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Strengthening Communities: A Prevention Framework for Reducing Health Disparities

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Authors' Note:

The health disparities trajectory described in this paper beginning on page 4 has been modified since this paper was finalized. While both trajectories depict *root factors* and *environmental/behavioral factors* to reflect the conditions that put communities of color at risk for poorer health and safety outcomes, the revised trajectory, depicted below, also includes *medical services.* This modification reflects the disparity experienced by people of color in access to and quality of medical services. The combination of all of these results in the greatest disparities in health.

This revised trajectory is further described in *Health for All: California's Strategic Approach to Eliminating Racial and Ethnic Disparities in Health*, available at: www.preventioninstitute.org/healthdis.html, and: http://www.apha.org/legislative/legislative/HealthForAll.pdf

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Introduction: Promoting Prevention to Eliminate Disparities

> *…Many population groups have a characteristic pattern of disease and injury over time…. This suggests that there may be something about the group or the broader social and environmental conditions in which they live that either promotes or discourages injury and disease among individuals in these groups.* [1]
>
> - Institute of Medicine

Socioeconomic and racial and ethnic disparities in health are "*large, persistent,* and even *increasing* in the United States."[2] Focusing attention and resources on primary prevention could significantly reduce this huge and unfair inequity. Specifically, attention to the broader environmental conditions that shape well-being could be life-saving. Far more than air, water, and soil, environment refers to the broad social and community context in which everyday life takes place. Community action and policy change represent a tremendous opportunity to reduce health disparities through altering these environmental conditions. This paper sheds light on the community conditions that hold the most promise for reducing health disparities in low-income, communities of color.

Crafting an effective approach to reducing and eliminating disparities requires a deeper understanding of the ways that economics and oppression shape the underlying factors that are important determinants of health and illness. While the link between socioeconomic disparities and poor health outcomes is clear, the mechanisms responsible for the association are not well understood.[3] Once the pathways are well understood, the actions that will effectively reduce disparities become clearer.

The purpose of this paper is to clarify the pathways between root factors and resultant health problems. It focuses specifically on *place.* The term 'place' is primarily a geographic area that encompasses the places where people live, work, and socialize and can refer to a neighborhood, city, or region.[4] For the purpose of this paper, the term community will be used to represent this geographic area and its residents.

In particular, this analysis delineates four clusters comprising twenty community factors that can contribute to, or prevent, the priority medical issues identified by *the California Campaign to Eliminate Ethnic and Racial Disparities in Health*.[5] The community factors are intended for use by community level policy makers, coalitions, and practitioners in the process of assessing, prioritizing and reducing the high incidence of disease and injury, from which low-income communities and/or communities of color needlessly suffer. These factors build upon the work of seminal thinkers including Henrik Blum,[6] Michael McGinnis and Bill Foege,[7] Nancy Adler and Katherine Newman,[8] and key groups including the Institute of Medicine[9] and PolicyLink.[10]

Health Disparities are a Serious Concern in California

The National Institutes of Health defines health disparities as the "differences in the incidence, prevalence, mortality, and burden of diseases and other adverse health conditions that exist among specific population groups in the United States."[11] California statistics reflect those of the

nation. Low-income, populations of color in California experience higher rates of diabetes, cancer, traffic-related injuries, mental illness, substance abuse, and violence.[12] With the current demographic trends in California, it can be anticipated that racial and ethnic disparities will become an even greater problem in the State.[13]

The *California Campaign to Eliminate Racial and Ethnic Disparities in Health* has undertaken an analysis of major health disparity concerns. The effort -- a statewide 50-member coalition of leaders from policy, health care, public health, and the philanthropic community -- is dedicated to raising awareness about health disparities and advancing systemic change. The partnership is led by California's Health and Human Services Agency (Secretary Grantland Johnson) and the American Public Health Association (Executive Director Dr. Georges Benjamin).[14] The *Campaign* has identified nine 'Priority Medical Issues' for California: cardiovascular disease, breast cancer, cervical cancer, diabetes, HIV/AIDS, infant mortality, asthma, mental health, and trauma (both violence and unintentional injury).

As is apparent from these Priority Medical Issues, health disparities are not the result of specific populations experiencing a *different* set of illnesses than those affecting the general population. Generally the diseases and injuries that affect the US population as a whole, affect low-income, minority populations *more*, with people experiencing multiple negative health conditions. Therefore understanding how to reduce health disparities requires understanding why the confluence of race, poverty, and community environment leads to greater overall threats to health.

Another striking aspect of the list of Priority Medical Issues is that most of the conditions are preventable. Altering behaviors such as eating and activity habits, removing environmental threats such as sources of air pollution, or enhancing community assets such as positive role models for youth can reduce the risk for these illnesses. Therefore, a well-designed strategy for reducing health disparities in California should identify opportunities to alter the underlying causes and pathways that produce illness and injury; taking steps to act *before* the onset of illness and injury.

The Trajectory of Health Disparities

> *Evidence is emerging … that societal-level phenomena are critical determinants of health…. Stress, insufficient financial and social supports, poor diet, environmental exposures, community factors and characteristics, and many other health risks may be addressed by one-to-one intervention efforts, but such interventions do little to alter the broader social and economic forces that influence these risks.*[15]
>
> - Institute of Medicine

Identifying the most promising strategies for reducing health disparities requires analyzing the pathways from root factors to poor health outcomes. In *Eliminating Health Disparities: The Role of Primary Prevention*,[16] Prevention Institute described a trajectory for the development of health disparities, from root conditions of poverty and discrimination to behavioral and environmental factors influenced by these root conditions to resulting health problems. Exactly

which health problems people develop is influenced by genetic and constitutional factors; but the overall result is poorer health outcomes among low-income, people of color.*

This trajectory suggests several key intervention points where factors can be altered to improve health outcomes. Ideally, this intervention should occur as early in the trajectory as possible. This is the goal of primary prevention, which aims to remove the conditions that give rise to poor health and enhance the conditions that give rise to good health.

The trajectory can be addressed at its root. As Michael E. Bird, Director of the National Native American AIDS Prevention Center, has said, "I'll tell you how to eliminate disparities for Native Americans: give us our land back."[17] Working towards the elimination of social and economic inequalities *per se* is a critical aspect of efforts to reduce health disparities.

At the same time, there is an opportunity to have an impact on reducing health disparities by addressing the middle box of this trajectory – behavioral and environmental factors. These factors are the pathways by which poverty and oppression are expressed at the community level, and which, when left unchecked, will lead to the extra incidence of disease known as health disparities. As *Eliminating Health Disparities* emphasizes, focusing on these factors represents an underutilized strategy for prevention efforts.[18] While people have looked at some specific factors, this middle box *as a whole* has not been well charted; particularly in relation to disparities it has been relatively less researched and explored. "Unpacking" this box -- determining the range of factors, and how they are related to different diseases and injuries -- is critical to improving health.

At the end of the trajectory to health disparities are health problems, which require medical attention. Ensuring access to high quality health care is essential for reducing mortality and disability, and improving quality of life. The Institute of Medicine Report *Unequal Treatment*: *Confronting Racial and Ethnic Disparities in Health Care* has documented that people of color tend to receive poorer quality care.[19] Correcting this injustice must continue to be a high priority in the effort to reduce health disparities. At the same time, improving health care is not sufficient to alter patterns of health disparities. As Henrik Blum has noted, medical care and interventions "play key restorative or ameliorating roles." But they are predominantly applied only after disease occurs and therefore are often too late and at a great price."[20] Even by providing universal health care coverage to all citizens, Nancy Adler of University of California at San

* While poverty is clearly associated with poorer health outcomes, the separate effect of race/ethnicity is not always clear, given limits in data, constructs of race and class, and generally higher proportions of poverty among people of color in the U.S.

Francisco and Katherine Newman of Harvard University assert that patterns of disease and injury that follow the socioeconomic status (SES) gradient would still remain.[21]

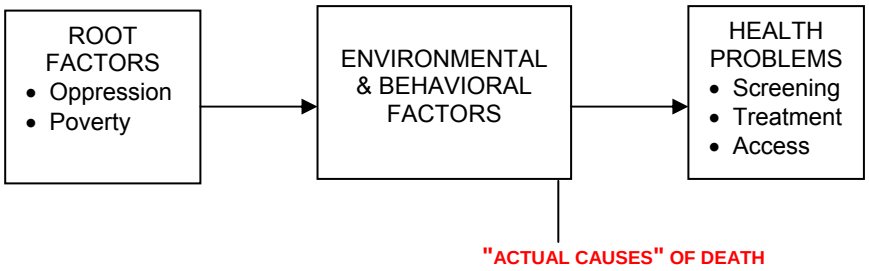
Thus, efforts to reduce health disparities need to focus earlier as well as on medical care. In fact, attention to the key environmental and behavioral factors will not only help prevent illness and injury but is also a valuable support to medical treatment goals and disease management. As one clinic physician reported, health professionals know the importance of healthy eating habits and physical activity behavior for diabetics, because they are an important complement to medical therapy in controlling disease. Further they understand that those with limited access to exercise equipment, a safe location for exercise, and healthy food options will have great difficulty following their doctor's advice.[22]

Behavioral and Environmental Factors: A Key Opportunity for Prevention

A number of thinkers in public health have drawn attention to the central importance of behavioral and environmental factors in determining health outcomes. Henrik Blum, M.D., Professor Emeritus of Health Planning at the University of California at Berkeley, and a major contributor to understanding health determinants has examined the relationship between behavioral and environmental factors and health. He outlined four forces that shape health: environment, lifestyles, heredity, and medical care services. He asserted that, "By far the most potent and omnipresent set of forces is the one labeled 'environmental,' while behavior and lifestyle are the second most powerful force.[23]

Prominent Contributors to Illness and Mortality: Actual Causes of Death

Michael McGinnis and Bill Foege made an important contribution to the understanding of how to reduce mortality and disability by moving upstream from the ten leading causes of death (that is pathophysiological diseases or injuries) to identify their underlying causes.



As conceived by McGinnis and Foege, health problems result "from a combination of inborn (largely genetic) and external factors."[24] Utilizing available analyses of the contributing factors to these fatal conditions, they identified both a set of nine factors strongly linked to the major

causes of death, referred to as *actual causes of death* (see Chart 1), and estimated the number of deaths attributed to each.[25] As the list reveals, the *actual causes* include specific environmental hazards --microbial and toxic agents -- as well as factors related to human behavioral choices such as tobacco, diet and activity patterns, motor vehicles, firearms, and alcohol. They note that the origins of disease and injury are multi-factorial in nature, and that these factors may act independently or synergistically. For example, alcohol is a significant contributor to numerous unintentional and violent injuries, sexually transmitted diseases, cancers, and liver disease. Adler and Newman's analysis demonstrating that behavioral and lifestyle factors account for more than half of premature mortality, while environmental exposure to hazards counts for 20% and health care for 10%, reflects these findings.[26]

Chart 1: The Relationship between Actual Causes of Death and Leading Health Problems

1. *Tobacco*: cancer, cardiovascular disease, low birth weight and other problems at infancy, and burns
2. *Diet and activity patterns*: cardiovascular and heart disease, cancers, and diabetes
3. *Alcohol*: risk factor for injuries (motor vehicle, home, work, burns, and drowning) and cancer (Alcohol is associated with an increased risk of violence which may include the use of firearms (see #6) and increased risk taking behaviors which includes sexual behavior (see #7)).
4. *Microbial agents*: pneumococcal pneumonia and other bacterial infections, hepatitis, HIV, and other viral infections
5. *Toxic agents*: cancer, cardiovascular disease, and diseases of the heart, lungs, kidneys, bladder, and neurological system
6. *Firearms*: homicide, suicide, and unintentional injury
7. *Sexual behavior*: sexually transmitted diseases, excess infant mortality rates, cervical cancer, Hepatitis B and HIV infection
8. *Motor vehicles*: injury and death to passengers and pedestrians.
9. *Illicit use of drugs*: infant deaths, suicide, homicide, motor vehicle injury, HIV infection, pneumonia, hepatitis, and endocarditis

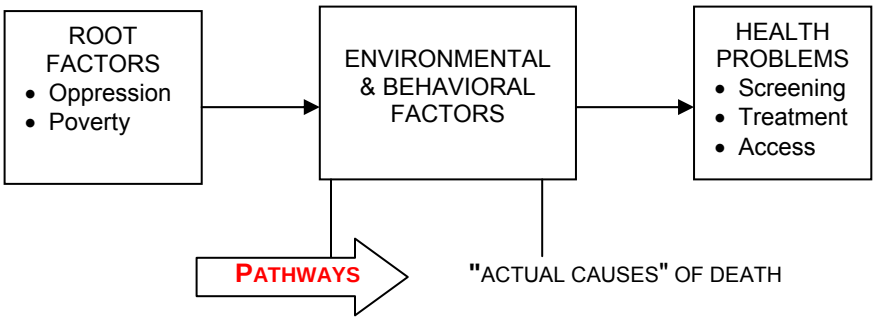
According to their analysis, when these external factors contribute to deaths, "those deaths are by definition premature and are often preceded by impaired quality of life."[27] Based on this, an estimated half of all deaths among US residents in 1990 were attributable to these environment and behavior related factors and thus potentially preventable. They recommended that far greater resources be directed to control of these factors as the "root determinants of disease and disability."

While not specifically focused on health disparities, McGinnis' and Foege's emphasis on underlying causes provides a way to move from the nine priority medical concerns in California to opportunities for prevention. For example, rather than looking solely at better treatments for diabetes and asthma, reducing health disparities requires strategies for improving diet and activity patterns and minimizing asthma triggers in low-income communities.

Exploring Pathways to Health Disparities

While McGinnis and Foege focused attention on the specific behavioral and environmental hazards contributing to poor health, Nancy Adler and Katherine Newman have approached an understanding of the middle box from the opposite side, going further upstream and advancing the notion of *pathways.* They note that in order to understand what influences health (and health

disparities), one must look earlier in the trajectory than McGinnis' and Foege's actual causes to identify what influences those causes.



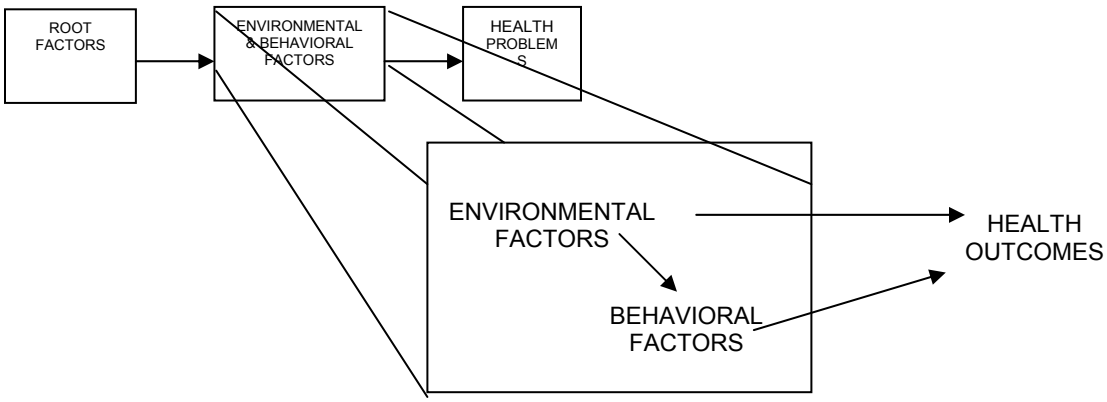
While identifying socioeconomic status as a key underlying factor of health,[28] Newman and Adler explore the pathways by which the elements of socioeconomic status – education, income, and occupation are associated with health outcomes. They direct attention to the ways by which socioeconomic status influences health, including exposure to damaging agents, the social environment, health care, behavior/lifestyle, and chronic stress. They note that underlying economic conditions play out through a variety of effects and that it is difficult to distinguish the effects of socioeconomic status *per se* independent of its environmental pathways on behavior. For example, "limited education may mean less exposure to information about risk, but the same people may live in neighborhoods with poor recreational facilities, fewer stores selling fresh produce, and more advertising for tobacco and alcohol.[29]

While Adler and Newman focus specifically on economics, they see the importance and interrelationship between economics and racism. As Nancy Adler points out, "For research purposes, socioeconomic status and race tend to get polarized, but it has to be both."[30] Economic inequity, racism, and oppression can also serve to maintain or widen gaps in socioeconomic status.[31] Arline Geronimus, a Senior Research Scientist at the Populations Studies Center, University of Michigan, has helped to highlight the specific pathways from racism to health disparities as well as the interplay between factors. Focusing on African American women in particular, she proposes a weathering framework to explain the widespread prevalence of chronic morbidity and mortality.[32] She postulates that the cumulative impact of social, economic and political exclusion results in a 'weathering' whereby health reflects cumulative experience rather than chronological or developmental age. For example, maternal health influences child health, which in turn sets the stage for adolescence that includes multiple risk factors as well. Indeed, research is showing that early experiences, such as growing up in a low-income family, may increase the risk of heart disease later on.[33] Individual income alone has been shown to account for less than one-third of increased health risks among blacks.[34] Rather, has been suggested that segregation and other neighborhood and community factors make up the additional risk.[35,36]

The Contribution of Environment to Health Outcomes

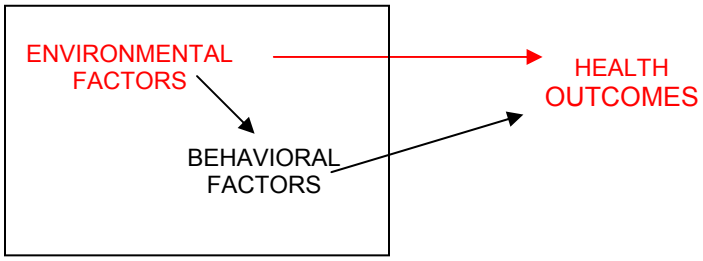
Each of these analyses has helped shed light on the importance of behavioral and environmental factors in determining health. Blum stressed both behavior and the primacy of the environment – the state of the *homo sapiens*-affected natural environment and the *homo sapiens*-created physical environment – on health outcomes.[37] McGinnis and Foege identified the factors that

lead to medical conditions. Adler and Newman looked at how socioeconomic disparities create the pathways that shape health behaviors and environments.



In *Promoting Health: Intervention Strategies From Social and Behavioral Research,*[38] the Institute of Medicine confirmed the impact of environment on health. This report focused on the relationship between environmental approaches, behavior, and medical care. It illuminated the fundamental role of environmental factors in both directly impacting health and in shaping behavior, and suggested that they should be the focus of interventions to improve health outcomes. The report asserts that, "One-to-one interventions do little to alter the distribution of disease and injury in populations because new people continue to be afflicted even as sick and injured people are cured. It therefore may be more cost-effective to prevent many diseases and injuries at the community and environmental levels than to address them at the individual level."[39] The evidence that the environment is far and away the major determinant of health has been marshaled time and time again.[40] This includes both a direct effect on health outcomes and a significant influence on individual behavior, which in turn influences health.

The direct relationship between environment and health

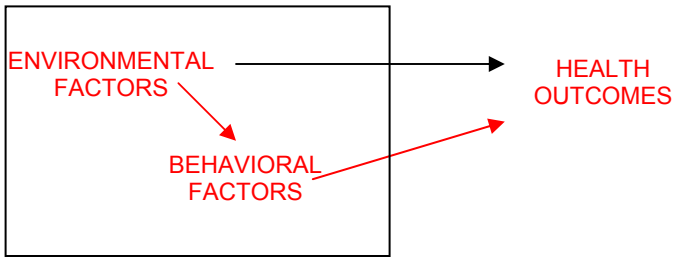


The 'natural' environment (air, water, and soil) is most frequently associated with having a direct influence on health. Environmental quality tends to be worse in areas in which the population is either low-income or primarily people of color. Toxic sites are concentrated in areas where low income and minority populations reside.[41] Housing is more likely to be a source of lead, insect dust, and other harmful contaminants. Further, low-income people of color may have higher exposure to industrial hazards in their workplaces.

Beyond specific toxins, other physical and social neighborhood conditions may have a direct affect on health by producing higher stress levels which can contribute to poorer mental health

and health outcomes. For example, one small study showed that children who heard gunshots were twice as likely to experience asthmatic symptoms.[42] Chronic stress may contribute to other poor health outcomes such as cardiovascular disease and some forms of cancers. In her application of a weathering framework to explain disparate levels of morbidity and disability in African American women, Geronimus lists multiple contributing circumstances which can be framed as environmental factors and include: "Cumulative exposure to environmental hazards and ambient or social stressors in residential and work environments and persistent psychosocial stress."[43]

The influence of the environment on behavior



In addition to the direct relationship between the environment and health, the environment plays an important mediating role in shaping behavior. *Actual Causes of Death in the United States* highlighted the pivotal role of behavior in influencing health outcomes. In an extended analysis, McGinnis, Williams-Russo, and Knickman asserted that 40% of preventable deaths are attributable to behavior choices (tobacco, substance abuse, sexual behavior, and diet and activity).[44] While education and counseling can play a role in influencing these individual behavioral choices, addressing environmental variables must be an essential element of a strategy to change behavioral patterns across groups. As Blum noted, "Individual behavior is most markedly affected, if not generated, by various aspects of the environment…Getting people to behave…encompasses only a small fraction of the routes to risk reduction and does not stand alone without significant support from major societal mechanisms."[45] Focusing on behavior change alone ignores larger environmental factors that can work against the educational message. While noting that lower income levels are associated with a higher prevalence of risky behaviors, such as tobacco use, physical inactivity, and high-fat diet, Adler and Neuman suggest there is a risk of 'blaming the victim' by viewing behaviors as simply lifestyle choices. According to their analysis, these behaviors are "shaped and constrained by social and physical environments linked to socioeconomic status." [46]

A similar emphasis on the role of the environment in influencing behavior was expressed in the Institute of Medicine's *Promoting Health* report:

> *To prevent disease, we increasingly ask people to do things that they have not done previously, to stop doing things they have been doing for years, and to do more of some things and less of other things… It is unreasonable to expect that people will change their behavior easily when so many forces in the social, cultural, and physical environment conspire against such change.*[47]

As another example, a recent *Journal of American Medical Association* article noted that despite efforts by individuals to lose weight and public health education campaigns targeting individual

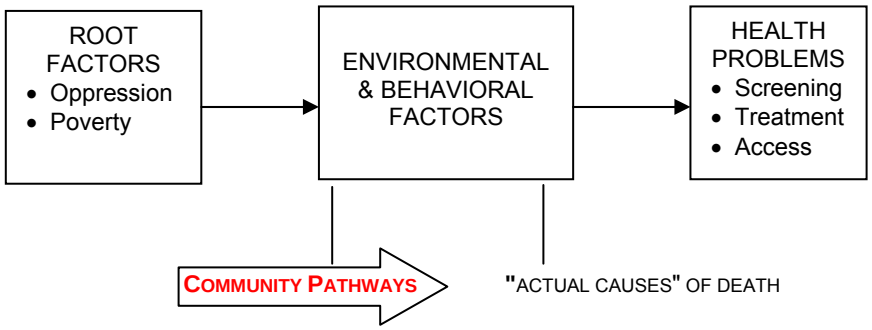
behavior, obesity rates continue to climb. In the article, Tomas Philipson, PhD, an economist and professor at the Irving B. Harris Graduate School of Public Policy Studies at the University of Chicago, attributes current diet and activity behavior trends to economic forces and changes in technology. Such shifts have altered the environment to one that encourages sedentary occupations, high-calorie food consumption, and paying higher costs for physical activity.[48] The environment plays a particularly important role in low-income and minority communities, where limited household income and geographic isolation leave residents without access to many alternatives. A landmark study of the relationship between supermarket access and dietary quality found that African-Americans living in neighborhoods with a lower density of supermarkets were less likely to meet dietary recommendations for fruits and vegetables compared to neighborhoods where more markets were available.[49]

The Need for Environmental Approaches

The preceding sections have mapped the trajectory from root factors to health problems, highlighting environmental factors as a critical determinant of population-based health outcomes. Once the overall influence of the environment is understood, the next step is to understand which specific environmental factors play a role and how they relate to disease. The remainder of this paper focuses on environmental factors at the community level and provides a framework for attention and action in the community. Health outcomes are also influenced by environmental factors at other levels, including at the state, region, or national level. Further attention is needed to identify policies and influences at these levels to minimize the gap in health outcomes for low-income communities and communities of color.

Community Factors: Altering the Trajectory to Health Disparities

> *If … we look at illness in a different way, we will see that the context of the illness is often the more important issue. To look at illness and ask… what are all the factors involved, is often tremendously complex. The community issues range from access to participation in the solution, from treatment programs to policy and from education to use of specialists. A need exists for infrastructure to make systems work, comprised of hard infrastructure of roads, communication, water and sewage and soft infrastructure of governance both formal and informal.*[50]
>
> Len Duhl, M.D.
> Professor of public health and urban planning, UC Berkeley
> Professor of psychiatry, UC San Francisco



The trajectory from root factors to behavioral and environmental factors to health problems represents a continuum of why health disparities occur. This section delineates the environmental factors at the community level -- community factors -- and their relationship to health and safety in general and particularly to the 'actual causes' of death, and, by extension, to California's Priority Medical Issues. These factors comprise the pathways through which root factors play out on the community level. Research has now shown that after adjusting for individual risk factors, there are neighborhood differences in health outcomes.[51] Addressing community level factors changes the overall environment where people live and has the capacity to affect the population's health. Many community leaders intuitively understand that environmental factors are a primary determinant of health and need a better understanding of key factors, how they interact, and examples of specific activities and approaches that can make a difference. The community clusters and factors are an important step in this process.

Methodology for Identifying Clusters and Factors

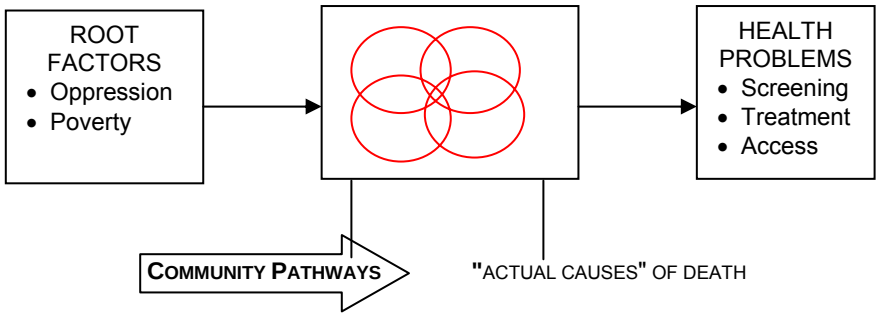
The community factors delineated here are based on an iterative process conducted by Prevention Institute from July 2002 - March 2003. The process consisted of a scan of peer-reviewed literature and relevant reports and interviews with practitioners and academics as well as an internal analysis that included brainstorming, clustering of concepts and information, and a search for supporting evidence as the analysis progressed. The literature scan began with California's Priority Medical Issues and the actual causes of death and searched for subsequent

information that linked the priority medical issues with social, behavioral, and environmental elements. Under contract with the U.S. Department of Health and Human Services Office of Minority Health, the Institute also reviewed research on the relationship of community factors to *Healthy People 2010 Leading Health Indicators* (identified by Surgeon General David Satcher as having a role in the elimination of health disparities[52]).

Based on the findings of this scan and analysis, the authors identified a set of twenty community factors that could be linked to California's priority medical issues through research. Further, the authors clustered the factors into the following four interrelated clusters: built environment, social capital, services and institutions, and structural factors. Though developed independently, the four clusters reflect those delineated by PolicyLink in a November 2002 report entitled *Reducing Health Disparities Through a Focus on Communities* following a literature review and interviews with forty community based practitioners.[53]

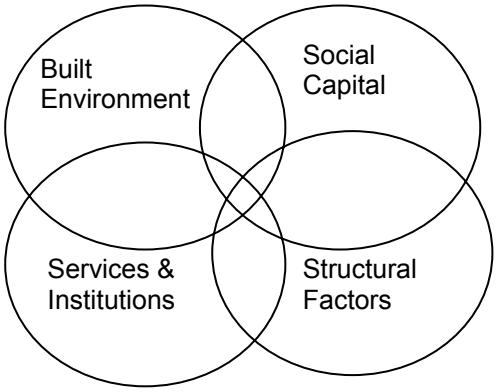
While people may use different words to describe each of the factors represented and may cluster key concerns in different ways, the factors and clusters reflect the available literature about the underlying factors contributing to health outcomes. There is some overlap between the clusters, and some of the specific factors could arguably be placed in more than one cluster. For simplicity, each factor is only listed once and factors are generally placed in the cluster that is most supported by research.

Community Clusters and Factors



Designing effective strategies to eliminate health disparities requires identifying the concrete factors that comprise community environments. These factors are described in four clusters in the following section.

Community Clusters



The community factors are:

Built Environment
1. Activity-promoting Environment
2. Nutrition-promoting Environment
3. Housing
4. Transportation
5. Environmental Quality
6. Product Availability
7. Aesthetic/Ambiance

Social Capital
8. Social Cohesion and Trust
9. Collective Efficacy
10. Civic Participation/Engagement
11. Social/Behavior Norms
12. Gender Norms

Services and Institutions
13. Public Health, Health, and Human Services
14. Public Safety
15. Education and Literacy
16. Community-Based Organizations
17. Cultural/Artistic Opportunities

Structural Factors
18. Economic Capital
19. Media/Marketing
20. Ethnic, Racial, and Intergroup Relations

Dudley Street Neighborhood Initiative, Roxbury/North Dorchester, Massachusetts

The Dudley Street Neighborhood Initiative (DNSI) is a nonprofit community-based effort in the Roxbury/North Dorchester area of Boston. It was formed in 1985 when city officials presented a plan to develop unused land in the Dudley Street area for corporate and other for-profit interests. Not wanting the land to be used for corporate redevelopment, community residents – who had not been involved in shaping the city's plan – formed DSNI, and in partnership with private, public, and nonprofit groups, formed a shared vision for the Dudley Street area.

DNSI worked with city officials to gain control over a portion of the unused land in the neighborhood. They achieved power of eminent domain over a 60-acre area called the *Triangle*, ensuring that Dudley Street residents would have a voice in planning redevelopment activities. DSNI partnered with government officials, community planners, architects, and youth to change zoning and other city regulations to close down hazardous and illegal dumping sites in the Dudley Street area. Additionally, DSNI worked with city representatives to clean up vacant lots, tow abandoned cars, and restore commuter rail service to the area, reconnecting the neighborhood to Boston with mass transit. DNSI also created additional housing, gardens, and parks. DNSI has established several community centers, which provide access to recreation, childcare, and computers.

DNSI has achieved major changes in the built environment that promote improved health outcomes. These include 1) Decreased environmental toxins by cleaning up dumping sites and closing down hazardous sites, *(environmental quality)*, 2) Increased availability of safe and affordable housing by building housing complexes for Dudley Street area residents *(housing)*, 3) Reestablished public transportation lines to connect the area with the rest of the Boston areas, which can promote access to jobs and needed services, *(transportation)*, 4) Increased opportunities for physical activity through developing parks and community centers, which can reduce the risk of chronic disease (*activity-promoting environments),* and 5) Improved the overall look and feel of the community by towing abandoned cars and creating community gardens and parks *(ambiance/aesthetic*), which can increase feeling of safety, promote crime reduction, and increase opportunities for physical activity. Further, many of these outcomes were achieved by mobilizing people in the community, including 6) Engaging community residents in advocating for zoning and planning changes (*collective efficacy)* and 7) Involving community residents in maintaining the organization and implementing its services (*civic engagement/participation).* These outcomes help promote sustainability of the effort and fostered both a sense of empowerment as well as a community capacity to make improvements. Finally, the effort has 8) Promoted economic development through job training and computer training at its community centers, establishing reliable transportation to jobs and other resources, and securing neighborhood property to benefit the community such as for housing (*economic capital).*

Description of Community Clusters and Factors

Built Environment Factors

The term 'built environment' encompasses man-made physical components such as buildings and streets,[54] and includes land use, public transportation and the style and permitted uses of businesses and residences. Decisions about the built environment influence physical activity, tobacco use, substance abuse, injury and violence, and environmental quality, influencing chronic disease, injury, and violence rates, which are the leading causes of morbidity and mortality. Built environment factors are:

1. **Activity-promoting Environment:** Fosters incidental and recreational activity
2. **Nutrition-promoting Environment:** Provides and promotes safe, affordable, healthy food
3. **Housing:** Availability of safe, affordable, available housing
4. **Transportation:** Safe, reliable, accessible and affordable methods for moving people around
5. **Environmental Quality:** Safe, clean water, soil, air, and building materials
6. **Product availability:** Availability of safe, health-promoting or unsafe, unhealthy products
7. **Aesthetic/Ambiance:** Well-maintained, appealing, clean environment.

These factors combine to influence health and safety in a number of ways. For example, physical activity levels are influenced by conditions such as enjoyable scenery,[55] the proximity of recreational facilities, street and neighborhood design,[56] and transportation design.[57] Transportation also plays a role broader role in promoting health. For example, a well-utilized public transit system contributes to improved environmental

Garden of Eden, St. Louis, Missouri

The *Garden of Eden* is a community run grocery like facility established to serve the African American community in St. Louis. The project was initiated because local advocates and researchers identified obesity as a major health concern. Further, Abraham's Children (AC), a project of Interfaith Partnership of Metro St. Louis working with more than 45 churches, recognized a lack of healthy foods, particularly in the city. At the suggestion of one health advocate from an AC church, a diverse alliance established the *Garden of Eden.*

Funded by the Centers for Disease Control and Prevention, the effort has been a partnership between Abraham's Children, St. Louis University School of Public Health, and Health Works, a local business in St. Louis. The three entities entered into a joint decision making process, which requires approval by all the partners before moving forward. It also capitalizes on the strengths of each entity. For example, all partners developed a plan and applied for grants to support the project. A church donated the space in its basement to house the market. Local businesses have guided the design and layout of the market. A local supermarket chain, *SaveALot*, trained community members. Abraham's Children, which has lay health workers in each of its member churches, provides health counseling and information to members of participating congregations. Further, community members have contributed their understanding of community needs and strengths to the staffing and management of running the store. For example, they recommended that seniors in the community could be trained as nutrition educators. State and local minority health agencies have also lent their expertise to the effort.

The *Garden of Eden* is opening its doors in July 2003. Even before opening, the effort had already achieved four major outcomes. These are: 1) Increasing knowledge and skills regarding fruits and vegetables and physical activity (*nutrition- and activity-promoting environment*s); 2) Job training for community residents (*economic capital);* 3) Empowering residents as demonstrated by reports from members of the participating groups that they feel motivated and organized to address other health concerns in their community after having successfully implemented this project (*collective efficacy*). This was initiated by developing a community dialogue about the relationship between community resources (e.g. a market) and behavior (e.g. healthy eating); and 4) Establishing a community-run grocery like facility (*nutrition-promoting environment)*, which holds the promise of improving fruit and vegetable intake among African Americans in St. Louis. Over time, this can result in improved health outcomes such as reduced risk of chronic disease.

quality, lower motor vehicle crashes and pedestrian injury, less stress, decreased social isolation, increased access to economic opportunities, such as jobs,[58] increased access to needed services such as health and mental health services,[59] and access to food. In particular, low-income households are less likely than more affluent households to have a car[60] and a 1995 analysis of 21 major U.S. metropolitan areas found there were 30% fewer supermarkets in low-income areas than in higher-income areas. Yet, nutrition levels are affected by the availability of affordable, nutritious food, such as that found in supermarkets.[61] Local zoning and business incentives also influence the availability of other products as well. For example, low-income communities and communities of color have greater access to alcohol and tobacco products due to the high prevalence of local liquor stores. Specifically, low socioeconomic status (SES) census tracts and predominately black census tracts have significantly more liquor stores per capita than more affluent communities and predominately white communities.[62] Built environment decisions also influence housing. Poor housing is recognized to contribute to health problems in communities of color[63] and is associated with increased risk for injury, violence, exposure to toxins, molds, viruses, and pests,[64] and psychological stress.[65] Quality housing is associated with reduced risk of burns, falls, and other injuries, exposure to toxins, and reduced stress as well as improved mental health outcomes.[66]

The built environment also influences social factors that in turn influence health as described under social capital factors. "Land-use patterns that encourage neighborhood interaction and a sense of community have been shown not only to reduce crime, but also create a sense of community safety and security."[67] Further, good community design can contribute to a general increase in community networks and trust by creating a "neighborhood feel" where people are encouraged to interact with each other in a safe environment. Residents of buildings with greenspace had a stronger sense of community, better relationships with neighbors, and reported less violence in dealing with domestic disputes.[68] Also, neighbors visit each other more on small streets with little traffic.[69]

- Related Priority Medical Issues for California include: cardiovascular disease, breast cancer, diabetes, HIV/AIDS, infant mortality, asthma, mental health, trauma

CALTrans Community Planning Project, Cutler/Orosi, California

Concerned about high pedestrian injury rates, residents of Cutler and Orosi in Tulare County, California identified and implemented solutions through a series of community wide forums, focus groups, and workshops. Participants included representatives from church organizations, local activist groups, and local residents of the area. CALTrans provided funding through its community planning projects − community wide initiatives to make California communities more pedestrian and bicycle friendly through traffic calming measures. Since a majority of the residents are Spanish-speaking, events were conducted in both English and Spanish and translators were also provided. Outcomes of the planning project include: 1) Reduced risk of pedestrian injury by improving sidewalks (*transportation, activity-promoting environment), 2)* Increased opportunities for physical activity not only by sidewalk improvement but also through the creation of bike lanes on major roads (*transportation, activity promoting environment))*, which can reduce the risk of chronic disease, and 3) Increased accountability by establishing of a nonprofit vision committee, charged with implementation of the final recommendations *(community-based organizations, collective efficacy)*.

Social Capital Factors

Robert Putnam, of Harvard University, author of *Bowling Alone*, and leading thinker on social capital, defines social capital as referring to "connections among individuals—social networks and the norms of reciprocity and trustworthiness that arise from them."[70] Research associates social capital with a number of health outcomes[71] and the Institute of Medicine recommends modifying it at community and neighborhood levels as a promising intervention to promote health.[72] Social capital factors are:

8. **Social Cohesion and Trust:** strong social ties among persons and positions
9. **Collective efficacy**: willingness to intervene on behalf of the common good.
10. **Civic Engagement/Participation**: community, civic, or service involvement
11. **Social/Behavior Norms:** standards of behavior that encourage healthy choices
12. **Gender Norms:** standards of behavior dictated by gender roles or socialization

Strong social networks and connections correspond with significant increases in physical and mental health, academic achievement, and local economic development, as well as lower rates of homicide, suicide, and alcohol and drug abuse.[73,74] For example, children have been found to be mentally and physically healthier in neighborhoods where adults talk to each other.[75] Other research supports links between high levels of social support and a number of positive health benefits among Latinos.[76] Social connections contribute to a community's willingness to take action for the common good which is associated with lower rates of violence,[77], improved food access,[78] and anecdotally with such issues as school improvement, environmental quality, improved local services, local design and zoning decisions, and increasing economic opportunity. Changes that benefit the community are more likely to succeed and more likely to last when those who benefit are involved in the process;[79] therefore, active engagement or participation by people in the community is an important factor.

Decreasing Community Violence, South Los Angeles, California

At the peak of the violence epidemic in the 1990's, drive-by shootings were common in some neighborhoods in South Los Angeles, a predominantly African American area of the city. Fearing their children would be shot in crossfire, parents would not let their children play outside. On streets that were particularly affected, neighbors came together to make their streets safe again. Residents worked together on a number of activities including outreach to local gangs. In taking collective action, they significantly reduced instances of gang-related gun violence in their streets and parents felt safe letting their children play outside again and move throughout the community. Major outcomes include 1) Reduced risk of death and injury from firearms through collective action (*collective efficacy)* and 2) Increased opportunities for children to play outside and move around throughout the community (*activity-promoting environment),* which can reduce the risk of chronic disease.

In addition to a willingness to support each other or act on behalf of the common good, behavior and gender norms are also important predictors of and contributors to behavior. The social and behavioral norms within a community or social network "may structure and influence health behaviors and one's motivation and ability to change those behaviors."[80] Current social norms and behavior contribute to many preventable social problems such as substance abuse, tobacco use, levels of violence, and levels of physical activity. In regards to gender norms, studies consistently indicate that women are more likely than men to engage in a variety of health promoting behaviors and to have healthier lifestyle patterns. Traditional beliefs about manhood

are associated with a variety of poor health behaviors, including drinking, drug use, and high-risk sexual activity,[81] and "men in America die nearly seven years younger than women and have higher death rates for all 13 leading causes of death".[82] The behaviors that men engage in often affect the health and well-being of women, children, other men, and the community. Perceptions of acceptable male behavior and expectations influence male behaviors. One domestic violence prevention campaign is using this phenomenon by publicizing the actual reality that five in six men do not abuse their partners, thus shifting the perception of normative behavior.[83]

- Related Priority Medical Issues for California include: cardiovascular disease, cervical cancer, breast cancer, diabetes, HIV/AIDS, infant mortality, asthma, mental health, trauma

Lead Risk in BayView Hunters Point, San Francisco, California

Students, staff, and parents were concerned about lead in the water at a BayView Hunters Point elementary school (45% African American, 35% Latino, 10% Samoan, 7% Asian, 3% other). The district had shut off water lines to the playground and some into the school building and instructed staff and students to run the remaining faucets before usage. The district would not release the lead readings to the site administrator but confirmed that they exceeded safety levels. The school-site safety team took the lead in mobilizing the school community to address the problem. They initiated classroom lessons about the effects of lead in the blood and how to limit lead exposure in neighborhood playgrounds, homes, and in school water. The team also hosted an informational session for parents and community members about the hazards of lead in the school and community, preventing children's exposure, and testing for lead in their homes.

After hearing about the lead in their school and community, students wrote to city council members encouraging them to take action. School staff and parents testified to the city council about the presence of lead at the school site. On the same day, a local television station covered the school's lead problem on the evening news. Within a few days of the testimony and the local media coverage, the district changed the school fixtures throughout the building and playground. The major health outcome of this school effort was 1) Reduced risk of children's exposure to lead (*environmental quality*). In addition to the reduced risk at school, parents reported stories of their children intervening with younger siblings at home had the water in their homes tested through the health department. Another outcome was the 2) Knowledge that in coming together, the members of the school community had the capacity to make positive changes (*collective efficacy).*

Services and Institutions

The availability of and access to high quality, culturally competent, appropriately coordinated public and private services and institutions is a critical element of good health. The range and quality of these services within a community represent an opportunity to overcome barriers to health and safety and to foster strengths. The availability of public and community-based services may be particularly important in low-income communities, as residents may not have access to or be able to afford paying for services. Further, it is critical that community services be connected to broader systems and policy bodies, including those at the city, state, and federal levels in order to ensure that decisions that are made will have a positive impact on the community. Services and institutions factors are:

13. **Public Health, Health, and Human Services**: Prevention, intervention, and treatment
14. **Public Safety**: Law enforcement and fire protection
15. **Education and Literacy:** Education and literacy services across the life span
16. **Community-Based Organizations:** Non-profit, grassroots, faith-based, and coalitions
17. **Cultural/Artistic Opportunities:** Opportunities cultural and artistic expression/reflection

Public health plays a valuable role in promoting population health and advocating for or ensuring needed services within a particular community. Health and human services can promote health, foster community violence prevention efforts, and ensure that those in need have access to needed medical services, substance abuse treatment programs, and mental health services. Communities can strengthen services or the level of services by working with these entities to make sure that they are addressing the priority needs of the community. Effective public safety services contribute to lower injury and violence rates within communities. In addition law enforcement may contribute to substance abuse prevention efforts. Law enforcement efforts to address violence and crime, as well as pedestrian safety, can foster perceptions of safety that may translate to increased levels of physical activity.[84] Quality education is also important. Lower education levels are associated with a higher prevalence of health risk behaviors such as smoking, being overweight, and low physical activity levels.[85] While some of the relationship can be explained through income levels, education shapes opportunities in relation to income and occupation. Related to education, literacy levels impact health outcomes in a number of ways. One study shows "75% of American adults who report having a physical or mental health condition scored in the two lowest literacy levels of the National Adult Literacy Survey."[86]

The presence of art and other cultural institutions contributes to an environment that is conducive to health and safety. Artistic outlets, such as gardens, murals, and music, promote a healing environment. This has been demonstrated in hospitals and other health care facilities, where the incorporation of arts into the building's spaces has reduced patient recovery time and assisted in relief for the disabled, infirm, or their caregivers[87]. The visual and creative arts enable people at all developmental stages to appropriately express their emotions and to experience risk taking in a safe environment. For those who have witnessed violence, art can serve as a healing mechanism. More broadly, art can mobilize a community while reflecting and validating its cultural values and beliefs, including those about violence. Also, artistic expression can encourage physical activity, as in the case of dance. A report commissioned by the Ottawa City Hall states that culture "provides benefits in terms of…social cohesion, community empowerment… health and well being and economic benefit."[88]

Healthy Youth Lifestyles, Selma, California

Residents of the predominantly Latino community of Selma, California were concerned about the lack of activities for young people and the risk of their becoming involved in illicit activities. Through a community wide strategic planning process, they prioritized youth services and opportunities and developed the *Healthy Youth Lifestyles* program. These efforts were supported through the city's partnership with
California Healthy Cities and Communities. Under the guidance of the City of Selma, they established a visual and performing arts program for youth, art classes, and a volunteer service-learning program for middle school children. The outcomes of this project include: 1) Reduced the risk of violence and other illicit activities by establishing a summer arts program *(cultural/artistic opportunities)* and 2) Increased youth participation in the community through a service learning program which connects middle school youth to local businesses and organizations *(civic participation/engagement)*.

Although many people involved in prevention have begun relying less on government and more on foundations and grassroots efforts to promote health and safety, government is still a major source of economic support through the allocation of tax funds. Tax money far exceeds the amount of money contributed to serve the public good by charitable donations, foundations, and businesses. In fact, the combination of government funding with individual commitment and volunteerism is probably the most important resource in creating change for the common good. It is therefore incumbent on government to provide a

range of quality services for people. In some cases, this means that different governmental agencies must work together.

Services for community members should be easily accessible and integrated when appropriate. Too often, people in need end up navigating a complicated and ambiguous web of services and being shuffled from one place to another without receiving the services they need. Integrating appropriate services may require sharing or coordinating data, cross-disciplinary training, and shared strategy planning.

Finally, community services and institutions may serve as the focal point from which community change can be planned and implemented. These places may have resources, including mandates and funding, staffing, facilities, connections beyond the community, and community support and credibility, to foster and engage the necessary momentum and participation. The capacity of such organizations to lead or catalyze such change is an important element in the community.

- Related Priority Medical Issues for California include: cardiovascular disease, breast cancer, cervical cancer, diabetes, HIV/AIDS, infant mortality, asthma, mental health, trauma

Vietnamese Health Promotion Project, San Francisco, California

The Vietnamese Health Promotion Project was concerned about extremely high cervical cancer rates among Vietnamese immigrant women in San Francisco. Sponsored by the University of California, San Francisco, the project brings together university medical researchers and community residents to promote screening and early detection. In addition to getting the word out through Vietnamese radio, television and newspaper outlets, the project also employs lay health workers to bridge cultural and language gaps and encourage women to get Pap tests on a regular basis. Program data suggests that radio, television and newspaper ads are effective at getting the general word out about what cervical cancer is, why to be concerned about it, and about the Pap test. Further, the lay health worker component seems to be effective at giving women specific information about causes of cervical cancer and may be more effective than media alone at encouraging women who have never had a Pap test to get one. Outcomes include 1) Earlier detection of cervical cancer among Vietnamese women in San Francisco (*public health, health, and social services)*, 2) Increased awareness about the problem of cervical cancer via the use of media (*media/marketing),* and 3) Increased knowledge and awareness of other health issues, such as smoking, asthma, and health insurance (*public health, health, and social services)*.

Structural Factors

Generally speaking, structural factors are overarching in nature, influencing all other factors and rooted in broader systems or structures. There are a number of structural factors that impact communities directly and indirectly. These include 1) technology and product design, 2) global trade and business, 3) national and international politics, 4) socioeconomic structure and distribution of wealth, 5) media, and 6) racism, oppression, and discrimination. While the first three ultimately impact health and well-being at a community level, they are not considered here because they are largely beyond the scope of community level action. The final three are considered here to the extent that each has community elements that can benefit from community attention. Structural factors are:

18. **Economic Capital:** Local ownership of assets or access to capital and investment
19. **Media/Marketing:** Supports health outcomes through positive messages and role models.
20. **Ethnic, Racial, and Intergroup Dynamics:** Relations between groups of people

Pico Union/MacArthur Park Economic Development Zone,
Los Angeles, California

The Pico Union/MacArthur Park area of Los Angeles has a diverse Latino population, which comprises seventy-seven percent of the community. As part of Los Angeles' Economic Development Zone, the area has a program for its under-employed and unemployed residents. With city and county redevelopment funds, it provides educational training, employment services, and training that enables participants to become licensed to prepare, handle, and sell food products, and to establish self-employment and micro-business enterprises. Further, they have created a licensed vending program and opened a restaurant. These food outlets offer healthy tamales and other foods that reflect the culture of the people in the program and in the community. There are plans to replicate this program in a Korean neighborhood with Korean food. Outcomes include: 1) Job training and preparation for people with limited income opportunities and job skills (*economic capital), 2)* Increased availability of culturally appropriate, affordable prepared foods in the community (*nutrition-promoting environment).*

Because economic conditions relate more generally to the availability of appropriate services, stress, and the effectiveness of a community to change its circumstances or environment, this factor links multiple health and safety issues and supports the development of other factors. Economic capital, including adequate living wage employment opportunities, job training, local ownership of businesses, homeownership, access to loans and investment capital can be encouraged and promoted at a local level. It results in local access to resources, the opportunity to increase local capital that can be reinvested into the community, and stability among residents. Increases in local business are associated with reduced crime and achieving living wages may be correlated with reduced stress levels and better housing. Economic capital is also directly tied to the effectiveness of community coalitions. In particular, in a community without economic capital, resources are too limited to make change. [89]

Media is omnipresent in U.S. society and includes television, film, music, print news and magazines, the Internet, video games, and numerous other industries. Media can influence sexual behavior, [90] violence, [91,92] obesity, [93] mental health stigma, substance abuse, and other health threats. Media can also play a positive role in promoting health. "[M]edia approaches should focus on increasing the reservoir of social capital by engaging people and increasing their involvement and participation in community life... mass media strategies should also provide citizens with the skills to better participate in the policy process to create these conditions [for people to be healthy]."[94] According to John Kingdon's model, policy-making is not simply a rational process of defining a problem and designing solutions; rather, problems and solutions are mediated by public attention and opinion.[95] To a large extent, media cycles can set health agendas through their news selection—for example, guns in schools were a problem in inner city districts long before Columbine made it a national concern. And, since policymakers are often affected by elections, public opinion must always be taken into account—for example, AIDS was, for a long time, seen as a disease of drug users and homosexuals, making it politically dangerous for a politician to champion AIDS relief efforts.

Efforts to promote healthy behaviors in low-income communities and improve the environment are often rendered ineffective because racism, bias, and discrimination can foster conflicts that leave the residents feeling powerless, divided, and alienated. Divisions among residents in these neighborhoods impede efforts to build trust and the sense of community required to effectively advocate for needed change. The impact of such conflict is manifested in a number of ways. Public institutions such as health clinics, schools, law enforcement, and parks tend to be perceived as serving one group of residents to the detriment of the other, and they are viewed with mistrust by one or more segments of the population in a community. Human service and community-based programs may serve only one racial or ethnic group in a community, and they are rightly or wrongly perceived as favoring one group. Additionally, outside perceptions of community groups or coalitions can limit the effectiveness of their work.[96] Without a sense of community based on place rather than race or ethnicity, neighborhood efforts to address health related goals can be fractionalized. In *Understanding and reducing socioeconomic and racial/ethnic disparities in health,* House and Williams summarize the wide impact of racial/ethnic dynamics: "…racial/ethnic status shape[s]

Cultivating Communities, Seattle, Washington

Cultivating Communities is a neighborhood gardening program for low-income communities in Seattle, Washington. The program was developed when Seattle Housing Authority (SHA) recognized that residents were planting gardens outside their homes, where the soil was potentially contaminated with lead. To address the problem, SHA partnered with the Department of Neighborhoods' *P-Patch* program, which helps Seattle residents develop unused plots of land in the city. Together they formed *Cultivating Communities* in 1995, adopting a proactive approach to working with low-income communities and immigrant populations. Seattle now has 17 community gardens in 4 SHA sites in different communities, providing lead-free organic gardening space for more than 120 families to grow food for family and friends. Two of the four participating communities, Rainer Vista and Yessler Terrace, have populations in which 50% of the residents are of Southeast Asian origin, many with agricultural backgrounds.

Cultivating Communities has leveraged local resources to support the community gardens, such as the *Neighborhood Matching Fund* (NMF) administered through Seattle city government. Applications to the *Cultivating Communities* program are available to any community group, which can form for the purpose of getting a community garden. *Cultivating Communities* also assists residents with grant management if needed. Currently, *Cultivating Communities* is transferring the management of existing gardens to community residents and establishing new gardens in recently redeveloped communities. *Cultivating Communities* also has two community-supported agriculture (CSA) enterprises that provide supplemental income for some families. Subscribers pay a set fee and receive a bag of fresh organic produce for 24 weeks. The interaction between customers and gardeners enables the gardeners practice their English skills and links them to the broader Seattle community, helping them adjust to life in the United States. Since most of the gardeners had little contact with each other when the project began, the enterprise is also helping to build community among the gardeners themselves.

Cultivating Communities addressed a potentially harmful problem by building on the capacity and skills of residents and leveraging local resources. The program has resulted in multiple health-promoting outcomes. Most directly, these include 1) Decreased exposure to lead by providing lead-free gardening plots (*environmental quality); 2)* Decreased risk of chronic disease as a result of increased availability of healthy food (*nutrition-promoting environment);* and 3) Decreased risk of mental health problems and violence by promoting social connections and trust between community members (*social cohesion and trust).* In fact, residents have noted that relationships among neighbors have contributed to community building and crime prevention. Additionally, the program has achieved outcomes that indirectly promote health including 4) Increased economic opportunity through supplemental income development and increasing participant skills (*economic capital)*; 5) Opportunities to learn English (*education and literacy)*; and 6) Improved relations between different racial and ethnic groups (*racial, ethnic and intergroup dynamics).*

and operate[s] through a very broad range of pathways or mechanisms, including almost all known major psychosocial and behavioral risk factors for health."[97]

While racial discrimination, which can impact health in a number of ways, certainly can be traced beyond community boundaries, it is critical that communities address discrimination within their boundaries and foster positive ethnic and racial relations. To the extent that there are positive dynamics, people within diverse communities can work together to achieve change that will impact the overall well being of the community.

- Related Priority Medical Issues for California include: cardiovascular disease, breast cancer, cervical cancer, diabetes, HIV/AIDS, infant mortality, asthma, mental health, trauma

Characteristics of Community Factors and Clusters

The community clusters and factors are intended for people who want to improve the environment within a community to promote better health outcomes. While their influence may be direct or indirect, each of the factors influences health and/or safety. For example, modifying transportation design can *directly* impact rates of asthma and pedestrian injury while also shifting physical activity levels, and thereby *indirectly* affecting diabetes and cardiovascular disease. The framework is designed to delineate an overall set of factors that foster health and safety but allows for flexibility based on local priorities and solutions. In developing this framework a number of important conclusions emerged which should be taken into account when using the framework to develop community health strategies.

a) **Each of the factors and clusters affects more than one of California's Priority Medical Issues.** Factors and clusters are generally not related to only one disease or actual cause; virtually all of them are linked to a number of behavioral/environmental factors and diseases. For these reasons, intervening in a set of community factors will start to produce multiple changes that improve overall health. For example, improving housing conditions may impact mental health, asthma, and trauma as well as physical activity levels which is associated with reduced rates of diabetes and cardiovascular disease.

b) **Strengthening one factor may strengthen other factors thereby having a cumulative effect.** Multiple factors build on each other and the cumulative sum of the whole is greater than the sum of individual factors. For example, as neighbors gain more trust of each other, they are more likely to join collectively to take action, which can in turn result in achieving positive outcomes in the community. This was the case for a gun buy-back program in Boston which both raised awareness about firearm safety and fostered positive relationships between different ethnic/racial groups with a history of significant conflict.[98] Such positive relationships reduce the likelihood of violence and are the foundation for collective action on other issues. The converse of this characteristic is that generally none of the factors works in isolation. They have an interactive and synergistic relationship with each other, which must be considered as strategies are developed and implemented.

c) **Factors have a cultural component.** Values, customs, and priorities vary from one culture to another and these differences must be accounted for in designing health strategies. For example, social services, food, and artistic opportunities all have cultural aspects that should

reflect those living in the community. While the preponderance of research that links health to these factors is focused *generally,* it is postulated here that the research is still relevant to health disparity approaches because the diseases are the same. What is needed is additional research about variations given different cultures and values.

d) **Factors have a developmental component.** When designing strategies based on the framework, developmental needs should be taken into account. Young children, teens, adults, and seniors have different needs in relation to all of the factors. For example, in fostering an activity-promoting environment, young children benefit from safe and interesting playgrounds, teens may value athletic courts and fields, and seniors may look for safe walking paths. The relative importance of some factors may vary across the life span.

e) Community factors strengthen individual resiliency factors. Individual resiliency is associated with a number of positive outcomes including academic achievement, reduced substance abuse, and decreases in teen pregnancy. The most common indicators of individual resiliency are caring and supportive relationships, high expectations, and opportunities for meaningful participation.[99] These are fostered through stronger community factors. For example, the presence of social cohesion and trust enhances opportunities for mentorship and role models, increasing the chances that children will have relationships with caring adults.

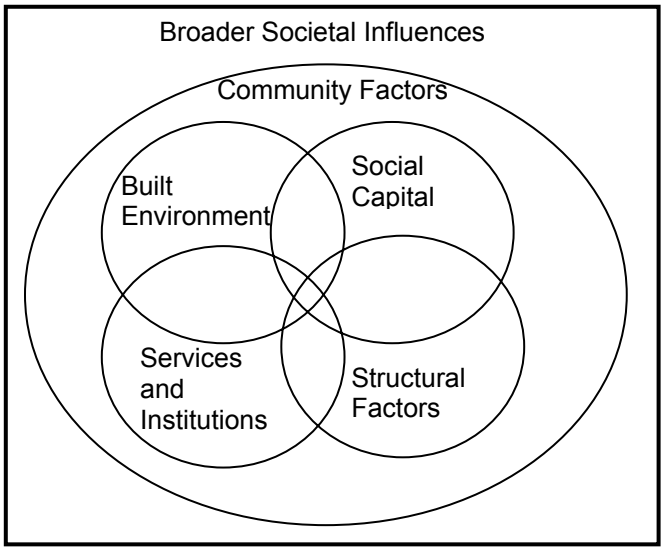
f) Community approaches that strengthen community factors support healthy behaviors and individual responsibility. Individual responsibility is a strongly held U.S. value that influences public policy and devalues efforts to support people with disadvantages or living in disadvantaged environments. However, the ability to take individual responsibility is influenced by environmental conditions. For example, greater availability of healthy, affordable food has been linked to better diets in African American communities.[100] In fact, community factors are critical in protecting and promoting individual health. Individuals still must take responsibility for their own health, but communities can help to create environments in which making healthy choices is easier.

g) **Some results may take a long time.** The Institute of Medicine suggests taking a "long view" of health outcomes.[101] Seeing improvements in some of the factors may take a long time, and once established, it may take years to see improvements in health outcomes. However, because of the research basis of the factors, progress on each of them can be seen as benchmarks for better health and safety outcomes. For example, bringing a supermarket to a neighborhood can be a slow process. However, having such an outlet is a marker for improved nutrition levels within that community.

h) **The four clusters link to broader statewide and national policies, conditions, and trends.** Health disparities are affected by broader societal influences such as environmental, communications, and welfare policy, industry practices and regulations, technology and product design, and state, national, and international politics. Their relative role should be considered when implementing community change. Fostering improvements related to the community factors can address gaps in state or national policies or strengthen the impact of existing policies. For example, government programs like the Women, Infants and Children (WIC) program improve the nutrition levels of low-income children and mothers.

Communities can make the WIC program more effective by encouraging grocery stores, farmers' markets, and other local vendors to accept WIC vouchers, display WIC information, and educate their employees about the program. Also, bolstering community factors in one place can catalyze change on a broader scale. Effective community interventions serve as models for county, state, or national policies aimed at reducing health disparities. In addition to local solutions, interventions that target broader policies – for instance, working towards a specific statewide environmental regulation – can be beneficial to multiple communities because of the broad-based impact of these policies, conditions, and trends.

The Interrelationship among Community Clusters and Broader Societal Factors



i) **The factors are not always parallel.** Some of the factors have a direct and specific effect on medical conditions and health outcomes. For example, activity-promoting environments and nutrition-promoting environments are directly linked to cardiovascular disease and diabetes. Other factors may have a more indirect link to health outcomes or a general link to improved health outcomes more broadly. For example, education and literacy levels are associated with improved health outcomes in a number of areas.

j) **Most factors fall along a risk and resilience continuum**. The community factors tend to represent risk and resilience continuums. That is to say, the presence or absence of something may represent a community risk and the opposite a resilience factor. For example, a lack of economic opportunity is a risk factor, whereas the presence of economic capital, such as living wage jobs and availability of loans represents a resilience factor. Similarly, the proliferation of fast food and junk food is a significant risk factor for poor nutrition while the availability of safe, healthy, affordable and culturally appropriate food in a community promotes healthy eating. The effects of risk and resilience factors on health and safety are interactive and cumulative. Not everyone exposed to risk factors will be impacted but those who are exposed to multiple risk factors are at greater risk. The combination, frequency, and severity of risks influence whether or not problems develop. Further, poor health and safety outcomes within a community are generally accounted for by an overwhelming accumulation of risk without a compensatory accumulation of resilience factors. On an individual level, resilience factors can counteract the negative impact of risk factors[102,103] and the protection effects reducing problem behaviors become stronger as levels of risk exposure increase.[104]

Similar effects may be seen on a community level. For instance, while a high availability of firearms and alcohol within a community is a risk factor for violence, positive social norms can provide social controls that are protective against the use of weapons or excessive drinking. Further, approaching a community with an emphasis on its strengths and assets rather than simply its problems will be better received as it shows respect for effectiveness in the face of difficult environmental conditions. The set of 20 community factors are delineated on a risk-resilience continuum in Chart 2: *Evolution to Effective Prevention - From Health Disparities to Health Promoting Community Environments.*

Chart 2: Evolution to Effective Prevention
From Health Disparities → Health Promoting Community Environments

	Community Factors	From	→	To
Built Environment	**Activity-promoting Environment**	Absence of places for physical activity or unsafe or uninspiring places	→	Places in which people can safely participate in walking, biking and other forms of incidental or recreational activity[105] and such activity is promoted
	Nutrition-promoting Environment	Absence of nutritious food and proliferation and promotion of fast food and junk food	→	Availability and promotion of safe, healthy, affordable, culturally appropriate food.[106]
	Housing	Unsafe and inadequate levels of housing	→	Availability of safe, affordable housing in the community
	Transportation	Unsafe, inadequate, and/or overly auto-oriented at the expense of alternative or transit-oriented	→	Availability of safe, reliable, and affordable methods for moving people around
	Environmental Quality	Range from polluted, toxic water, soil, air, and building materials	→	Safe and clean water, soil, indoor and outdoor air, and building materials
	Product Availability	Availability of potentially harmful products such as tobacco, firearms, alcohol, and other drugs	→	Availability of beneficial products, such as books and school supplies, sports equipment, arts and crafts, and other recreational items
	Aesthetic and Ambiance	Uninviting, inappropriate, culturally irrelevant settings	→	Well maintained, appealing, clean, and culturally relevant environment
Social Capital	**Social Cohesion and Trust**	Mistrust and absence of social networks	→	Strong social ties among persons and positions, built upon mutual obligations, opportunities to exchange information, shared norms, and the ability to enforce standards and administer sanctions.[107]
	Collective Efficacy	Apathy, a sense of helplessness, and unwillingness to take action for the good of the community	→	Social cohesion coupled with a willingness to intervene on behalf of the common good.[108]
	Civic Engagement and Participation	Lack of involvement by community members in the community and decisions that affect the community	→	Involvement in community or social organizations and/or participation in the political process
	Social/Behavior Norms	Expectations and social reinforcers that shape and promote unhealthy and unsafe behaviors	→	Shared beliefs and standards of behavior that encourage positive choices and support healthy environments
	Gender Norms	Socialization and inflexible gender roles that limit opportunity or promulgate disrespect and reckless behavior	→	Socioculturally determined standards of behavior, specific to males or specific to females, that encourage positive choices, create safe and supportive relationships between and within gender groups, and generally support healthy environments

Services and Institutions	**Public Health, Health, and Human Services**	Inadequate, unresponsive, incompetent, or absence of appropriate services	→	Available, accessible, high quality healthcare, health promotion and wellness services, health-related services such as mental health and substance abuse prevention and intervention, public health, and social services
	Public Safety	Inadequate**,** corrupt, unresponsive, or absence of appropriate services	→	High quality law enforcement and fire protection that responds rapidly and has gained the trust of the community
	Education and Literacy	Poor performing schools and inadequate early childhood education and literacy programs	→	High-quality and available education and literacy services across the life span that meet the needs of all people within the community
	Community-based Organizations	Ineffective or non-existent community-based services	→	Non-profit, grassroots, and faith-based organizations and coalitions within a community that fill service gaps, advocate for community needs, and promote health and safety for the community
	Cultural/Artistic Opportunities	Absence of artistic and cultural opportunities including theaters, museums, festivals, community centers, arts programs, etc.	→	Proliferation of opportunities within the community for cultural and artistic expression and participation and for cultural values to be expressed through the arts
Structural Factors	**Economic Capital**	Low levels of local ownership of homes and businesses, inability to access capital for local investment, and absence of opportunities to make a living wage	→	Local ownership of assets or access to capital and investment and abundant opportunities to make a living wage
	Media and Marketing	Promotion of unhealthy products and behaviors	→	Presence of responsible marketing and media that support healthy behaviors and environments through positive messages and role models
	Ethnic, Racial, and Intergroup Dynamics	Strained, negative interactions and relations or mistrust between people of different races and ethnic backgrounds, people with different characteristics (e.g. sexual orientation), or status (e.g. employer/employee or police/youth)	→	Positive interactions, relations, and trust between people of different races and ethnic backgrounds, people with different characteristics, or status

The Relationship between Community Factors and California's Priority Medical Issues

A community's efforts to make improvements along the continuum of four clusters and twenty community factors will strengthen health overall and will specifically reduce the incidence of California's Priority Medical Issues. All four clusters are of importance in virtually every community and for virtually every disease. The weighting of specific factors will depend on the community's priorities in terms of the disease or health issues that most concerns it, as well as other criteria (e.g. achievability, local buy-in and interest, etc.) Irrespective of which particular priority is selected, a focus on community factors ensures that a number of health issues should be positively affected as the following example - cardiovascular disease – reflects. (Additional charts for other priority medical issues are in the appendices.)

Cardiovascular Disease: Key Community Factors

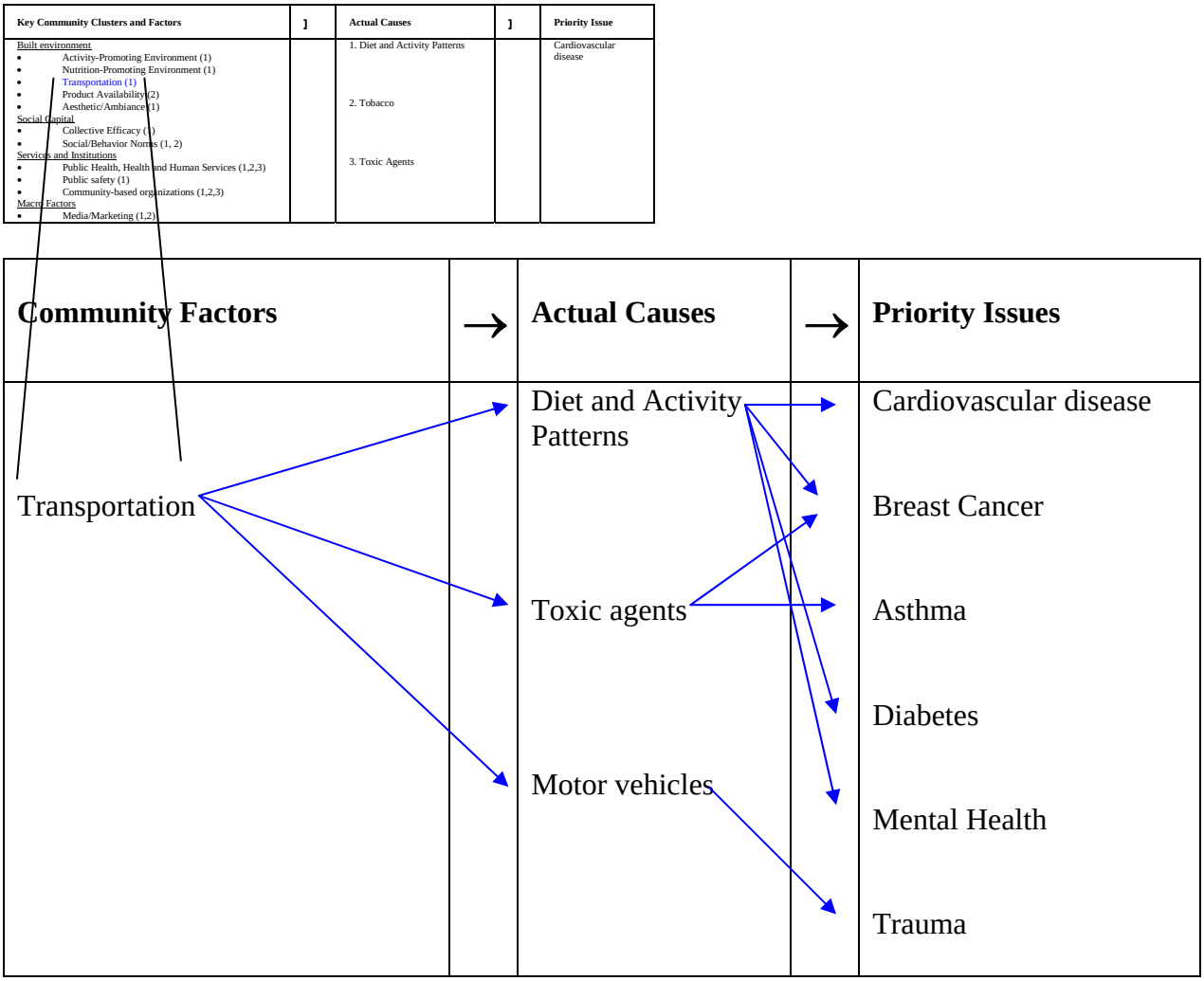
The *California Campaign to Eliminate Racial and Ethnic Disparities* has identified cardiovascular disease as a priority issue for the state, citing the fact that African Americans in California had the highest heart disease death rate over a five-year period from 1991-1995[109] According to the McGinnis and Foege analysis, cardiovascular disease causes include tobacco, and diet and activity patterns. There are a number of community factors associated with these causes. For example, tobacco use is directly influenced by **product availability** and diet patterns by **nutrition-promoting environments** that limit junk food and provide access to healthy and affordable food; activity patterns are influenced by **activity-promoting environments** in which physical activity is fostered through incidental[†] and recreational opportunities; **transportation** can both contribute to accessing food and improve patterns of physical activity; and **social/behavior norms** and **media/marketing** can encourage (or, too frequently, discourage) healthy choices. Other factors have a less obvious effect. **Aesthetics/ambiance** can foster increased levels of physical activity by promoting comfort levels going to parks or shopping in the community, **collective efficacy** can enable a community group to secure a supermarket in the neighborhood or eliminate billboards touting unhealthy products. **Public health and community-based organizations** should play a role addressing cardiovascular disease and health facilities must play a role in screening and treatment. Effective **public safety** programs will reduce fear of crime and thereby promote increased activity levels in the community. All of these factors are depicted in the following chart.

Key Community Clusters and Factors	→	**Actual Causes**	→	**Priority Issue**
Built environment • Activity-Promoting Environment (1) • Nutrition-Promoting Environment (1) • Transportation (1) • Product Availability (2) • Aesthetics/Ambiance (1) Social Capital • Collective Efficacy (1,2) • Social/Behavior Norms (1, 2) Services and Institutions • Public Health, Health and Human Services (1,2) • Public safety (1) • Community-based organizations (1,2) Structural Factors • Media/Marketing (1,2)		1. Diet and Activity Patterns 2. Tobacco		Cardiovascular disease

[†] By incidental physical activity we are referring to the activity that can occur in the course of daily activity-walking, biking, taking the stairs, carrying groceries, etc.

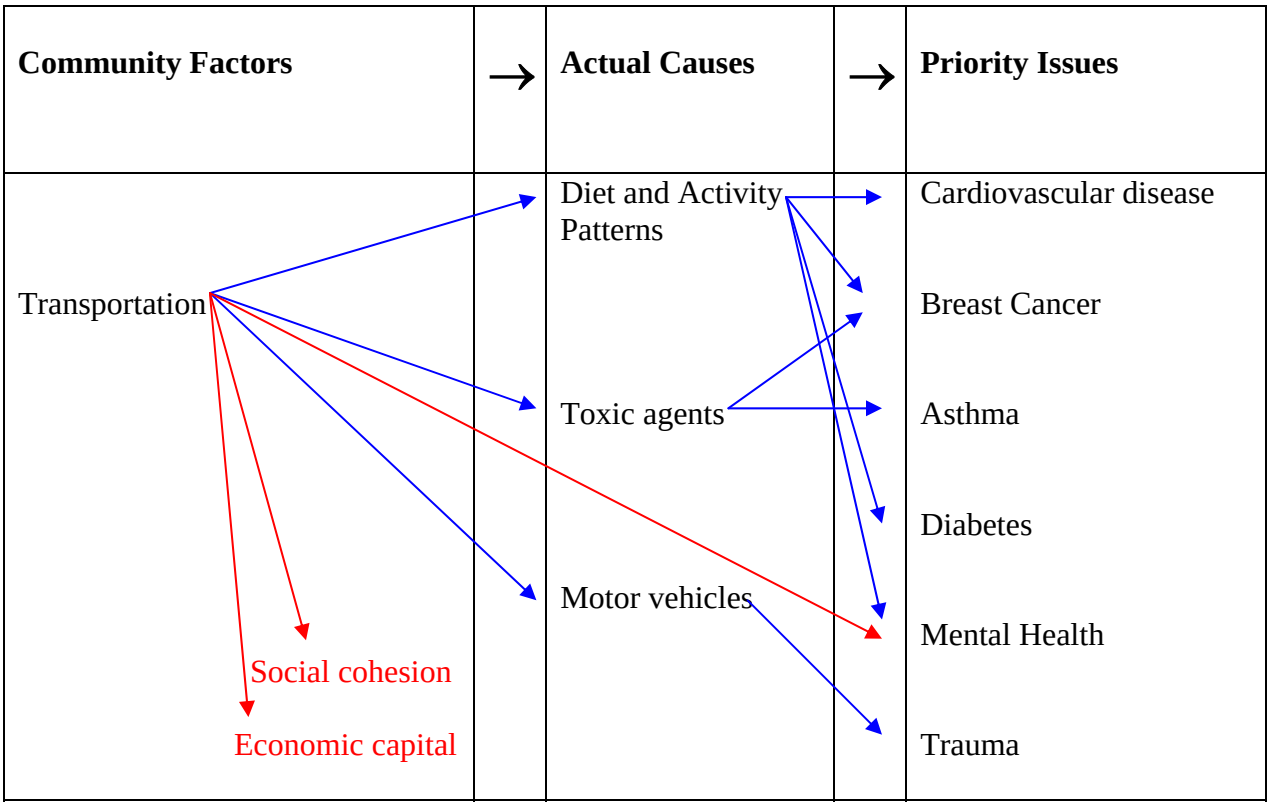
Factors can contribute not only to cardiovascular disease but also to other priority medical issues

One key community factor listed in the above example is transportation. As noted, transportation can both increase access to healthy food and promote short walking trips. Efforts to bolster this factor will not only contribute to reductions in cardiovascular disease, but will also result in improvements in other priority issues as well. For example, in regards to **transportation**, Trevor Hancock, a leader in prevention strategy in Canada, has identified several health benefits associated with a good public transit system.[110] Direct benefits include not only lower rates of cardiovascular disease**,** including heart disease, but of respiratory diseases including **asthma** and lower **trauma** rates due to reduced motor vehicle crashes, and lower **diabetes** and **cancer** rates due to increased physical activity from walking and biking. These relationships are depicted in blue in the following chart.



Less Direct Benefits

Indirect benefits of improved transportation include less stress and increased **social cohesion**. Hancock also noted the opportunities for increased **economic capital** associated with effective transit. This is particularly true for low-income communities of color that tend to be more isolated from jobs and other forms of social capital as well as other resources, including healthy food outlets. These relationships are depicted in red in the following chart.



Communities may start from very different places -- by focusing on different medical conditions or they may start by focusing on positive factors such as enhancing education and literacy or cultural and artistic opportunities. What is critical in applying the community factor framework is that a community understand the potential of upstream approaches, decide on its own priority issues, determine its strengths and weaknesses in terms of the factors, and select an approach that will strengthen the community factors most likely to improve its health outcomes and reduce the medical issues that are its greatest concern. Because many of these factors, causes, and diseases interrelate, a well-designed solution can solve multiple problems. The above example continues (see appendix 2) to create a web of health enhancing efforts.

In fact, the overall framework promotes multiple health and safety outcomes at a community level. Such an approach makes sense in addressing health disparities because people who live in low-income communities of color are disproportionately sick and generally face a variety of health problems. They experience the cumulative effect of the environment on their health and this approach provides an opportunity to strengthen the overall environment. This has the

potential to affect the community population and results in a bigger effect on health outcomes than efforts that are focused on preventing one disease at a time.

Improving Individual Outcomes

While the approach is necessarily designed to improve health outcomes for a community population, progress can be assessed not only in terms of population health, but also for individuals. Given the profound affect of the environment on health, it can be anticipated that health strategies that promote progress along the community factors will not only change the conditions in which people live, but also the behaviors that people choose. These individual behaviors and conditions that promote healthy outcomes provide indicators for evaluation of this approach. Examples are delineated in chart 3.

Chart 3: Individual Health-Promoting Behaviors and Conditions

- Eat safe, healthy food
- Walk 60 minutes/day or equivalent
- Have living wage job/be in school
- Read @ 8th grade level
- Breathe clean air
- Drink clean water
- Be smoke-free
- Practice safe sex
- Drink moderately
- Have social supports
- Have wellness care
- Have safe housing
- Have safe transportation
- Be safe from violence

Conclusion: A Good Solution is Overdue

"In 1968 and again in 1969 and 1974, [Henrik Blum] vigorously promoted an enlargement and clarification of the concept of forces that affect health so that health planners could see more clearly how to intervene effectively to reduce the risks that presaged ill health."[111] However, he recounts with frustration, " For a number of reasons, this idea did not catch on."[112] Now we have far more information about the community environment – the specific clusters and factors that will enable communities to intervene in reducing illness. This idea must catch on if California is to reduce the level of health disparities.

Low-income people of color are disproportionately exposed to hazardous conditions in their homes, workplaces, and communities. Further, many of their poor health decisions must be seen not only as a cause of poor health, but also as an *indicator* of an environment encouraging poor health. Recognizing the context in which behavior takes place creates opportunities to change social and behavior norms, which have immense power over the ways in which individuals behave. Altering the environmental conditions alters the pathways between oppression and

poverty and multiple health problems. Focusing on the pathways and trajectory from root factors to poor health outcomes provides the basis for action that can make a difference in communities. In addition to improving health outcomes in low-income, communities of color, this framework may also have applicability in reducing other disparities in health. Further, it can inform policy decisions at local, state, and even national levels. “Policy cannot be intelligently conducted without mechanisms; correlations are not enough."[113]

Some have calculated that nearly 70% of all medical care spending is used for chronic and preventable diseases and injuries.[114] Too many people, and especially low-income people of color, are needlessly getting sick, injured, dying prematurely, and are living with conditions that detract from quality of life. There is now a research basis that supports approaches that alter the conditions in which people live and work. In conjunction with medical approaches that treat the already sick, a preventive strategy to reduce the number of those getting sick in the first place, is critical.

Appendix 1: Prevention Charts for California's Priority Medical Issues

Priority Medical Issue	←	**Actual Causes & *California Campaign* Major Factors**	←	**Key Community Clusters and Factors**
Asthma		1. Tobacco (MF, CC) 2. Microbial agents (MF) 3. Toxic agents (MF)		<u>Built environment</u> • Housing (2, 3) • Transportation (3) • Environmental Quality (2, 3) • Product Availability (1) <u>Social Capital</u> • Collective Efficacy (1, 3) • Civic Participation /Engagement (1, 3) • Social/Behavioral Norms (1) • Gender Norms (1) <u>Services and Institutions</u> • Public Health, Health, and Human Services (1, 2, 3) • Education and Literacy (1, 3) • Community-Based Organizations (1, 3) <u>Structural Factors</u> • Economic Capital (3) • Media/Marketing (1)

CC: These relationships are based on the analysis of the *California Campaign.*
MF: These relationships are based on McGinnis' and Foege's analysis of the actual causes of death.

Priority Medical Issue	←	**Actual Causes & *California Campaign* Major Factors**	←	**Key Community Clusters and Factors**
Breast cancer		1. Tobacco (MF) 2. Diet and Activity Patterns (MF) 3.Toxic Agents (MF) 4. Alcohol		<u>Built environment</u> • Activity-promoting Environment (2) • Nutrition-promoting Environment (2) • Transportation (2, 3) • Environmental Quality (2, 3) • Product Availability (1, 4) • Aesthetics/Ambiance (2) <u>Social Capital</u> • Social Cohesion and Trust (1, 4) • Collective Efficacy (1, 2, 3, 4) • Civic Participation/Engagement (1, 2, 3, 4) • Social/Behavior Norms (1, 2, 4) <u>Services and Institutions</u> • Public Health, Health, and Human Services (1, 2, 3, 4) • Public Safety (2, 4) • Community-Based Organizations (1, 2, 3, 4) <u>Structural Factors</u> • Media/Marketing (1, 2, 4)

CC: These relationships are based on the analysis of the *California Campaign.*
MF: These relationships are based on McGinnis' and Foege's analysis of the actual causes of death.

Priority Medical Issue	←	**Actual Causes & *California Campaign* Major Factors**	←	**Key Community Clusters and Factors**
Cervical cancer		1. Sexual behavior (MF, CC) 2. Alcohol (MF) 3. Tobacco (CC)		<u>Built environment</u> • Product Availability (2, 3) <u>Social Capital</u> • Social Cohesion and Trust (1, 2, 3) • Collective Efficacy (1, 2, 3) • Social/Behavior Norms (1, 2, 3) • Civic Participation/Engagement (1 2, 3) • Gender Norms (1, 2, 3) <u>Services and Institutions</u> • Public Health, Health, and Human Services (1, 2, 3) • Public Safety (2) • Community-Based Organizations (1, 2, 3) <u>Structural Factors</u> • Media/Marketing (1, 2, 3)

CC: These relationships are based on the analysis of the *California Campaign.*
MF: These relationships are based on McGinnis' and Foege's analysis of the actual causes of death.

Priority Medical Issue	←	**Actual Causes & *California Campaign* Major Factors**	←	**Key Community Clusters and Factors**
Diabetes		1. Diet and Activity Patterns (MF, CC) 2. Tobacco (CC)		<u>Built Environment</u> • Activity-promoting Environment (1) • Nutrition-promoting Environment (1) • Transportation (1) • Product Availability (2) • Aesthetics/Ambiance (1) <u>Social Capital</u> • Collective Efficacy (1, 2) • Civic Participation/Engagement (1, 2) • Social/Behavior Norms (1, 2) • Gender Norms (1, 2) <u>Services and Institutions</u> • Public Health, Health, and Human Services (1, 2) • Public Safety (1) • Community-Based Organizations (1, 2) • Cultural/Artistic Opportunities (1) <u>Structural Factors</u> • Media/Marketing (1, 2)

CC: These relationships are based on the analysis of the *California Campaign.*
MF: These relationships are based on McGinnis' and Foege's analysis of the actual causes of death.

Priority Medical Issue	←	**Actual Causes & *California Campaign* Major Factors**	←	**Key Community Clusters and Factors**
HIV/AIDS		1. Alcohol (MF, CC) 2. Microbial agents (MF) 3. Sexual behavior (MF, CC) 4. Illicit drugs (MF, CC)		<u>Built Environment</u> • Product Availability (1) • Aesthetic/Ambiance (4) <u>Social Capital</u> • Social Cohesion and Trust (1, 3, 4) • Collective Efficacy (1, 4) • Civic Participation/Engagement (1, 3, 4) • Social/Behavior Norms (1, 3, 4) • Gender Norms (1, 3) <u>Services and Institutions</u> • Public Health, Health, and Human Services (1, 2, 3, 4) • Community-Based Organizations (1, 3, 4) • Public Safety (1, 4) <u>Structural Factors</u> • Media/Marketing (1, 3, 4)

CC: These relationships are based on the analysis of the *California Campaign.*
MF: These relationships are based on McGinnis' and Foege's analysis of the actual causes of death.

Priority Medical Issue	←	**Actual Causes & *California Campaign* Major Factors**	←	**Key Community Clusters and Factors**
Infant mortality		1. Tobacco (MF, CC) 2. Alcohol (CC) 3. Sexual behavior (MF, CC) 4. Illicit drugs (MF, CC) 5. Diet and Activity Patterns (CC)		<u>Built environment</u> • Nutrition-promoting Environment (5) • Product Availability (1, 2) • Aesthetic/Ambiance (4) <u>Social Capital</u> • Social Cohesion and Trust (1, 2, 3, 4) • Collective Efficacy (1, 2, 4, 5) • Civic Participation/Engagement (1, 2, 3, 4, 5) • Social/Behavior Norms (1, 2, 3, 4, 5) • Gender Norms (1, 2, 3) <u>Services and Institutions</u> • Public Health, Health, and Human Services (1, 2, 3, 4, 5) • Public Safety (2, 4, 5) • Community-Based Organizations (1, 2, 3, 4, 5) <u>Structural Factors</u> • Media/Marketing (1, 2, 3, 5)

CC: These relationships are based on the analysis of the *California Campaign.*
MF: These relationships are based on McGinnis' and Foege's analysis of the actual causes of death.

Priority Medical Issue	←	**Actual Causes & *California Campaign* Major Factors**	←	**Key Community Clusters and Factors**
Mental health		1. Alcohol (CC) 2. Illicit drugs (CC)		<u>Built Environment</u> • Product Availability (1) • Aesthetic/Ambiance (2 and directly) <u>Social Capital</u> • Social Cohesion and Trust (1, 2, and directly) • Collective Efficacy (1, 2) • Civic Participation/Engagement (1, 2, and directly) • Social/Behavior Norms (1, 2) • Gender Norms (1, 2) <u>Services and Institutions</u> • Public Health, Health, and Human Services (1, 2) • Public Safety (1, 2) • Community-Based Organizations (1, 2) • Cultural/Artistic Opportunities (linked directly to mental health) <u>Structural Factors</u> • Media/Marketing (1)

CC: These relationships are based on the analysis of the *California Campaign.*
MF: These relationships are based on McGinnis' and Foege's analysis of the actual causes of death.

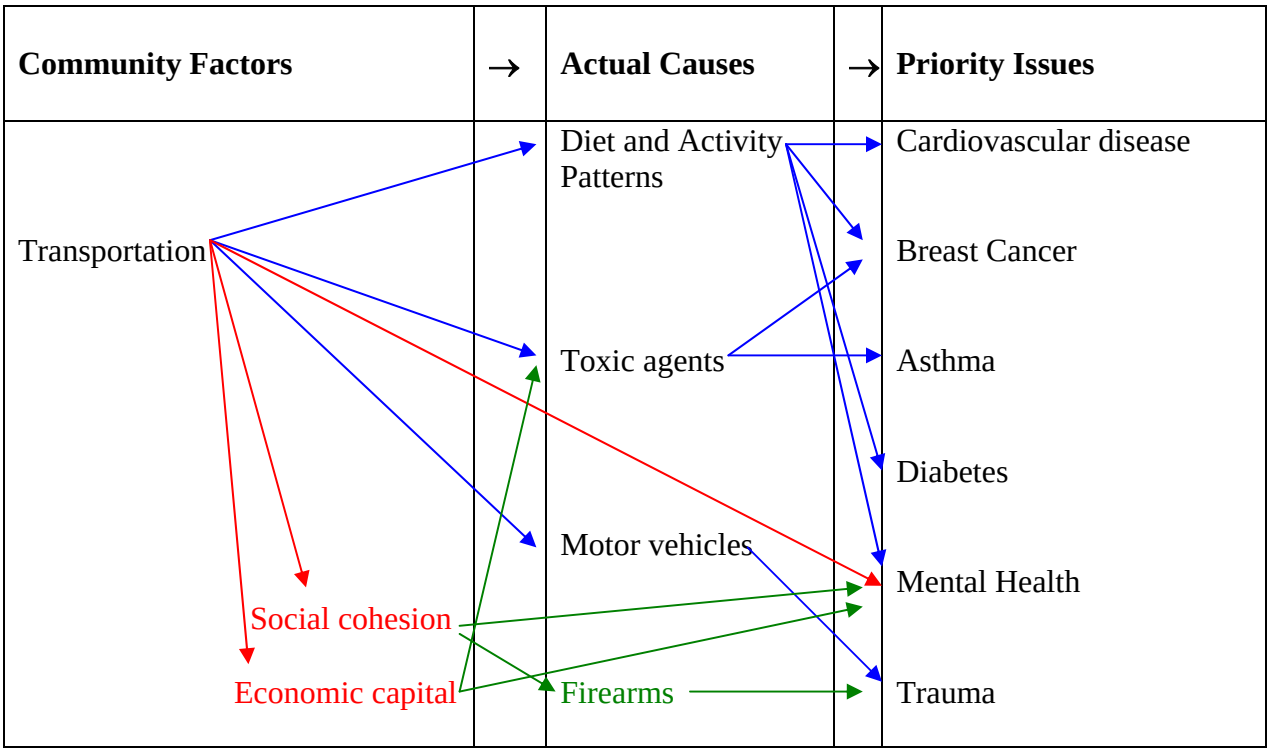
Priority Medical Issue	←	**Actual Causes & *California Campaign* Major Factors**	←	**Key Community Clusters and Factors**
Trauma		1. Firearms (MF) 2. Motor vehicles (MF) 3. Illicit Drugs (MF, CC) 4. Alcohol (MF, CC) 5. Tobacco (MF)		<u>Built environment</u> • Transportation (2) • Product Availability (1, 4, 5) • Aesthetic/Ambiance (3) <u>Social Capital</u> • Social Cohesion and Trust (1, 2, 3, 4, 5) • Collective Efficacy (1, 2, 3, 4, 5) • Civic Participation/Engagement (1, 3, 4, 5) • Social/Behavior Norms (1, 2, 3, 4, 5) • Gender Norms (2, 3, 4, 5) <u>Services and Institutions</u> • Public Health, Health, and Human Services (1, 2, 3, 4, 5) • Public Safety (1, 3, 4) • Community-Based Organizations (1, 3, 4, 5) • Cultural/Artistic Opportunities (1) <u>Structural Factors</u> • Media/Marketing (1, 3, 4, 5)

CC: These relationships are based on the analysis of the *California Campaign.*
MF: These relationships are based on McGinnis' and Foege's analysis of the actual causes of death.

Appendix 2: Continuation of explanation of the web of health benefits starting with a focus on Cardiovascular Disease

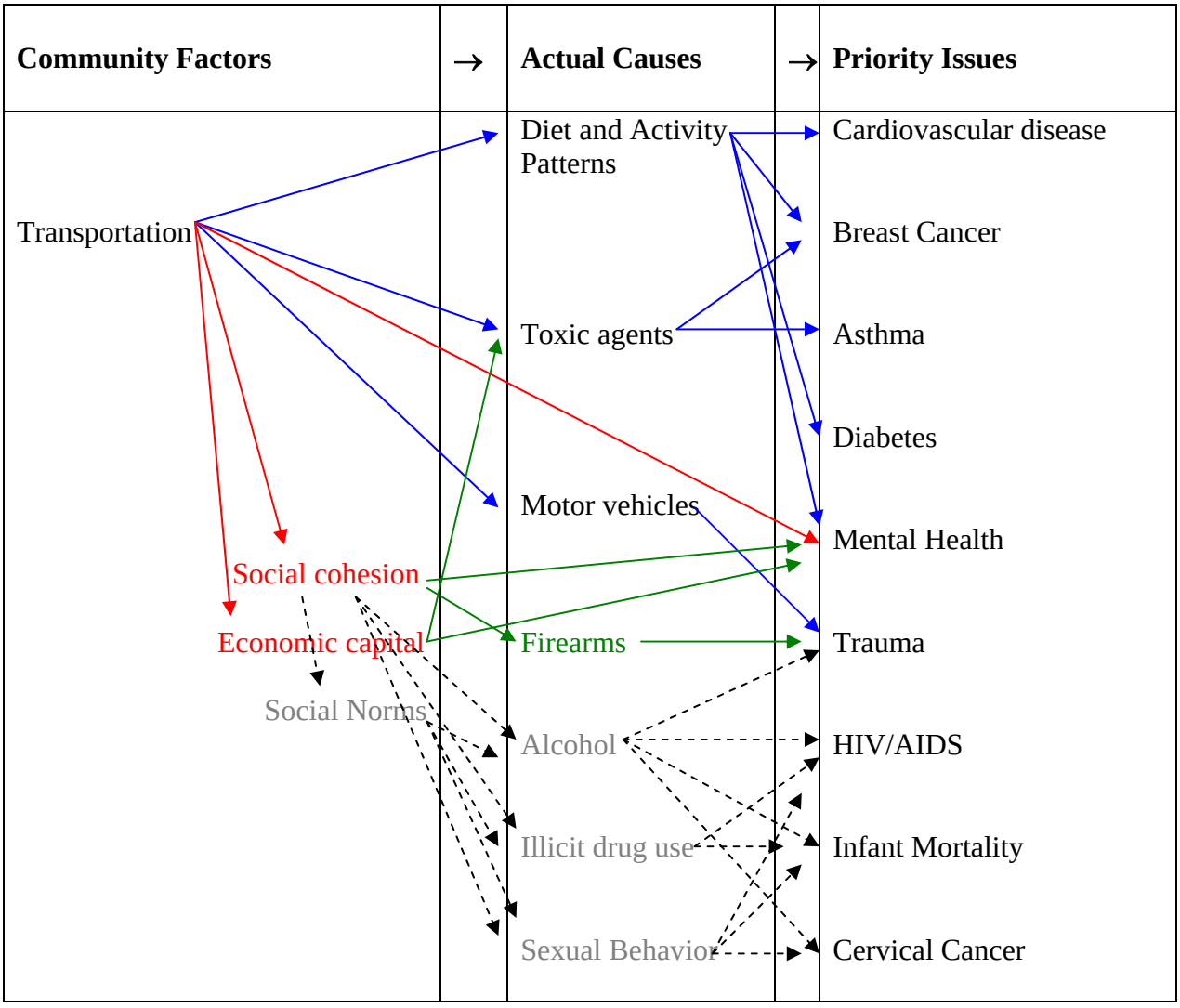
Health outcomes associated with social cohesion and economic capital

Social cohesion and economic capital are associated with other health outcomes as well. For example, social cohesion and trust is linked not only with improved **mental health** but also lower suicide rates, including from **firearms**. Economic capital is indirectly linked to multiple health factors by influencing income levels and quality of work environment, including exposure to **toxic agents.** These relationships are depicted in green in the following chart.



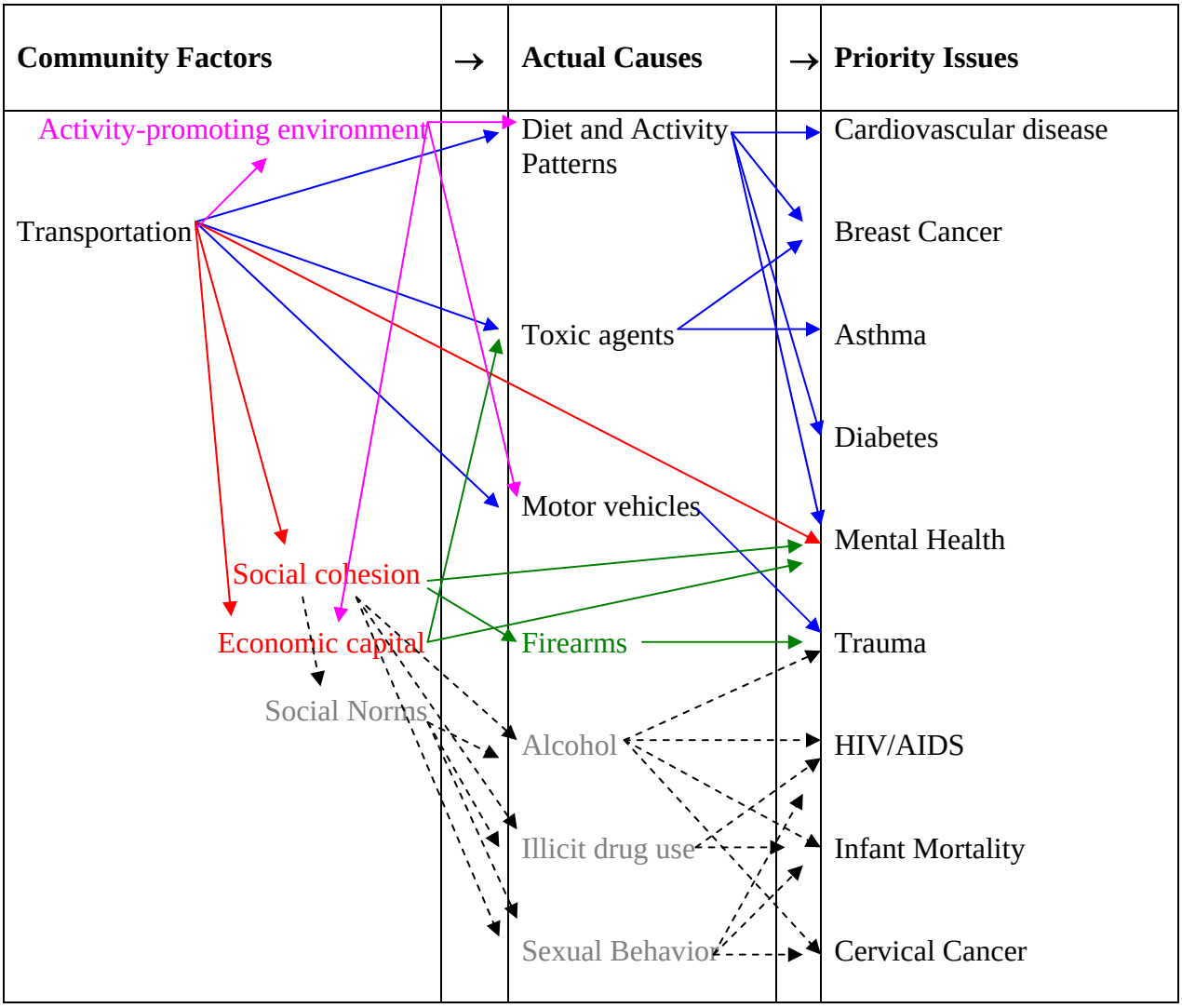
Expanding the web of community factors

The analysis can be taken further depending on the circumstances within a community. For example, economic capital promotes stability that in turn fosters social cohesion. Likewise, social networks may also contribute to economic capital by opening up opportunities for employment or increasing chances of bringing capital to an area. Strong social networks also produce and enforce social sanctions and controls to diminish negative behavior and reduce the incidence of crime, juvenile delinquency, and access to firearms within communities.[115, 116] Such constraints can influence **behavior norms** around a number of behaviors including use of **tobacco**, **alcohol** and **illicit drugs** or **sexual behavior**. Changes in sexual behavior alone can contribute to reductions in **infant mortality**, **cervical cancer**, and **HIV/AIDS**. Social cohesion and trust is also predictive of a willingness to take action on behalf of the community good. This form of **collective efficacy** has contributed to multiple outcomes at a community level including reducing violence levels (**trauma**) and increasing access to nutritious food (**diet and activity patterns).** These potential relationships are indicated in dotted lines in the following chart.



Additional benefits of a focus on transportation

Finally, efforts to strengthen the **transportation** factor can go beyond an emphasis on transit systems. Such efforts within a community may include modifying street design, parking options, and traffic flow. A well-designed effort can contribute to an **activity-promoting environment** by developing safe places for walking and bike riding,[117] reduced **motor vehicle** crashes by decreasing speeds and improving road design, and improved **economic capital**[118] outcomes by promoting increased foot traffic in specific areas. The relationships are designated in the following chart in lime green.



End Notes

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