Over the past century, public health has scored many wins through better sanitation, immunizations, and control of communicable diseases such as tuberculosis, smallpox and polio.

Today, we are faced with new challenges. Nearly 60% of Dane County adults are overweight or obese, and the leading causes of illness and death in Dane County are cancer and heart disease. The most egregious challenge is that the disease burden falls most heavily on people of color, people living with disabilities and people with limited economic and educational assets.

How do we tackle these challenges? The first step involves understanding root causes, including systems and policies that have systematically limited access to employment, education and assets among communities of color and low-income families. Because of their enormous direct and indirect costs, these systemic biases undermine our ability to build a thriving community. Our community well-being depends on our success in addressing inequity.
Research tells us that children spend less play time outside, walk or bike to school less frequently than in previous generations, and spend copious amounts of screen time each day. Even when they want physical activity, their willingness to use a park depends on whether parents perceive it as welcoming, safe and accessible. Many cities and towns, designed for cars rather than people, limit active mobility. More desk time at work also means more inactivity. These challenges compound when combined with the effects of trying to "make ends meet."

In fact, social and economic factors account for more than 40% of a person’s health status. Income, housing status, and educational attainment, as well as the community environments where we live, work, eat, play and learn, dramatically affect health. In contrast, access to health care accounts for an average of only 20% of those health status outcomes. Our commercial environment, too, impacts behaviors. From birth, children are

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**Investing in Equity**

Social and economic factors such as income, education, housing, employment and community safety account for 40% or more of a person’s health status (County Health Rankings and Roadmaps, 2014). Dane County’s data on health outcomes are clear: Not everyone in Madison and Dane County has the same chance to live a safe, healthy life.

Equity, or the attainment of the highest level of health for all people, requires valuing everyone equally with focused and ongoing societal efforts to address avoidable inequalities, historical and contemporary injustices, and the elimination inequitable health outcomes.

Examples of structural or institutional bias include generational barriers to wealth-building mechanisms, such as home loans, high-quality employment, and educational advancement. Others include policies that have incarcerated large proportions of African Americans for what are often minor offenses.

In 2013, PHMDC co-founded a Racial Equity and Social Justice Initiative within the City of Madison. In 2014, Dane County initiated an equity initiative. The goal? Infuse equity considerations into operations; budgets, policies and programs; and communities.

Equity review "tools" allow city and county officials to consider equity in decision-making and service design. The City Clerk’s Office adopted strategies to engage poll workers within communities of color. The office also is providing greater access to licensing and permitting for small business owners from traditionally marginalized populations.
exposed to marketing messages about fast food designed to build brand affinity and drive consumption.

But there is hope. A growing national and international public health movement is now engaging community members to shape their environments, as well as those social and economic factors that address the root causes of disease and illness. One major goal of these efforts is to increase opportunities for everyone to make healthy choices by focusing on the systems, policies and environments that enable or constrain those choices.

A pyramid of interventions, above, shows the largest population impact as we work toward changes in policies, systems and environments that affect the health of a community. Behavioral interventions, or programs and services that directly serve individuals, play critical roles among populations with significant health risks. Alone, however, they generally cannot address root causes of poor health outcomes.

In contrast, changing the environments where people live, work, play and learn can significantly influence health. This scale of change can take time, but public health has made impressive

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**Change to Improve Health**

**Policy change**: Working to change public laws, regulations, rules, mandates (public policy), or budgets/funding.

**Systems change**: Shifting the way broader systems (e.g., health, public safety, local government) make decisions about policies, programs, and the allocation or use of resources. They may involve changes, for example, in power, authority, habits, or the use of ideas and skills.

**Organizational change**: Changing priorities, protocols, or practices within organizations, such as strategies, level of client involvement, allocation of resources, or perceptions of the staff and board.

Source: Center for Evaluation Innovation (2013), “Building Healthy Communities: Profile of Advocacy Progress”
Chronic disease in Dane County

Dane County faces an epidemic of obesity and chronic disease, with nearly one in four adults and one in three children in the county already obese. Obesity and overweight increase risk for high blood pressure, diabetes and heart disease. Obese adults incur $1,400 more in medical expenses than their normal weight peers. Without action, obesity related medical expenditures will increase more than 70 percent by 2020 (Health First Wisconsin 2013).

In Dane county, obesity and chronic disease are especially high among people whose daily choices are constrained by low wages, little or no access to health care, limited choices for affordable housing, or sporadic access to healthy foods. Chronic disease rates among people of color far outpace those of Whites, often regardless of income or education. Unfortunately, a host of factors also shape higher rates of tobacco and alcohol use in the same populations, contributing to higher proportions of complications due to chronic disease among people with low socioeconomic status.

Energy-dense, high-sugar, processed foods are often more affordable and accessible than healthy, fresh foods. Affordable neighborhoods may lack access to grocery stores, sidewalks, public transportation, safe places for children to play and facilities to encourage physical activity among adults, particularly during the long winter season. Moreover, people who work two low-wage jobs often don’t have time to exercise or take their kids to the park.

The ways we learn about food reinforce this trend. According to researchers at Yale University’s Rudd Center for Food Policy and Obesity, the average U.S. child watches approximately 13 food commercials on television every day, seeing 4,700 a year; teens see more than 16 per day, or 5,900 a year:

   Food products advertised most extensively include high-sugar breakfast cereals, meals from fast-food restaurants, candy, and sugary drinks. In comparison, children see about one ad per week for healthy foods such as fruits, vegetables or water. Companies increasingly market to young people in schools, on the Internet, and on mobile phones...often encouraging children to send marketing messages to their friends through YouTube, Facebook, and other social media.

Even though employers’ economic interests might be served by reducing obesity rates, the immediate market gain from advertising to children, for example, outweighs the social and economic costs such a practice incurs. In 2013, Wisconsin legislators preempted local authority over food and beverage marketing.

In Dane County and across Wisconsin, there is bipartisan public support for government action to curb obesity and tobacco use. Local health departments play key roles in this work.
strides in some areas. Examples include developing policies to promote tobacco-free community environments, tobacco taxes, street design that maximizes walking, biking and public transit, and promoting the use of seat belts and car seats to reduce traffic injury and death. These and other comprehensive initiatives suggest that interventions at this level generate significant social and economic benefit at the community level.

Policy, systems and organizational changes (see text box), require vision, collective action, community leadership, and investment in what works. Addressing the root causes of inequitable health outcomes takes commitment across neighborhood-based groups, businesses, health care systems, educational institutions, and government. It starts with examining data that reveals both community challenges and assets.

New Directions

Over the next three years, Public Health Madison & Dane County (PHMDC) will make strategic investments in staffing and community partnerships to achieve its principal goal: Improving the health of people across the county. Some of these investments are already taking place; all of them focus heavily on prevention.

In 2014, PHMDC reorganized to better support a vision of Healthy People, Healthy Places. A new division of policy, planning and evaluation now complements the work of the divisions of community health, environmental health and operations. Two full-time health equity coordinators, hired in 2013, guide and support City and County efforts in improving racial and social justice on both institutional and structural levels. In the fall of 2014, the department will add three new positions focusing on policy analysis, social and economic data analysis and food security (the availability of affordable, nutritious foods to meet daily needs).

Roles of local health departments

As key entities in our national public health system, local health departments are mandated to play some roles and encouraged to play others.
At the national level, the Centers for Disease Control and Prevention sets direction for priorities and investments across a spectrum of public health issues. At the state level, the Wisconsin Department of Health Services supports statewide efforts for prevention, as well as acting as an overarching structure for enforcement, regulation, licensing and implementing health policy, including administering Medicaid contracts.

Community collaboration

PHMDC has worked as an active partner in community collaboratives.

Engaged in initiatives of the Dane County Safe Communities Coalition, PHMDC supports prevention of drug poisoning, falls prevention, traffic safety and safe walking and biking routes, the Safe Kids Coalition for child passenger safety and a safe sleep coalition.

PHMDC coordinates the Dane County Immunization Coalition, whose goal is to raise immunization rates.

PHMDC also coordinates the Tobacco-Free Columbia Dane County Coalition, focusing on policy and systems changes to reduce tobacco use and exposure to second-hand smoke.

PHMDC supports the Dane County Oral Health Coalition, a group of providers and nonprofits improving access to dental services.

PHMDC is a member of the South-Central Wisconsin Breastfeeding Coalition and the African American Breastfeeding Alliance, both of which advocate for breastfeeding-friendly environments.

At the local level, health departments play three main roles.

**Assessment.** Local public health departments assess the health of the community—past, present and future. Staff work with community members to help make sense of trends and data about the distribution and extent of illness, disease, health risk and well-being. Staff work with partners to then shape priorities to help safeguard and promote health across the population.

**Assurance.** Local health departments have long provided assurance that people and organizations follow specific rules and regulations to safeguard health. Longstanding activities in environmental and community health have helped assure safe,
healthy community environments and access to health care and other services.

**Policy development.** Local health departments identify options to shape systems and public policy to promote long-term population health. One major goal is to improve the range of possibilities available to policy-makers and organizations so that health becomes a factor considered in all policy decisions.

Public Health Madison & Dane County is organized into four divisions to fulfill these roles.

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**Division of Environmental Health**

PHMDC’s Division of Environmental Health is responsible for helping ensure food safety and air and water quality, as well as providing animal services across the County. A diverse collection of environmental health professionals annually inspect more than 2,700 licensed establishments in Dane County, ensuring safe practices for food handling, as well as occupational and consumer safety. Animal services officers help ensure that wild and domestic animals do not pose threats to human health and are protected against disease.

Sanitarians inspect and oversee remediation of dwellings with lead-based paint, inspect wells and septic systems, and monitor toxicity levels in soils, water and air. Microbiologists monitor water quality at beaches and in public swimming pools. Chemists monitor toxicity levels in the environment. Environmental health workers assess and inform the public of human health risks, offering accurate scientific evidence to promote healthy decision-making. Emergency preparedness staff ensure that appropriate plans are in place to respond to a range of natural disasters, terrorism threats or communicable disease incidents.

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**Division of Policy, Planning & Evaluation**

The PHMDC division of policy, planning and evaluation assesses the health of Madison and Dane County. Epidemiologists collect, organize, analyze and communicate health-related data, tracking health trends. They work with colleagues across the department and in the community to better understand opportunities to
promote maternal and child health, ensure effective control of communicable disease, boost environmental health and investigate the social and economic factors influencing health outcomes.

Teams of staff with training in public policy, public health, public affairs, law, social science, nursing, health education and urban and regional planning increasingly work with partners to pursue a Health in All Policies approach within the City and County. This might include the design of health-promoting transportation systems, equitable paths to economic development, sustainable approaches to our use of natural resources and how we plan for the health implications of climate change.

The division increasingly provides support to internal programs and community partners focused on promoting health equity in the prevention priority areas of the National Prevention Strategy, as well as locally-identified priority areas. Staff help community partners identify evidence-based, data-driven approaches to improve decision making and action planning. The division also

United States National Prevention Strategy
provides technical assistance in program development and evaluation, ensuring that public projects identify appropriate goals, clear criteria for success and metrics to track results.

Staff review research and reports about approaches from other communities, examining costs and benefits of options. A growing focus of our work is on the ways public policies and systems influence health and well-being over time. How do strategic investments housing, food systems, transportation, employment opportunities, education and access to essential services, including health care, influence health outcomes?

Specific approaches, such as Health Impact Assessments, help us systematically examine the health implications of policies, system design and resource allocation, estimating how each of these affects distinct populations in the community.

Ultimately, PHMDC will increasingly convene, catalyze and act as a supportive partner for innovative community initiatives to improve well-being, particularly among groups most affected by negative health outcomes.

Division of Community Health

Each year, a range of PHMDC community health programs reach individuals with significant health risks. Each year, for example, nurses provide case management for nearly 250 women with high-risk pregnancies, helping them access primary care and other support services.

PHMDC offers free immunizations for uninsured Dane County residents and children on Medical Assistance (Badgercare). As a coordinating member of the Dane County Immunization Coalition, PHMDC supports outreach to health care providers, schools, employers and other community organizations to ensure residents are receiving recommended vaccinations on schedule.

PHMDC investigates reports of communicable disease, taking measures to identify sources and prevent transmission of vaccine-preventable diseases like measles, mumps, and pertussis (whooping cough).
Although rare, tuberculosis is a highly infectious disease requiring intensive surveillance, case management and medication monitoring. TB program staff ensure that cases of latent and active TB are diagnosed promptly and the treatment is initiated and completed. Health department staff visit people with active TB in Dane County to directly observe therapy. Therapy, administered between one and seven days a week, can last between 6 months and occasionally two or more years.

PHMDC also monitors and helps reduce infection rates of HIV, chlamydia, gonorrhea, human papilloma virus, hepatitis C and syphilis. Over the past two years, our syringe exchange program, a powerful tool to reduce disease transmission, has seen dramatic increases in demand for needles, reflecting a heroin and opiate epidemic in our community.

The federally-funded Nutrition Supplement Program for Women, Infants and Children (WIC) serves more than 12,000 Dane County families every year. Low-income women and infants receive health screenings, nutrition counseling and modest financial support to purchase healthy foods at local groceries and farmers’ markets. WIC clients also receive breastfeeding support.

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**Operations, administration and finance**

Our operations division shepherds administration, budgets, finance, program support and public information functions. With a specific focus on supporting the work of an agency located across four sites, with more than 130 staff, and a $16 million budget, the operations team maintains a focus on quality improvement for service delivery.

Administrative staff schedule appointments, staff the front desk during syringe exchange hours, submit Medicaid billing, field consumer complaints about unsafe animals and manage public and media relations.

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**Looking forward**

Over the next 10 years, our overarching goal is to improve health across the county by supporting community partners as they
shape environments, policies and systems so that all have a chance to achieve optimal health and well-being.

Using priorities from the National Prevention Strategy, along with strategic guidance from our community partners, PHMDC staff will assess health status and potential future needs of communities in Dane County.

The value of our approach comes through working with community partners to help ask the "right" questions, expanding the possibilities for effective, feasible, sustainable options to improve health across the population.

What models have worked to reduce opiate addiction? How do we help shape school food environments so that children have healthy food options? What does the research tell us is the most effective approach to curbing alcohol overuse? How do we eliminate children's access to candy-flavored tobacco products? How do we make it easy for low-wage workers to access high-quality preventive care?

PHMDC then works in partnership with other community stakeholders to shape a community environment and systems in which everyone has a chance to realize a healthy life.

We see immense possibility because of our community assets. We also recognize the challenges inherent in collaboration, especially when tackling "wicked problems" like obesity that require sustained, collaborative, community-wide approaches. We welcome the opportunity to help shape a community that offers more equitable opportunities for health.

For more information about partnership opportunities, contact Mary Michaud, Director, Division of Policy, Planning & Evaluation: mmichaud@publichealthmdc.com.
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