “essential component of supporting academic achievement” (Florence et al., 2008; Kleinman et al., 2002). An estimated 19 to 50 percent of calorie intake by children occurs at school (Los Angeles Food Policy Task Force, 2010).
- Strong local food hubs can help communities be more resilient in the face of disasters that may cut them off from food distribution systems (Barham et al., 2012).

### *Harmonizing Healthy Public Policies*

An unanticipated benefit of Health in All Policies collaboration is that it may serve as a forum for addressing tensions among multiple important and health-related policy goals across agencies, and even sometimes between branches within the same department. When the goals and objectives of different agencies appear to be in conflict, it is extremely valuable to have a safe place to discuss the concerns of all parties and seek mutually agreeable resolution. Using health as a unifying value can help bring partners to the table to address long-standing disagreements. In some instances, solutions that adequately address the concerns of all parties may be fairly easy to achieve, while others prove more intractable.

For example, school gardens provide opportunities for children to learn about food production and to appreciate fresh fruits and vegetables. However, food safety experts have raised concerns about risks of foodborne illness with consumption of school-grown food. Existing regulatory structures for licensing and certification of food production facilities and food handlers are perceived as overly burdensome for school garden volunteers and teachers, and have made it difficult to promote these programs. Providing a forum for discussion of the concerns of all parties can help identify solutions such as streamlined self-certification integrated with basic food and garden safety education (ChangeLab Solutions, 2013).

Another example relates to tensions between proponents of smoke-free multiunit housing and tenants’ rights advocates who want to make sure that tenants who smoke, including many long-term and elderly tenants, do not lose access to affordable housing. Identified solutions include phasing in smoke-free policies over time (Ezra, 2001), incorporating tobacco-free provisions in new leases or voluntary changes to existing leases, but prohibiting harassment or eviction of smoking tenants with existing leases (City of Santa Monica, 2012), and providing onsite smoking cessation aid in multiunit housing (Winickoff et al., 2010). The example below (see

Box 4) discusses transit-oriented development, affordable housing, and air quality—which is an even more vexing challenge.

**BOX 4**  
**Transit-Oriented Development, Affordable Housing, and Air Quality**

California laws, executive orders, and agency guidance require or encourage state and local agencies to pursue several interrelated health-promoting goals, including

- promoting and prioritizing infill and transportation-oriented development to reduce transportation greenhouse gas emissions and air pollution, preserve agricultural land to provide food and sustain the economy, and support active transportation that increases physical activity (Maizlish et al., 2011; Woodcock et al., 2009);
- ensuring an adequate supply of affordable housing; and
- reducing exposure to harmful air pollutants, including through use of buffer zones between housing and busy roadways (California Environmental Protection Agency, 2005; World Health Organization Regional Office for Europe, 2000).

Simultaneous pursuit of all three of these goals can be challenging; in some areas there is little land available to build affordable housing, or, if there is land, it is located near busy roadways, which pose serious health risks due to poor air quality. These same sites are also often ideal for transit-oriented development which is associated with a variety of health impacts, both positive and negative. People who live in compact, complete neighborhoods are more likely to engage in active transportation, which provides physical activity benefits that are likely to be greater than the adverse consequences of air pollution near busy roadways (Maizlish et al., 2013; Sallis et al., 2009). In fact, those who commute long distances on congested freeways suffer significantly higher pollutant exposures than even those living near freeways (Brugge et al., 2007; Zuurbier et al., 2010). Furthermore, many people already live near busy roadways and may not benefit from policies regarding new housing (Southern California Association of Governments, 2012). Additional long-term health impacts result from homelessness, high housing costs, and climate change absent significant reductions in greenhouse gas emissions. Planners thus face difficult decisions in considering whether to build new affordable housing units near busy roadways—particularly for low-income people, a higher proportion of whom are people of color. These are issues for which there is no clear scientific answer; inclusion of affected communities in discussions about options and tradeoffs is important.

In response to this challenge, the Task Force convened a multiagency Housing Siting and Air Quality Workgroup, which seeks to increase cross-sector understanding on the part of agencies and stakeholders about the interrelatedness of these issues, the need for harmonization, and strategies that most effectively address all of the issues adequately. New fuel efficiency and low carbon fuel standards will reduce greenhouse gases and roadway pollution over the next 20 years, but that does little to protect the elderly or young from cardiovascular disease or asthma today. More stringent ventilation requirements may protect occupants of transit-oriented development while inside, but do not address high exposures while being active outdoors. Modeling and measurement of actual exposure levels, site design, and “right-to-know” disclosures are other strategies that have been explored. But no entirely satisfactory answers have yet emerged, and this complex issue remains under discussion.

#### 4. Engage Stakeholders

Robust stakeholder engagement is essential for ensuring that Health in All Policies work is responsive to community needs. Stakeholders provide important information about barriers to and opportunities for health and insight into the ways in which government agencies and policies

may impede or promote health. Successful Health in All Policies initiatives engage a variety of stakeholders from across multiple sectors, including community members, policy experts, advocates, the private sector, and funders; for federal and state agencies, state or local governments, respectively, are key stakeholders.

The value of community-based knowledge is often overlooked in understanding health outcomes and inequities or identifying possible policy and systems interventions to improve them. For example, when discussing poor school performance and low graduation rates, community members may bring to light underlying problems such as housing insecurity or school discipline and juvenile justice policies as key contributors. Community stakeholders are also able to recognize and mobilize community assets that may support implementation of Health in All Policies recommendations and to garner political support for Health in All Policies strategies.

### **5. Create Structural or Procedural Change**

Consideration of health, equity, and sustainability in decision-making processes across policy areas and over the long term will require changes in how government decisions are made and how agencies relate to each other and to stakeholders. “Embedding” or “institutionalizing” Health in All Policies into the structures and processes of government so that health, equity, and sustainability are considered in the early stages of program development, planning, and policy making represents a fundamental shift in how government functions. Although infrastructure (personnel, budgets, policies and procedures) is important, the procedural changes must also be embedded. Bill analyses, budget change proposals, state guidance documents, grant guidelines, contracts, strategic planning, and program review and evaluation are just a few examples of where health goals or impact can routinely be considered.

## **DISCUSSION: ISSUES IN IMPLEMENTATION**

Integrating Health in All Policies into the routine workings of agencies across the whole of government will not be easy. Following is a brief exploration of several of the key challenges.

### **1. Evidence, Evaluation, Data, and Tools**

Evaluation of Health in All Policies initiatives has been fairly limited to date and will require consideration of process, impact, and outcomes. Process evaluation can assess the extent to which partners (i.e., nonhealth government agencies) and external stakeholders feel that the collaborative process meets their needs and see value in incorporating a health lens in decision making. Impact evaluation may assess whether the initiative has led to policy outcomes (e.g., actual incorporation of health, equity, and sustainability considerations into policies or programs as a result of a Health in All Policies collaboration) and organizational outcomes (e.g., funding of a body within government to maintain intersectoral collaboration for health or formalized inclusion of health lens analysis in government processes). Outcomes evaluation measures changes in the attributes of environments that impact health (e.g., poverty levels, liquor store density, smoke-free multiunit housing, tree canopy assessments, sidewalk inventories, graduation rates, transportation access, and crime statistics), health risk behaviors, population health outcomes, and the fiscal, economic, and social costs and benefits of these changes. Many of these measures

are compiled by nonhealth agencies. Since Health in All Policies is about the change process itself, ongoing developmental evaluation may also be helpful.

Evidence abounds on population health status, health inequities, and the social determinants of health, and there is a growing body of literature about the effectiveness of policy, systems, and environmental change strategies. But evidence on the impact of social, environmental, and economic policies on population health is often unavailable, lacks the rigor of a randomized clinical trial (Baron, 2012), or exists only for small pilots that are not fully replicable and scalable. Thus, those working to implement Health in All Policies may find themselves advocating for promising or emergent and creative solutions that lack rigorous evidence, even if they are “evidence-informed” (Bowen and Zwi, 2005). Innovation and creative problem solving is valuable, but more rigorous evaluation of the impact of Health in All Policies will lend further credibility to this approach. Outcomes evaluation is particularly challenging for Health in All Policies, because (1) it may be hard to attribute a policy decision to a Health in All Policies process, (2) it is hard to attribute changes in population health measures to a specific policy or decision, given complex causality, and (3) changes in health outcomes are likely to occur over long time horizons.

Evaluation requires the availability of data on the social determinants of health, which may not typically be accessed or used by public health programs, raising issues about legal barriers, costs, concerns about confidentiality, or simply lack of staff resources. In order to evaluate inequities, one needs access to data at a granular level in order to reveal geographic pockets or subpopulations experiencing inequities in exposures or disease outcomes. For example, the ratio of food outlets per resident may seem adequate for a given county, but measuring food outlets per city or neighborhood may highlight significant differences in access to healthy eating.

There is no widely accepted set of measures (i.e., akin to the Healthy People measures for health status) of a broad set of social determinants of health, nor of healthy public policy. California is attempting to redress this gap by developing a standardized core set of indicators based on the aforementioned Healthy Community Framework, but this work needs to be fully supported and elevated to a national level. (More information about the Healthy Communities Indicators is available at <http://www.cdph.ca.gov/programs/Pages/HealthyCommunityIndicators.aspx>.)

Health impact assessment (HIA) (NRC, 2011) and the South Australian Health Lens Analysis (Department of Health, Government of South Australia, 2010) are tools for use in considering the health consequences of policy and programmatic options. The use of HIA is becoming more prevalent in the United States, but many health agencies still lack capacity or resources to apply it routinely. Issues in the application of a health lens abound, for example, efficient timing during a lengthy process, adaptation to a very rapid decision making process, whom to engage as stakeholders, balancing of resources and time against depth of analysis, etc. It remains important to further refine and develop these tools for use in Health in All Policies .

## **2. Collaboration**

Collaboration takes time and resources, both of which are in short supply in many government agencies. But these are not the only challenges to intersectoral collaboration. The siloed nature of programs and funding has long been decried for negative impacts on effectiveness and efficiency and contribution to fragmentation, overlap, and duplication (GAO, 2013). Silos mask the “big picture,” impede the integration of multiple perspectives, and foster focus on specific areas that are funded or mandated, regardless of whether those foci are likely to have the biggest



impact on a problem—the “looking for the keys under the streetlight” phenomenon (Freedman, 2010).

Although frameworks such as “Collective Impact” (Kania and Kramer, 2011) provide structure for breaking down silos, barriers such as narrowly defined funding streams, regulations and legislation that place rigid limits on program functions, and bureaucratic cultures (command-and-control-oriented cultures in which fear prevails and information and decisions move strictly vertically within the organization versus horizontally or externally) must also be addressed in order to facilitate deep collaboration.

A recent study of the Partnership for Sustainable Communities, a collaborative effort of the U.S. Department of Housing and Urban Development, the U.S. Department of Transportation, and the U.S. Environmental Protection Agency, suggests that de-siloing requires many ingredients. These include a high level of dedication from the top leadership of each agency, integration of collaboration goals into each agency’s ongoing programs, a shared commitment to an important set of implementable policy goals, and substantive stakeholder engagement and responsiveness to stakeholders (Pendall et al., 2013). Additional requirements are structures for collaboration and intentional changes to funding opportunities and regulations so that they encourage local, regional, and state partners to implement the goals and principles of the partnership.

### 3. Institutionalization

Truly embedding health equity and sustainability into policy and decision-making processes across the whole of government will require that Health in All Policies be institutionalized. In other words, there must be formal and sustainable structures, processes, and resources that enable timely analysis of the health consequences of decisions, with appropriate stakeholder engagement and a cultural shift that increases the likelihood that health consequences will impact decisions. This raises several questions:

- *Where should Health in All Policies be placed within the structure of government?*  
Because it is by definition intersectoral, placement within a particular agency—especially within the health agency—may dilute the commitment of agencies across government. Placement within the executive office of government can help ensure that this becomes a priority across all agencies. Wherever the initiative is “housed,” health experts or a health department should play an important leadership and technical assistance role.
- *How should Health in All Policies be funded?*  
A funding allocation to a single agency, or solely to a team in the executive office, can create unfair burdens for other participating agencies, or unrealistic expectations for the single funded agency. On the other hand, distributed funding requires interagency agreements that can be complicated or require contractual obligations that limit flexibility.
- *When is it appropriate to incorporate a health lens analysis?*  
Not every policy decision will impact health, and applying a health lens requires resources. Some questions to consider are what is the appropriate screening mechanism to determine when a health lens analysis is appropriate, who will conduct that screening and how, and who will determine what type of health lens analysis is appropriate (e.g., a rapid consult versus a full-scale formal health impact assessment).
- *How will governments build workforce capacity for Health in All Policies?*

Health in All Policies requires new skills for workers in public health and other agencies including technical skills (e.g., how to conduct a health lens analysis, policy analysis), collaboration skills, and political skills.

#### **4. Stakeholder Engagement**

Stakeholder engagement can foster a stronger Health in All Policies collaboration, particularly if it promotes opportunities for the concerns and recommendations of vulnerable and disadvantaged communities to be heard and allows for discussion across sectors so that a full spectrum of issues and consequences can be considered.

Governments already have numerous structures for stakeholder engagement in decision-making processes. However, these often exclude those in vulnerable and disadvantaged communities who are most impacted by the social determinants of health, as well as their advocates (Popay et al., 2008). Location, timing, and language of public hearings and workshops may impede participation; lack of familiarity with the policy process may make participation intimidating; the absence of paid advocates may make it difficult for those facing economic and time pressures to participate; and distrust of government may diminish interest. Moreover, nongovernmental and community-based organizations are often as siloed as government agencies, and organizations focused on issues such as housing or education may not think about how their work impacts health.

Many in government are uncomfortable or unfamiliar with “community governance”—“the process by which we collectively solve our problems and meet our society’s needs”—which requires inclusive decision making, active citizenship and democracy, and deep community engagement (Centre for Local Government, 2012). Government often views community stakeholders as clients, customers, or taxpayers, rather than as citizens and partners. Agencies are often focused on meeting statutory requirements, providing specific services, handling complaints, or addressing internal organizational issues such as budgets, and can lose sight of the value of understanding community needs and engaging communities as true partners.

#### **5. Leadership and Political Will**

The incorporation of health, equity, and sustainability as priorities in government decision making requires a transformation in government process and practice. The Health in All Policies concept is derivative of earlier movements to address the social determinants of health, such as the Health Promotion movement that led to and emanated from the Ottawa Charter of 1986 (WHO, 1986). Recent commentaries on the outcomes of that movement raise significant cautions about what will be required for Health in All Policies to be truly successful (DeLeeuw and Clavier, 2011; Hancock, 2011). Action on the social determinants of health means challenging the underlying assumptions about the way society is organized. It requires social, political, and economic changes that more equitably balance the distribution of wealth, power, and resources and balance current human needs against those of future generations and the sustainability of the planet and its ecosystems (Hancock, 2011).

Health in All Policies requires a reframing of our social discourse about health and is a label for a larger concept rooted in the fact that the environments in which people live, work, study, and play shape their health outcomes. The motivating rationale behind Health in All Policies is that if environments matter for health, then society, and the government agencies that

serve it, should consider health outcomes in the decisions that shape those environments. This *environmental frame* is quite contrary to the prevalent default frame in the United States—that of individual will and responsibility—which holds individuals accountable for their own health outcomes, especially when those outcomes can be related to what are considered “lifestyle” choices, such as smoking, eating, and physical activity (Wallack and Lawrence, 2005). Reorienting the default frame from one focused on individual responsibility to one that sees health in the context of local, regional, and planetary environments is a critical aspect of institutionalizing Health in All Policies approaches. This is more challenging in light of well-funded efforts to sow public doubt about the science supporting efforts to change those environments (Oreskes and Conway, 2010).

Health in All Policies requires engagement in a political process. Simply imparting knowledge to policy makers or communities regarding the unequivocal evidence on social determinants and health inequities is unlikely to lead to policy or systems change. Institutions and decision makers rarely challenge the status quo absent a political process that addresses competing policy agendas (especially those framed in economic terms) and raw power politics and includes a real mobilization of the public to change things (DeLeeuw and Clavier, 2011). A critical first step is learning to better communicate with community, organizational, and political leaders about the relationships between health, equity, sustainability, and the economy.

Without committed and visionary leaders who are willing to shift resources to foster a new approach, encourage staff to move in new directions, challenge the status quo, and risk a paradigm shift in how government functions, Health in All Policies is unlikely to yield its full potential as a strategy to promote health, equity, and sustainability.

## CONCLUSION

Health in All Policies is an emerging approach to address the complex problems confronting public health in the 21st century. Key elements of Health in All Policies include placing consideration of health, equity, and sustainability squarely within decision-making processes across the whole of government; relational collaboration across sectors; identification of cobenefits; robust stakeholder engagement; and structural and procedural change to institutionalize Health in All Policies approaches.

There are reasons to be optimistic about Health in All Policies, both because models for its implementation are emerging across the nation and internationally and because of the evolution and spread of key tools for its success, such as health impact assessments.

The experience of the California Health in All Policies Task Force, and that of others, suggests that lasting and truly successful implementation of Health in All Policies will require (St-Pierre, 2009):

- strong and visionary leadership, with commitment to a “whole of government” approach at the highest levels of government;
- a clearly articulated vision of health and healthy communities, shared goals and objectives, and indicators for monitoring progress;
- permanent and adequately funded organizational structures—ideally situated at the chief executive level, with resources and organizational capacity for collaboration and health lens analysis;
- legal mandates and legislated support;

- robust and resourced community and stakeholder engagement; and
- conscientious and explicit prioritization of human well-being and development, health, equity, and sustainability as core responsibilities and goals of government.

## APPENDIX I

### California Senate Concurrent Resolution No. 47 (DeSaulnier, 2011)

#### Chapter 56: Relative to Health in All Policies (Calif. Health in All Policies, SCR 47, 2012).

WHEREAS, California and its residents face a growing burden of largely preventable chronic illnesses such as heart disease, stroke, obesity, and diabetes; and

WHEREAS, People in disadvantaged communities often have fewer resources for health, which is reflected in significantly higher burdens of chronic illness, worse health outcomes, and shorter life expectancies; and

WHEREAS, The health and well-being of all people is a critical element in supporting a healthy and prosperous California, including economic sustainability, increasing workforce participation and productivity, and slowing the ongoing rise in medical care expenditures; and

WHEREAS, The physical, economic, and social environments in which people live, learn, work, and play influence the adoption of healthy lifestyles, by making it more or less difficult for individuals to choose behaviors that promote or diminish health; and

WHEREAS, These environments are significantly influenced by policies developed by various state agencies and departments relating to housing, transportation, education, air quality, parks, criminal justice, employment, and other policy areas; and

WHEREAS, Public health agencies alone cannot change these environments, but must work collaboratively with the many other governmental agencies, businesses, and community-based organizations that are best positioned to create healthy communities; and

WHEREAS, Strategies to create healthy communities create cobenefits by simultaneously supporting state goals of improving air and water quality, protecting natural resources and agricultural lands, increasing the availability of affordable housing, improving infrastructure systems, planning sustainable communities, and addressing climate change; and

WHEREAS, Health in All Policies is an integrated approach that is being used internationally and in California to achieve better health outcomes and greater sustainability by incorporating a health aspect into policy development across all government sectors; and

WHEREAS, The Health in All Policies approach uses health as a linking factor in bringing people together from across sectors to address major societal issues, focuses on cobenefits and win-win strategies, and harnesses the power that agencies and departments can bring through their areas of individual expertise; and

WHEREAS, California's Health in All Policies Task Force was established by Executive Order S-04-10 on February 23, 2010, under the auspices of the Strategic Growth Council; and

WHEREAS, The Health in All Policies Task Force, which includes representatives from 19 state

agencies, departments, and offices, developed a broad-ranging set of recommendations geared at improving the efficiency, cost effectiveness, and collaborative nature of state government, while promoting health and other goals of the Strategic Growth Council; now, therefore be it

*Resolved by the Senate of the State of California, the Assembly thereof concurring,* That the Legislature requests that the Strategic Growth Council and the member agencies, departments, and offices of the Health in All Policies Task Force provide leadership on implementing the recommendations put forth in the Health in All Policies Task Force Report; and be it further

*Resolved,* That the Legislature encourages interdepartmental collaboration with an emphasis on the complex environmental factors that contribute to poor health and inequities when developing policies in a wide variety of areas, including, but not limited to, housing, transportation, education, air quality, parks, criminal justice, and employment; and be it further

*Resolved,* That the Legislature encourages consideration of both short- and long-term health impacts, costs, and benefits, where appropriate, when weighing the merits of proposed legislation; and be it further

*Resolved,* That the Legislature encourages public officials in all sectors and levels of government to recognize that health is influenced by policies related to air and water quality, natural resources and agricultural land, affordable housing, infrastructure systems, public health, sustainable communities, and climate change, and to consider health when formulating policy; and be it further

*Resolved,* That the Secretary of the Senate transmit copies of this resolution to the author for appropriate distribution.

## APPENDIX II

This appendix describes the relationships between health and a wide variety of policy areas.

### **Community Greening and Health**

Community greening, including urban forests, parks, and open space, has a wide range of health benefits, from improved water quality to reduced stress and automobile crashes (Naderi, 2003; Nowak et al., 2006; Ulrich et al., 1991). Trees provide shade, offering cover from cancer-causing ultraviolet radiation, reducing air temperatures, and decreasing energy demand (Akbari, 2002; Saraiya et al., 2004). Greening provides pleasant places for physical activity that feel safe, and promote social interaction (Almanza et al., 2012; Kuo and Sullivan, 2001; Lee and Maheswaran, 2010; Wolf, 2010). Nature can be particularly beneficial to children, supporting sense development, encouraging creativity, improving concentration, and rehabilitating children that are ill (Dadvand et al., 2012; Louv, 2005). Greening benefits the economy, providing jobs that are not exportable, adding value to economies, and increasing property values and home resale prices (California Department of Forestry and Fire Protection, n.d.; Des Rosiers et al., 2002; Hall et al., 2005).

### **Community Safety, Violence Prevention, and Health**

Community safety and violence directly influence mental and physical health. Violence is a leading cause of injury, disability, and premature death in the United States. Violence disproportionately affects young people of color. Homicide is the leading cause of death for African Americans aged 15 to 24 years, and the second leading cause of death for Hispanic youths (CDC, n.d.). Youth may miss school (CDC, 2010a) or drop out (Grogger, 1997; Peguero, 2011) if they feel unsafe at or on their way to school and may also have lower levels of educational attainment (Ammermueller, 2012; Fonagy et al., 2005), as well as more general psychological distress (Peguero, 2011). The rates and location of violence may also impact decisions regarding land use planning, environmental sustainability, and economic development. Therefore, preventing violence and promoting community safety are essential in promoting walkable streets, parks, and playgrounds, achieving adequate physical activity (Handy et al., 2002; Wood et al., 2008), ensuring access to healthy food (Odoms-Young et al., 2009), supporting community cohesion (Cradock et al., 2009), and encouraging individuals to live in high-density areas.

### **Education and Health**

The relationship between education and health is well documented. The health of students significantly impacts academic performance (Baltimore Education Research Consortium, 2011; Chang and Romero, 2008; Jackson et al., 2011), school dropout rates (Baltimore Education Research Consortium, 2011), and attendance (Jackson et al., 2011). Educational attainment is also a key determinant of health (Olshansky et al., 2012; Winkleby et al., 1992), predicting economic well-being (WestEd and Philip R. Lee Institute for Health Policy Studies, University of California, San Francisco, 2009), likelihood of incarceration (Lochner, 1999; Lochner and Moretti, 2004), and general well-being (Vernez et al., 1999), making education a key goal across

policy areas. Additionally, children eat an estimated 19 to 50 percent of calorie intake at school (Los Angeles Food Policy Task Force, 2010), and school breakfast programs can also increase learning and decrease behavioral problems (Chandran, 2007). School curricula focused on healthy foods help students make better food choices (California Department of Education, 2007). Schools can be an important source of physical activity if schools have physical education programs, or if students are able to walk or bike to school. The location of schools can also have health and community-wide impacts, potentially affecting traffic patterns and opportunities for active transportation—and therefore the amount of health-harming emissions (EPA, 2003). Finally, schools provide important opportunities for collaboration across sectors in addressing community safety, violence prevention, physical activity, nutrition, community greening, and more.

### **Income, Employment, and Health**

Socioeconomic status (SES) is one of the strongest predictors of health (Adler and Newman, 2002; John D. and Catherine T. MacArthur Research Network on Socioeconomic Status and Health; 2007) because poverty is associated with significantly worse health outcomes across all races/ethnicities and in every state and community (Adler and Newman, 2002). The relationship between SES and health shows a step-wise progression; as SES decreases, opportunities and resources for health decrease and subsequent decreases in health are seen. Furthermore, not only is individual poverty a determinant of health, but neighborhood poverty also has connections with poor health outcomes (Anderson et al., 1997; Haan et al., 1987; John D. and Catherine T. MacArthur Research Network on Socioeconomic Status and Health, 2007). Unemployment is also associated with poor physical and mental health outcomes by making it difficult to afford basic necessities, increasing stress, increasing unhealthy coping behaviors (such as alcohol, smoking, or drug use), or eliminating positive mental health benefits associated with employment (Dooley et al., 1996; Jin et al., 1995). Work itself can have important health impacts, and certain industries and occupations include hazards that may increase the risk for illness, injury, or death. Hazards may include unsafe equipment, exposure to toxic chemicals, excessive noise, heat or radiation, and excessive physical demands.

### **Food Access and Health**

Poor diet is one of the leading causes of death in the United States (Mokdad et al., 2004), and despite the importance of healthy eating, consumption of fruits and vegetables is far below recommended levels (CDC, 2010b). Diets high in processed, high-calorie, low-nutrient food contribute to obesity and chronic disease including heart disease, high blood pressure, and cancer (CDC, 2010b; HHS and USDA, 2005). This problem is particularly acute in rural and urban low-income communities and communities of color where access to fresh, high-quality, affordable food is often limited (California Center for Public Health Advocacy et al., 2008; Bell and Rubin, 2007). Methods for improving access to healthy food and fresh produce in these communities include farmer's markets, community gardens, urban farming, healthy food financing, and school meal programs. In addition, federal food assistance programs such as the Special Supplemental Nutrition Assistance Program for Women, Infants, and Children and the Supplemental Nutrition Assistance Program (SNAP) provide nutrition assistance and play a vital role in promoting access to healthy, affordable food and fresh produce. There are broader community benefits from



SNAP as well. For example, every \$1 in new SNAP benefits creates \$1.73 in total community spending, and the demand for retail food from SNAP recipients generates new agriculture jobs throughout the United States (Hanson, 2010).

### **Sustainable Agriculture and Health**

Sustainable agriculture can promote environmental health, economic profitability, and social and economic equity (Agriculture and Sustainability Institute, n.d.). Adapting the food supply chain to more closely align production and distribution of food products with population health needs can focus resources to support increased production of sustainably produced, organic fruits and vegetables and help ensure that communities lacking access to these foods are not overlooked. Pesticides used in conventional agriculture are linked to cancer, birth defects, decreased fertility, and other health problems (Schafer et al., 2004). The health benefits associated with sustainable agriculture include reductions in soil pollutants, greenhouse gas emissions, food insecurity and under-nutrition, and foodborne illness (McMichael and Campbell-Lendrum, 2004). When food is sustainably grown and produced, it can support a food system that uses less energy, supports farmland preservation, is more prepared to adapt to climate change, and promotes equitable and fair labor practices. Providing incentives to encourage agricultural producers to adopt sustainable production practices can help preserve and regenerate the topsoil that is necessary for continued agricultural productivity.

### **Transportation**

Transportation systems impact health by influencing the level of access to jobs, medical care, food, educational opportunities, and other necessities (TransForm and California Department of Public Health, 2012). Active transportation—walking, biking, wheeling, and taking public transit to destinations—provides opportunities to reduce environmental pollution associated with driving and increases physical activity, thereby reducing the risk of chronic disease (Frank et al., 2004; Woodcock et al., 2009). Transportation systems that support active transportation can enhance community economic viability by giving families lower-cost transportation options and linking residents to job centers (Health Impact Assessment Project, 2007). Models of active transportation in the Bay Area found that a 15 percent active transportation mode share would reduce the burden of heart disease by 14 percent, dementia and depression by 6 to 7 percent, and breast and colon cancer by 5 percent (Maizlish, et al., 2011). However, low-income communities and communities of color are most impacted by transportation-related pollution, as they tend to live and work closer to highways, busy arterials, ports, and bus depots (American Lung Association, 2008).

**Suggested Citation:** Rudolph, L., J. Caplan, C. Mitchell, K. Ben-Moshe, and L. Dillon. 2013. *Health in All Policies: Improving Health Through Intersectoral Collaboration*. Discussion Paper, Institute of Medicine, Washington, DC.

<http://nam.edu/wp-content/uploads/2015/06/HealthInAllPolicies>

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