DISRUPTING THE PATHWAY

A Prevention Approach to Medical High Utilization

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Prevention Institute
Prevention and equity | at the center of community well-being

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I. Broadening Our Strategy

Medical high utilizers are individuals whose healthcare costs are significantly greater than others in the population. Half of all American healthcare expenditures — $1.45 trillion dollars annually — goes toward the treatment of just 5 percent of the population. [1] [2] Nationwide, approximately 23 percent of medical expenditures are spent on the top 1 percent of users; 50 percent is spent on the top 5 percent of users; and 87 percent is spent on the top 25 percent of users. The California Medi-Cal program shows similar trends. [3] Over 50 percent of all costs go toward treatment of the highest 5 percent of utilizers, stressing the state's health system and exposing deficits in its approach to health, wellness, and equity. [4] Importantly, above and beyond the monetary cost that is the definition of high utilization, the data presented above speaks to the immense suffering experienced by this percentage of the population, and by their families and friends. This suffering represents unfulfilled human potential, making prevention even more important.

Alternate Terms for High Utilization

Medically Complex Patients

Super Utilization

Frequent Flyers

As ballooning medical costs continue to raise national concern, analysts and policymakers have directed significant attention to the challenges posed by high utilization. Most research and intervention thus far have focused on increasing coordination of care and developing medical homes for patients who are frequently grappling with multiple, chronic, physical and behavioral health conditions. These strategies aim to reduce utilization of high-cost healthcare services, such as emergency department (ED) visits and hospitalizations, through better medical management.

The greater attention on high utilization provides an additional opportunity to reduce patterns of high utilization across the population by applying prevention methodology. A comprehensive strategy to address the challenges of high utilization should include methods that prevent illness and injury in the first place. Positively influencing the physical-built environment, social-cultural environment, and economic-educational opportunities that shape health — otherwise known as the determinants of health — has the potential to reduce the frequency of health problems across a community population, thus reducing the overall need for medical and behavioral health treatment. In other words, this community-based prevention approach can disrupt the pathway that leads to high utilization. What's more, the same community conditions that prevent illness and injury in the first place are also critical for maintaining and restoring health, and for improving widespread population health. Addressing the causes of medical conditions through an upstream, community-centered approach is feasible, and with healthcare as an active partner, supports the achievement of the Triple Aim.[5]

This paper presents an exploratory methodology for disrupting the pathway that leads to high utilization by applying a community-wide prevention lens to the challenges of high utilization. The rich body of prevention research, practice, and experience supports the notion that this approach can add value to existing efforts by the healthcare system — by reducing the pipeline to high utilization, supporting the maintenance and restoration of health and well-being, and improving the health of the population. The ideas presented here are preliminary and meant to catalyze further thinking about the potential value of prevention in reducing medical high utilization.

II. Defining and Describing High Utilizers

The adult high-utilizer population commonly suffers from diabetes, hypertension, renal disorders, coronary artery disease, asthma, and behavioral health conditions (e.g., serious mental illness and substance abuse disorder). It is important to note that high utilization is frequently the result of the synergistic comorbidities of multiple medical conditions where the total impact is greater than the sum of its parts. Further, high utilization leads to and at the same time is exacerbated by unstable social factors (e.g. housing, employment, social isolation, etc.).

Chronic diseases are a major driver of high utilization. The Frequent Users of Health Services Initiative, a five-year project in California which aimed to promote innovative, integrated methods for addressing the health and social service needs of frequent ED users, found that 65 percent of the frequent-user population had chronic diseases, including diabetes, cardiovascular disease, liver disease, chronic pain, and respiratory conditions such as chronic obstructive pulmonary disorder (COPD) and asthma.[6] The Agency for Healthcare Research and Quality (AHRQ) found that diabetes with complications was among the top ten conditions for super utilizers in Medicaid.[7] Notably, health behaviors including diet, sedentary behavior, smoking, and excessive alcohol consumption are strongly implicated as risk factors for chronic disease.[8]

Chronic behavioral health conditions are commonly experienced by many medical high utilizers. A study conducted by the Pew Charitable Trusts (2014) found that 5 percent of Medicaid's beneficiaries-- most of these high utilizers-- had a diagnosed mental health condition and/or substance abuse disorder.[9] This represents over 3 million beneficiaries and approximately 50 percent of total Medicaid costs. According to the AHRQ (2015), mental illness and substance abuse disorders are among the top 10 conditions of high utilizers.[10] Across multiple years and states, Medicaid data demonstrated that among the high-expenditure group about half had mental health conditions, and 71 percent with a substance abuse condition also had one or more mental health condition(s).[11] Co-morbid chronic conditions often amplify the issue of high utilization, as when patients suffer from substance abuse and mental health issues simultaneously with other chronic conditions such as diabetes, and the cost of their care increases even more. In the case of Medi-Cal enrollees treated for diabetes, serious mental illness, and substance dependency simultaneously, ED use was reported to be seven times greater than for patients treated for diabetes alone.[12]

Many behavioral health conditions are rooted in exposure to traumatic events or conditions. Trauma in this sense is defined as experiences or situations that are emotionally painful and distressing, and that overwhelm the ability to cope.[13] The effects of complex trauma include distress, anxiety, aggression, hyper-arousal, and mental illness.[14] In addition, trauma can lead to social isolation and self-medication. Trauma is a common experience among high utilizers.[15] [16] [17] Childhood trauma has been found to be a significant predictor of adult healthcare utilization; it triggers certain types of behaviors later in life, as well as behavioral health conditions which can compound chronic disease management and potentially further contribute to the issue of the overuse of the ED and healthcare services.

High utilization is not exclusive to adults; it also impacts children, particularly as it relates to asthma. Children with poorly controlled asthma are more likely to miss school, have an ED visit, or be hospitalized for asthma.[18] Asthma is the leading cause of pediatric hospitalization for Hispanic and African-American children.[19] [20] Among asthmatic African-American and Hispanic children, 15-25 percent are high utilizers who have frequent ED visits and repeat hospitalizations.[21] [22]

In addition, serious medical conditions are frequently compounded by social factors that are linked to under-resourced communities, including limited employment opportunities, housing instability, difficulty accessing transportation, and/or difficulty maintaining medication or treatment requirements. [23] [24] [25] [26] [27] [28] Indeed, medical high utilizers are more likely to be poor, and to be either homeless or tenuously housed. A Medi-Cal data analysis by the University of California at Davis (2014) found that homelessness was a significant predictor of ED use and inpatient stays. Housing instability and homelessness can be byproducts of physical or mental disability or illness.[29] For many, the difficulty of managing injury or illness can lead to job loss, which consequently eliminates benefits such as employer-sponsored health insurance that enhance access to healthcare services.[30] Limited or no income coupled with insufficient health insurance coverage while facing complex illness or injury can easily send one into a downward spiral of medical bills, increasing debt and bankruptcy. In the cases where financial debt leads to homelessness, poverty and deprivation can reinforce each other in a vicious cycle that often leads to the development of even more chronic diseases.[31] [32] According to the United States Interagency Council on Homelessness, there are "increasingly high rates (more than 50%) of chronic, disabling, and/or life-threatening health conditions (hypertension, asthma, HIV/AIDS, liver disease)"[33] among homeless individuals, who are three to four times more likely to die prematurely than housed individuals, and have a shortened life expectancy averaging only 41 years.[34]

The term high utilizers may describe cost and utilization data, but the following vignettes help illustrate the suffering experienced by high utilizers and how frequently comorbidities exacerbate one another.

> A 50-year-old native Hawaiian female is homeless with depression and with uncontrolled type 2 diabetes. In the last year she has experienced 28 ED visits for both mental illness and uncontrolled diabetes. She came to Northern California from Hawaii after high school for work; her immediate family has remained in Hawaii. She became homeless after leaving a violent partner five years ago. She stays in a local shelter only two to three times per week. The food served in the shelter is often processed and high in refined sugars.
>
> A 26-year-old African-American male lives in marginalized housing with a history of alcohol abuse and congestive heart failure. He is a veteran but the closest Veterans Benefits Administration provider is 75 miles away. In the last year he had 23 ED visits and experienced 23 hospital admissions for congestive heart failure, gastrointestinal bleeding, and unintentional injury. He has been unemployed for two years and his wife and three children live locally.

III. High Utilizers and Equity

We unfortunately know that life expectancy is dramatically different based on where people live and on the opportunities in their communities. This speaks to the need to view high utilization with a health equity lens. Health equity refers to the attainment of the highest level of health for all. In other words, "every person, regardless of who they are – the color of their skin, their level of education, their gender or sexual identity, whether or not they have a disability, the job they have, or

the neighborhood that they live in – should have an equal opportunity to achieve optimal health."[35]

Healthcare data tells us that the typical high utilizer is around age 40 (and experiencing chronic disease prematurely), unmarried, male, and from a community of color. High utilizers have complex and co-occurring conditions, caused or exacerbated by factors and conditions in the physical/built, socio-cultural, and economic environments in which they live. In this way, high utilization is an extreme result of the health inequities we see consistently in the United States. Persistent and historic bias and discrimination in policies and practices, often along racial and class lines, operate across several sectors such as housing, education, banking and criminal justice, and contribute to these inequities. These policies and practices exacerbate stress, weaken resilience, and create community environments that fail to support optimal health and wellness, often resulting in unmet medical and social needs of the population. As such, the health experience of the high utilizer has been shaped to a significant extent by circumstances outside the direct control of the individual; it has been shaped by the *community* determinants of health.

With this understanding, a comprehensive approach to high utilization necessarily addresses a key source of the problem: the community environments that shape health over the life course. This approach is particularly important in the most vulnerable communities that bear the burden of excessive inequities, especially when it comes to chronic disease and behavioral health conditions.

IV. The Implications for a Prevention Approach to High Utilization

The current approach to high utilization focuses on treating medical conditions and coordinating care for individual patients through models such as the patient-centered medical home.[36] [37] Much attention has been paid to patient-centered care and to providing referrals to community and social services and support systems, such as nutrition assistance, housing, transportation vouchers, and others. These interventions are valuable for patients and advance the medical system's ability to identify and coordinate care for those with complex medical needs.

The move toward patient-centered care benefits patients and is part of a comprehensive approach to high utilization. This approach supports the management of high utilization, but it cannot fully reduce overutilization and high costs at a population level, because the other risk factors and community determinants of health have not been stabilized or addressed comprehensively, and they remain at play in health and cost outcomes. In short, the patient-centered approach neglects broader environmental factors such as social connectedness, access to open and safe green space, and living wages that can improve health and interrupt patterns of high utilization. Focusing on individual patients to the exclusion of the community environment is a missed opportunity to address the "upstream" variables that contribute to illness and injury, and to prevent or reduce the severity of many of these medical and social needs. It also perpetuates and exponentially increases health inequities that impact vulnerable populations most of all.

Healthcare can, instead, augment the impact of care coordination in order to comprehensively address high utilization. It can partner with other sectors and organizations in the community to invest and engage in efforts to improve community environments. This approach could provide the medically complex population with more capacity and resilience to restore health, and less need for high-cost medical services.

The healthcare system is poised for this type of action, having refocused its efforts in the last few years in pursuit of the Triple Aim of lower costs, improved quality, and improved population health. A preventive focus on high utilization presents an opportunity to advance the Triple Aim. In follow up to a breakthrough analysis by McGinnis and Foege in 1993, Mokdad, Marks, Stroup, and Gerberding (2004) confirmed that approximately 50 percent of premature deaths continue to be preventable, [38] [39] highlighting the pivotal role that determinants of health play in the causes of death. The most effective prevention initiatives build on this work, identifying the factors in the community environment that contribute to behaviors and exposures that produce preventable illness and injuries, and to inequities in health outcomes.

The last several decades of prevention research and practice have demonstrated that engaging in integrated, cross-sectoral strategies to improve policies, practices, and community conditions can lead to improved health and greater health equity, and can decrease the demand for costly health services. This has been recognized by numerous Institute of Medicine committees and roundtables that have identified the primacy of community conditions on population health outcomes, and urged greater investment in positively changing the community factors impacting health. [40] [41] [42] [43] [44] [45] Prevention successes in fields as diverse as tobacco control, violence prevention and trauma reduction, and healthy food and activity environments have yielded a methodology of quality prevention. Effective prevention initiatives use comprehensive strategies to address these environmental factors, including multi-sector collaboration and the changing of institutional and public policies to improve the socio-cultural, physical/built, and economic/educational environments that shape high utilization and poor health outcomes. Importantly, while improving community environments can prevent medical conditions, these same strategies also serve as supports for helping patients improve and maintain their well-being after a medical diagnosis. Specifically as it relates to food- and activity-related chronic disease, asthma, trauma and violence, social isolation, and housing:

- Food- and activity-related chronic disease like **diabetes**, **stroke**, and **heart disease** are significantly represented in high utilizers, and with the noted increase in diabetes and pre-diabetes across the population, an even greater threat looms. There has been intensive prevention work, particularly over the last 15 years, on community-wide strategies to reduce the community determinants that make such diseases more likely.[46] Studies show that access to parks; transportation systems; walkable streets; and affordable, healthy food – among other neighborhood characteristics – have at least as much to do with the development of chronic disease as individual knowledge and skill-building.[47]

- Among children, **asthma** is a condition that can be reduced via improvements in community conditions. Underlying contributors to asthma like mold and air pollutants can be mitigated by improving housing conditions, poorly-operating heating systems, and pollution from trucks and cars—all of which are far more common in certain neighborhoods than others, and can be addressed through policy and norms change. Changing the community norms and policies around tobacco reduced tobacco use significantly-- far more than did efforts targeted at getting individuals to stop smoking. Needless to say, tobacco prevention efforts also had a significant impact on lung cancer and other tobacco-related disease, in addition to asthma.

- Reducing **trauma** exposure can also support the reduction of medical utilization in the long term. Strategies that support the reduction of trauma include reducing exposure to **violence** and strengthening community environments. Community violence contributes to overall trauma in communities. Research has also shown that a comprehensive, public health approach can effectively prevent and lower rates of violence.[48] After decades of work, the strategies that cities and communities can take to reduce the frequency and impacts of violence are clearer, and successes are emerging across the country. Violence can be lessened with a redirection of resources and further political will. Further investing in initiatives that support social networks and social relationships, and encourage positive social norms, can be protective against trauma and subsequent behavioral health conditions.[49] Such efforts also protect against **social isolation**, another common experience among high utilizers. Many of the most successful programs build on community assets and are dependent on community members and organizations that connect individual youth and adults to a supportive community.[50] Large healthcare organizations can collaborate with local coalitions and policymakers to improve and maintain community infrastructure that encourages positive social interaction and relationships, which can contribute to a sense of community worth and reclaim public space in the healthcare service area that once was dilapidated. [51]

- Given that the majority of high utilizers suffer from **behavioral health conditions**, providing community-wide prevention and community/social services and supports to prevent and treat substance use and mental health illness early on is a potential strategy for addressing high utilization and reducing overall healthcare cost. Promising strategies to address behavioral health include sharing data on medical conditions associated with alcohol, and working with policy makers to reduce alcohol outlet density. Other promising strategies include peer-to-peer mentorship programs, job training, employment support, and placement services for veterans, formerly incarcerated individuals, and individuals with a behavioral health diagnosis.[52] These strategies foster a community-wide approach that reinforces or reshapes norms and supports individual and family interventions.[53]

- Beyond the medical conditions described above, individuals with **housing and other social issues** also face other issues related to access to healthy food, employment opportunities providing a living wage, and access to transportation, all of which can play a role in creating poor health outcomes. Stable and affordable housing can support a high utilizer's capacity to better manage his or her health conditions. Promising strategies to address housing include creating medical-legal partnerships to support tenants' rights and to ensure safe and equitable housing, countering threats to housing status that are related to rising rental costs and eviction, and incentivizing developers to build affordable housing or mixed-income housing with the implementation of inclusionary zoning and land-use policies.[54]

V. A Prevention Approach to High Utilization

A prevention approach to high utilization involves collaborative engagement with organizations external to healthcare in order to address the determinants of health. It builds on and supports the existing medical approach, and aligns partnerships to foster broader community-wide change that supports health, wellness, and equity. This approach has the potential to disrupt the pathway to high utilization, by addressing the synergistic interplay of medical conditions and determinants of health. Our assumption is that by preventing any one or more significant medical conditions (e.g. an illness

or injury) or unhealthy social factor (e.g. limited access to healthy and affordable food, inadequate employment opportunities), communities can:

- Reduce the severity of existing health conditions of high utilizers;
- Support the maintenance of health of those at risk for becoming high utilizers;
- Prevent individuals from becoming high utilizers in the first place, reducing the overall risk for preventable injury and illness among the broader population.

While the ultimate vision of a community-centered approach is to improve the overall health of the population, it is useful for these efforts to begin – as the healthcare field does – with a focus on a specific co-occurring medical condition or social factor. This approach demonstrates how a prevention approach to high utilization can create a *triple effect* to exponentially address high utilization and reduce suffering:

1) The approach reduces the frequency and intensity of a specific medical condition (e.g. diabetes, depression)

2) By so doing, it can reduce the burden of other co-occurring conditions or factors, because high utilization is a phenomenon in which the synergy across conditions exacerbates ill health when unaddressed.

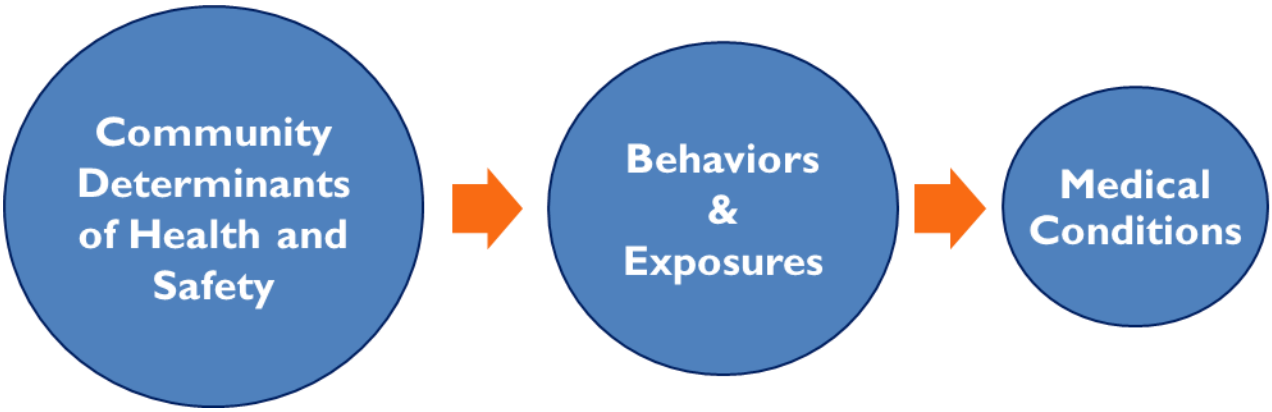
3) Many of the strategies at the community level that reduce one condition also reduce others. For example, reducing community violence not only reduces the violence but by making the community more conducive to being active outdoors, mitigates diabetes and heart disease.

VI. Exploring the Pathway to High Utilization

Prevention Institute has designed tools so that community residents and advocates, public health, healthcare, and other sectors can better create strategies to improve community conditions.

In focusing on the prevention of high utilization, Prevention Institute's Two Steps to Prevention framework helps clarify the impact that community environments have on the medical conditions most prevalent among high utilizers (FIGURE 1). It presents a systematic way of first looking at a specific condition, such as diabetes or asthma, then identifying and understanding the exposures (such as pollution or mold) and the behaviors (such as poor eating and low activity) that influence it. Importantly, the pathway does not stop at exposures or behaviors, instead recognizing that exposures and behaviors are shaped by community environments. Thus it is important to move upstream and examine the environment that shapes exposure and behaviors. Needless to say, environments in communities that are disadvantaged are far more likely to have conditions that lead to high utilization, and improving those environments would reduce high utilization.

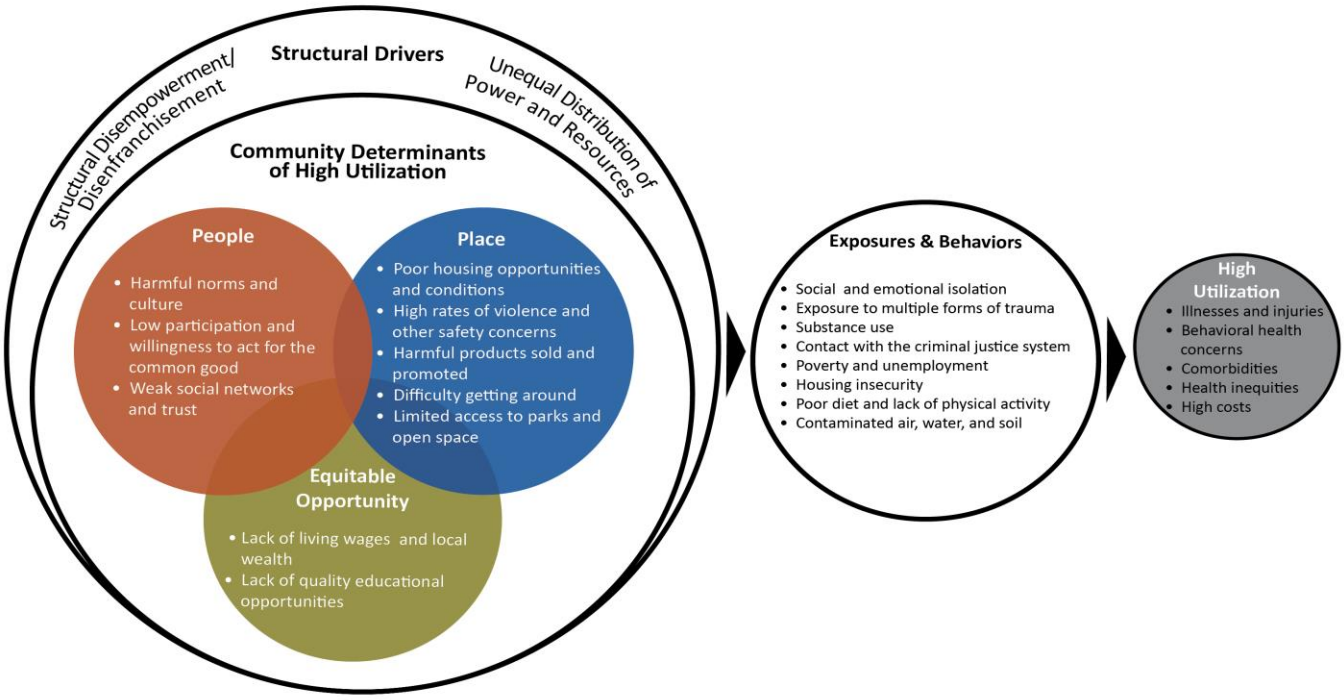
FIGURE 1 – TWO STEPS TO PREVENTION



To help identify the underlying community conditions that affect health, The THRIVE framework (Tool for Health and Resilience in Vulnerable Environments) identifies 12 determinants of health and safety which Prevention Institute research identified for the Office of Minority Health as being linked to leading causes of death, illness, and inequity. Thus these factors are closely aligned with high-utilization concerns. They are delineated in three clusters: place, people, and opportunity. The place factor, for example, includes "What is sold and how it is promoted" and the people factor includes "norms and customs" –-both of which are central to the development of conditions like diabetes and heart disease. These factors are the specific manifestations of social determinants of health at the community level and describe how the inequitable distribution of power, money, and resources determines health and safety outcomes—by shaping the circumstances in which people are born, grow, live, work, and age.[55]

Thus, by using the Two Steps to Prevention framework and THRIVE factors, there are marked opportunities to better understand the trajectory of high utilization (FIGURE 2). As well, these tools help to identify community-level prevention approaches that can begin to reduce and prevent people from becoming high utilizers in the first place, as well as stabilize existing and upcoming high utilizers, and improve overall community health and wellness. Appendix A features the application of the Two Steps to Prevention framework and THRIVE factors to examples of high utilization.

FIGURE 2 – INITIAL CONSIDERATIONS ON PATHWAY TO HIGH UTILIZATION



II. A Spectrum Approach to Disrupt the Pathway to High Utilization

Once it has been established that specific determinants at the community level are contributing to poor health outcomes within a community, the next step is to identify strategies to exert change on those determinants of health. Action to improve health outcomes can manifest itself in a number of ways. Improving population health is a complex, multi-sectoral undertaking that is best achieved not by any single approach, but rather by using a comprehensive set of strategies.

One approach to designing community-wide prevention strategies is the Spectrum of Prevention (FIGURE 3). The Spectrum helps to lay out a known set of strategies to comprehensively improve determinants of health, leverage existing knowledge, and begin to disrupt the pathway to high utilization.[56] These range from, on a more individual level, strengthening the knowledge and skills of community members to, on a macro level, influencing the policy and legislation that shape health in the community. Many of these strategies already are being practiced in some communities and are

implemented by policymakers, local community-based organizations, and public health practitioners— but greater breadth and depth is needed.

Stakeholders across the healthcare sector have a very important role here. They have the opportunity to identify vulnerable communities where high utilization is often experienced, and to work with community members to identify the specific health and social concerns. They then can partner with community groups to martial known and existing strategies, and can advocate for important community-wide changes that advance health and reduce high utilization. The idea is to explore collaborative opportunities beyond the healthcare sector to disrupt the pathway to high utilization. The Spectrum of Prevention charts in Appendix B reflect sample activities that institutions including healthcare can engage in and support within their organizations and more broadly in the community to address co-occurring medical and social needs that impact high utilization.

FIGURE 3 – THE SPECTRUM OF PREVENTION

High utilizers have immediate co-occurring medical and social needs that are being addressed by healthcare. In addition, healthcare has an opportunity to leverage existing prevention efforts at the community level to exponentially improve the likelihood for successful clinical interventions to reduce high utilization. A primary prevention approach will help existing high utilizers restore and maintain their health, while services and strategies are needed to tend to more immediate needs.

VIII. Healthcare's Role in Helping Jump-Start the Disruption of the High Utilization Pathway

Healthcare is actively working to improve care quality and coordination to address high utilization. Now is an opportune time for healthcare to expand its efforts and pursue comprehensive strategies that will further disrupt the pathway to high utilization. Healthcare does not need to be the sole actor in dismantling the complexity of high utilization. Healthcare is, however, uniquely qualified to collaborate beyond the "exam room" and identify and address the determinants of health affecting its patients. Healthcare workers have clinical expertise and a great capacity for data analytics to support the disruption of the pathway by identifying medical conditions, and social and community factors that create health inequities and suffering among high utilizers. Through its established relationships in the business community, higher education, and local governments, healthcare has the foundation to leverage expertise across key sectors to produce cumulative impact on this complex health issue. Healthcare also has enormous credibility, and by identifying needed community changes and partnering to achieve community improvements, a greater level of success in lowering utilization is likely.

Through the various frameworks presented in this brief, there are levers that healthcare can influence as an active partner to support the reduction of costs and utilization from a community

perspective. This can be challenging, as the breadth and diversity of strategies required for comprehensiveness involves numerous sectors that are not typically aligned, including healthcare providers and payers, housing, public health, community-based organizations, and many others. Thinking beyond healthcare and recognizing that it is not a healthcare issue alone, but a societal issue, supports the identification of potential interventions and vital collaborators who are housed in sectors outside of healthcare. Identifying like-minded partners and developing a shared mission and vision is critical to taking those first steps to aligning priorities, assets, and areas of expertise. The key to disrupting high utilization is to begin somewhere, whether it is one medical condition or one social factor associated with high utilization in a community.

The introduction of value-based payment models, which reward hospitals and providers for keeping patients healthy, can help create incentives for the healthcare system to address the social, economic, and physical environmental factors affecting their patients' health.[57] Nationally, the U.S. Department of Health & Human Services has set a goal of tying 85 percent of all traditional Medicare payments to value by 2016 and 90 percent by 2018.[58] While this payment structure is motivated by the need to improve quality of care while controlling high per-capita medical expenditures, it will advance a focus on improving the health conditions of the total population of a catchment area, rather than simply delivering clinical services to those who come into a facility. As value-based payment models are further introduced into the healthcare system, providers may be held financially accountable for preventable visits associated with high utilization, despite the root cause of high utilization being the community environment. The community environment is currently outside the influence of the standard of care provided by well-trained providers, and is fully addressed through hospital system community benefit programs. Yet it is in healthcare's interest to take it upon itself to influence these underlying causes. Value-based payment models and community benefit programs hold the potential to influence the determinants of health and improve not only the health of individual high-utilizing patients, but also the health of all those who live in that community environment.

The methodology presented here provides initial thoughts on a framework for developing a prevention strategy to reduce the proportion of high utilizers. Implementing models that encourage collaboration beyond the healthcare system is necessary to impact the contributing factors of high utilization that occur at the community level. Such collaboration must include other sectors (e.g., criminal justice, businesses, transportation, food systems, public health, community-based organizations, and other key stakeholders). Collaboration across sectors supports a multi-disciplinary approach that allows for the development of comprehensive solutions that have the potential to solve a multitude of community conditions that not only impact high utilization, but also the broader community, reducing overall risk.

Not only might a prevention approach reduce costs and improve outcomes among existing high utilizers, it can reduce the severity of existing health conditions and prevent individuals at risk from becoming high utilizers in the first place. Beyond high utilization, advancing a prevention approach to high utilization has the potential to reduce the overall risk for preventable injury and illness among the greater population, improving health equity, and supporting the pursuit of optimal community health and wellness.

Appendix A – Initial Considerations on Use of Prevention Tools to Disrupt the Pathway to High Utilization

Using the vignettes presented earlier in the paper, the following tables demonstrate how to move along the pathway to high utilization to identify the determinants of health, which is a critical exercise for implementing a community-wide prevention approach. In addition to the specifics in the pathways described in the charts below, mental and physical health challenges occur after a lifetime of cumulative community impacts.

> A 50-year-old native Hawaiian female is homeless with depression and with uncontrolled type 2 diabetes. In the last year she has experienced 28 ED visits for both mental illness and uncontrolled diabetes. She came to Northern California from Hawaii after high school for work; her immediate family has remained in Hawaii. She became homeless after leaving a violent partner five years ago. She stays in a local shelter only two to three times per week. The food served in the shelter is often processed and high in refined sugars.

<table>
<tr><th>Related Community Determinants of Health</th><th>Behaviors and Exposures</th><th>Medical Conditions</th></tr>
<tr><td>PEOPLE

Social networks and trust - Lack of trusting relationships, lack of support services for survivors of violence

Norms and culture – Forced cultural assimilation and structural inequities</td><td rowspan="3">Direct experience of trauma including disinvestment in Native Hawaiian communities

Poor diet/nutrition

Exposure to violence

Social isolation

Exposure to weather/outdoors due to homelessness

Disturbed sleep patterns (lack of home/mental and physical ailments)</td><td rowspan="3">Depression

Diabetes Mellitus</td></tr>
<tr><td>PLACE

What's sold & how it's promoted - Lack of affordable, culturally appropriate & healthful foods at the shelter

Housing – Lack of affordable housing</td></tr>
<tr><td>EQUITABLE OPPORTUNITY

Living wages & local wealth – Lack of employment opportunities that pay a living wage for high school graduates</td></tr>
</table>

A 26-year-old African-American male lives in marginalized housing with a history of alcohol abuse and congestive heart failure. He is a veteran but the closest Veterans' Administration provider is 75 miles away. In the last year he had 23 ED visits and experienced 23 hospital admissions for congestive heart failure, gastrointestinal bleeding, and unintentional injury. He has been unemployed for two years and his wife and three children live locally.

Related Community Determinants of Health	Exposures and Behaviors	Medical Conditions
PEOPLE Social networks & trust – Lack of community-based supportive services for veterans Norms & Culture - Criminalization of mental illness	Self-medication through substance abuse Exposure to trauma and adverse community experiences	Congestive Heart Failure Depression
PLACE Getting around – Lack of safe, reliable, accessible, and affordable transportation to VA services Housing – Lack of affordable housing		
EQUITABLE OPPORTUNITY Living Wages & Local Wealth – Lack of employment opportunities that pay a living wage for veterans		

Healthcare stakeholders such as providers, payers, and health systems can look beyond medical conditions and care coordination in order to fully impact high utilization. Using tools like Two Steps to Prevention and the THRIVE factors can support the identification of ways to mitigate or prevent high-utilizer risk factors that occur beyond healthcare settings, which can reduce burden to the healthcare system and improve quality of care. The experiences of individual high utilizers can cue healthcare into identifying determinants of health that place the broader population at risk for injury and illness. Based on what we know about high utilizers, there are opportunities to prevent and mitigate the factors that cause high utilization using a multi-sector prevention approach.

Appendix B – Sample Strategies Using The Spectrum of Prevention to Disrupt the Pathway to High Utilization

Sample Strategies to Disrupt High Utilization Associated with Food- and Activity-Related Chronic Diseases	
The Spectrum of Prevention	**Community Prevention**
INFLUENCING POLICY & LEGISLATION	Advocate for healthy food financing funds, leveraging public and private investment, to provide grants, low-interest loans, training, and technical assistance to improve or establish grocery stores, corner stores, farmers' markets, and food distribution hubs in underserved areas
	Support land use and zoning policies that limit the density of liquor stores, fast food, and less healthy food retail
	Adopt complete streets policies (that support safe walking, biking, and public transit use) and prioritize investments in low-income communities, communities of color, and injury "hot spots"
CHANGING ORGANIZATIONAL PRACTICES	Adopt and implement food purchasing guidelines to emphasize healthful, regionally-produced food in institutional settings, including hospitals, workplaces, schools, and early childhood settings
	Design healthcare facilities, schools, government buildings and other facilities to encourage physically active transportation by providing bike parking, safe sidewalks, and connections to public transit systems
FOSTERING COALITIONS & NETWORKS	Develop multi-sectoral collaborations between food and physical activity stakeholders including schools, parks and recreation, city planning, economic development, business, community, faith-based organizations, clinicians, etc.
EDUCATING PROVIDERS	Educate clinical providers on the community determinants of health related to diet and physical activity and the specific policy opportunities to advocate for healthy community environments
PROMOTING COMMUNITY EDUCATION	Pitch news stories to the media related to food and physical activity policy efforts and issues (e.g., healthy food financing, active transportation)
	Establish a speakers' bureau, including healthcare professionals, to speak to influential local organizations including faith-based, business associations, and others on topics related to food and activity policy efforts and issues
STRENGTHENING INDIVIDUAL KNOWLEDGE & SKILLS	Conduct food and activity screenings and referrals during all pediatric and adult check-up
	Provide information to community members and employers about active transportation options such as walking, biking, and public transit

Sample Strategies to Disrupt High Utilization Associated with Behavioral Health Conditions	
The Spectrum of Prevention	**Community Prevention**
INFLUENCING POLICY & LEGISLATION	Partner with local policymakers, planning commissions, and businesses to reduce alcohol outlet density through policy change
	Create policy guidelines for affordable and mixed-income housing to promote social connections and reduce social isolation (e.g. parks nearby, easy access to trees, sunlight, areas to congregate, walking paths, etc.)
CHANGING ORGANIZATIONAL PRACTICES	Promote the use of a 'mental health in all policies' approach in local government decisions, including planning and community design, public safety training, economic development, housing, and transportation; provide guidance to sectors on how to adopt this approach in support of mental health outcomes
	Ensure stigma reduction and discrimination policies and organizational practices are implemented in schools, workplaces, and public service organizations and agencies
FOSTERING COALITIONS & NETWORKS	Expand mental health and substance abuse collaboration to include schools, economic development, business, community, faith-based organizations, healthcare, housing, law enforcement, and other partners that can support prevention outcomes
	In recognition of existing community assets, support communities to strengthen infrastructure that promotes community resilience and healing
EDUCATING PROVIDERS	Ensure training of medical and behavioral health clinicians is integrated
	Identify natural support resources in a community (e.g. barbershops, hair salons, and faith-based organizations) and provide training as appropriate to increase contributions to preventing mental health conditions
	Train group home providers, faith partners and social service organizations on supports and methods for managing mental health concerns in those they serve
PROMOTING COMMUNITY EDUCATION	Promote widespread understanding about the value of social connection and the risk associated with social isolation
STRENGTHENING INDIVIDUAL KNOWLEDGE & SKILLS	Provide job training, employment support, and placement services for veterans, formerly incarcerated individuals, individuals with a mental illness and chronically unemployed

Sample Strategies to Disrupt High Utilization Associated with Housing Instability	
The Spectrum of Prevention	**Community Prevention**
INFLUENCING POLICY & LEGISLATION	Support the development and enforcement policies to protect tenants' rights from unlawful eviction and unreasonable rent increases
	Support efforts to reform housing policies to allow formerly incarcerated individuals to be eligible for housing assistance
CHANGING ORGANIZATIONAL PRACTICES	Establish Medical-Legal Partnership to support patient and family needs for safe housing environments and tenants' rights
	Use innovative property ownership methods such as a community land trust or land bank to acquire property and keep it affordable
FOSTERING COALITIONS & NETWORKS	Participate in networks to promote affordable housing and equitable community development
EDUCATING PROVIDERS	Educate healthcare providers on the links between housing and health
PROMOTING COMMUNITY EDUCATION	Support the establishment of People's Planning Schools that build residents knowledge and skills so that they are able to fully engage in planning policies that directly affect their ability to thrive
STRENGTHENING INDIVIDUAL KNOWLEDGE & SKILLS	Use community benefit funds to support tenants' rights education
	Screen patients for housing stability and risk and refer to community resources

References

[1] Agency for Healthcare Research and Quality, Center for Financing, Access and Cost Trends. Medical Expenditure Panel Survey HC-155 2012 Full Year Consolidated Data File. Agency for Healthcare Research and Quality website. http://meps.ahrq.gov/mepsweb/data_stats/download_data/pufs/h155/h155doc.pdf. September 2014. Accessed February 2016.

[2] Centers for Medicare & Medicaid Services. National Health Expenditure 2014 Highlights. Centers for Medicare & Medicaid Services website. https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/highlights.pdf. Accessed August 2015.

3 California Department of HealthcCare Services, Research and Analytic Studies Division. Understanding Medi-Cal's High Cost Populations. California Health Care Foundation website. http://www.chcf.org/~/media/MEDIA%20LIBRARY%20Files/PDF/PDF%20D/PDF%20DataSymposium03042015Watkins.pdf . March 2015. Accessed January 29, 2016.

4 DHCS Research and Analytic Studies Division. Understanding Medi-Cal's High Cost Population. California Health Care Foundation website. http://www.chcf.org/~/media/MEDIA%20LIBRARY%20Files/PDF/PDF%20D/PDF%20DataSymposium03042015Watkins.pdf .March 2015. Accessed January 29, 2016.

[5] Berwick DM, Nolan TW, Whittington J. The Triple Aim: Care, Health, And Cost. *Health Affairs*. 2008; 27(3):759-769. http://content.healthaffairs.org/content/27/3/759.full. Accessed December 22, 2015.

[6] Linkins KW, Brya J, Chandler DW. *Frequent users of health initiative: Final Evaluation Report.* The Lewin Group; 2008. Available at: http://www.chcf.org/~/media/MEDIA%20LIBRARY%20Files/PDF/PDF%20F/PDF%20FUHSIEvaluationReport.pdf. Accessed January 29, 2016.

[7] Linkins KW, Brya J, Chandler DW. *Frequent users of health services initiative: Final Evaluation Report.* The Lewin Group; 2008. Available at: http://www.chcf.org/~/media/MEDIA%20LIBRARY%20Files/PDF/PDF%20F/PDF%20FUHSIEvaluationReport.pdf. Accessed January 29, 2016.

[8] Centers for Disease Control and Prevention. Chronic disease prevention and health promotion. Centers for Disease Control and Prevention website. http://www.cdc.gov/chronicdisease/overview/. Updated February 23, 2016. Accessed May 8, 2016.

[9] Ollove M. States focus on 'super-utilizers' to reduce Medicaid costs. The Pew Charitable Trusts website. http://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2014/12/5/states-focus-on-superutilizers-to-reduce-medicaid-costs. December 5, 2014. Accessed February 2016.

[10] Jiang HJ, Weiss AJ, Barrett ML, Sheng M. Characteristics of Hospital Stays for Super-Utilizers by Payer, 2012 Statistical Brief #190. Healthcare Cost and Utilization Project website. http://www.hcup-us.ahrq.gov/reports/statbriefs/sb190-Hospital-Stays-Super-Utilizers-Payer-2012.pdf. May 2015. Accessed February 2016.

[11] United States Government Accountability Office. *Medicaid: a small share of enrollees consistently accounted for a large share of expenditures Report to Congressional Requesters.* Washington, DC: United States Government Accountability Office; 2015. Available at: http://www.gao.gov/assets/680/670112.pdf. Accessed February 2016.

[12] DHCS Research and Analytic Studies Division. Understanding Medi-Cal's High Cost Population. California Health Care Foundation website. http://www.chcf.org/~/media/MEDIA%20LIBRARY%20Files/PDF/PDF%20D/PDF%20DataSymposium03042015Watkins.pdf . March 2015. Accessed January 29, 2016.

[13] Prevention Institute. *Making Connections for Mental Health and Wellbeing Among Men and Boys in the U.S. Report prepared for The Movember Foundation.* The Movember Foundation; 2014. Available at: https://us.movember.com/uploads/files/2013/Report%20Cards/Making%20Connections%20for%20Mental%20Health%20Wellbeing%20among%20Men%20and%20Boys.pdf. Accessed January 28, 2016.

[14] Finkelhor D, Turner H, Hamby S, Ormrod R..Polyvictimization: Children's Exposure to Multiple Types of Violence, Crime, and Abuse. National Criminal Justice Reference Service website. https://www.ncjrs.gov/pdffiles1/ojjdp/235504.pdf. October 2011. Accessed January 28, 2016.

[15] Gorn D. Surprising results from pilot program aimed at Medi-Cal 'super-utilizers. *California Healthline.*June 4, 2014. http://californiahealthline.org/news/surprising-results-from-pilot-program-aimed-at-medical-superutilizers/ . Accessed January 29, 2016.

[16] Hasselman D. Super-utilizer Summit Common Themes From Innovative Complex Care Management Programs. Robert Wood Johnson Foundation website. http://www.rwjf.org/en/library/research/2013/10/super-utilizer-summit.html. October 2013. Accessed January 29, 2016.

[17] Hasselman D. Super-utilizer Summit Common Themes From Innovative Complex Care Management Programs. Robert Wood Johnson Foundation website. http://www.rwjf.org/en/library/research/2013/10/super-utilizer-summit.html. October 2013. Accessed January 29, 2016.

18 Milet M, Lutzker L, Flattery J. *Asthma in California: A Surveillance Report.* Richmond, CA: California Department of Public Health, Environmental Health Investigations Branch; 2013. Available at: https://www.cdph.ca.gov/programs/ohsep/Documents/Asthma_in_California2013.pdf. Accessed January 2016.

[19] Miller RL, Gebremariam A, Odetola FO. Pediatric high-impact conditions in the United States: retrospective analysis of hospitalizations and associated resource use. *BMC Pediatrics.* 2012;12:61. doi:10.1186/1471-2431-12-61.

[20] Akinbami LJ, Moorman JE, Garbe PL, Sondik EJ. Status of childhood asthma in the United States, 1980-2007. *Pediatrics.* 2009 Mar;123 Suppl 3:S131–45. doi: 10.1542/peds.2008-2233C.

[21] Taylor BW. The identification of high risk asthmatic children using the emergency department asthma visit count. *J Emerg Med.* 1999;17(6):953–956. http://www.ncbi.nlm.nih.gov/pubmed/10595878. Accessed February 2016.

[22] Rodriguez-Martinez CE, Sossa MP, Castro-Rodriguez JA. Factors associated to recurrent visits to the emergency department for asthma exacerbations in children: Implications for a health education programme. *Allergol Immunopathol (Madr).* 2008;36:72–78. http://www.ncbi.nlm.nih.gov/pubmed/18479658. Accessed February 2016.

[23] Kizer KW, Watkins J. Understanding Medi-Cal high utilizers. California Health Care Foundation website. http://www.chcf.org/~/media/MEDIA%20LIBRARY%20Files/PDF/PDF%20D/PDF%20DataSymposium03042015KizerWatkins.pdf. March 4, 2015. Accessed January 2016.
[24] Ollove M. States Focus on 'Super-Utilizers' to Reduce Medicaid Costs. The Pew Charitable Trusts website. http://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2014/12/5/states-focus-on-superutilizers-to-reduce-medicaid-costs.December 5, 2014. Accessed January 29, 2015.
[25] Jacobi JV. Emergency department 'frequent fliers'. American Society of Law, Medicine and Ethics website. http://www.aslme.org/Society_Scholars?post=136. September 24, 2009. Accessed January 29, 2016.
[26] Hernandez S. Reducing the complexity of complex chronic conditions. California Health Care Foundation website. http://www.chcf.org/articles/2015/05/chronic-conditions. May 20, 2015. Accessed January 29, 2016.
[27] United States Government Accountability Office. *Medicaid: A Small Share of Enrollees Consistently Accounted for a Large Share of Expenditures*. May 2015: 1-39. Available at: http://www.gao.gov/assets/680/670112.pdf. Accessed January 2016.
[28] Jacobi JV. High Utilizers of ED Services: Lessons for System Reform. *Annals Health L.* 2012; 21(1):1-10. http://lawecommons.luc.edu/cgi/viewcontent.cgi?article=1014&context=annals, 2012. Accessed January 2016
[29] National Health Care for the Homeless Council. Homelessness & Health: What's The Connection? Fact Sheet. National Health Care for the Homeless Council website. http://www.nhchc.org/wp-content/uploads/2011/09/Hln_health_factsheet_Jan10.pdf. June 2011. Accessed February 2016.
[30] National Health Care for the Homeless Council. Homelessness & Health: What's The Connection? Fact Sheet. National Health Care for the Homeless Council website. http://www.nhchc.org/wp-content/uploads/2011/09/Hln_health_factsheet_Jan10.pdf. June 2011. Accessed February 2016.
[31] Valvassori P, Sar EM, Chipon-Scheopp N, Messer K. Chronic Disease Management in the Homeless. National Health Care Council for the Homeless website. http://www.nhchc.org/wp-content/uploads/2014/06/chronic-disease-combo-hch-conf-es.pdf. 2014. Accessed February 2016.
[32] Valvassori P, Sklar EM, Chipon-Scheopp N, Messer K. Chronic Disease Management in the Homeless. National Health Care Council for the Homeless website. http://www.nhchc.org/wp-content/uploads/2014/06/chronic-disease-combo-hch-conf-es.pdf. 2014. Accessed February 2016.
[33] United States Interagency Council on Homelessness. Supplemental Document to the Federal Strategic Plan to Prevent and End Homelessness: June 2010, USICH Briefing Paper- Background Paper-Chronic Homelessness. United States Interagency Council on Homelessness website. https://www.usich.gov/resources/uploads/asset_library/BkgrdPap_ChronicHomelessness.pdf. June 2010. Accessed February 2016.
[34] National Health Care for the Homeless Council. Homelessness & Health: What's The Connection? Fact Sheet. National Health Care for the Homeless Council website. http://www.nhchc.org/wp-content/uploads/2011/09/Hln_health_factsheet_Jan10.pdf. June 2011. Accessed February 2016.
[35] Braveman PA, Kumanyika S, Fielding J, et al. Health Disparities and Health Equity: The Issue Is Justice. *Am J Public Health*. 2011;101(Suppl 1):S149-S155. doi:10.2105/AJPH.2010.300062.
[36] Ollove M. States Focus on 'Super-Utilizers' to Reduce Medicaid Costs. The Pew Charitable Trusts website. http://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2014/12/5/states-focus-on-superutilizers-to-reduce-medicaid-costs.December 5, 2014. Accessed January 29, 2015.
[37] Linkins KW, Brya J, Chandler DW. *Frequent users of health initiative: Final Evaluation Report*. The Lewin Group; 2008. Available at: http://www.chcf.org/~/media/MEDIA%20LIBRARY%20Files/PDF/PDF%20F/PDF%20FUHSIEvaluationReport.pdf. Accessed January 29, 2016.
38 McGinnis J, Foege WH. Actual Causes of Death in the United States. *JAMA*. 1993;270(18):2207-2212. http://jama.jamanetwork.com/article.aspx?articleid=409171. Accessed February 2016.
39 Mokdad AH, Marks JS, Stroup DF, et al. Actual Causes of Death in the United States, 2000 . *JAMA*. 2004;291(10):1238-1245. http://static.sdu.dk/mediafiles/0/D/F/%7B0DF755C0-ABBB-475A-BA8B-90BF9E9DC48F%7D25.pdf . Accessed February 2016.
[40] Institute of Medicine. The Governmental Public Health Infrastructure. In: Institute of Medicine, eds. *The Future of the Public's Health in the 21st Century*. Washington, DC: The National Academies Press. 2003. Available at: http://www.nap.edu/read/10548/chapter/5. Accessed January 4, 2016.
[41] Transportation Research Board and Institute of Medicine. *Does the Built Environment Influence Physical Activity? Examining the Evidence—Special Report 282*. DC: The National Academy of Sciences; 2005. Available at: http://www.nap.edu/catalog/11203/does-the-built-environment-influence-physical-activity-examining-the-evidence. Accessed January 4, 2016.
[42] Murray CJL, Kulkarni SC, Michaud C, Tomijima N, Bulzacchelli MT, et al. Eight Americas: Investigating mortality disparities across races, counties, and race-counties in the United States. *PLoS Med*. 2006; 3(9): e260. DOI: 10.1371/journal. pmed.0030260. Accessed January 2016.
[43] Institute of Medicine. *For the Public's Health: Revitalizing Law and Policy to Meet New Challenges*. Washington, DC: The National Academies Press. 2011. doi:10.17226/13093.Accessed January,2016.
[44] Institute of Medicine. *For the Public's Health: Revitalizing Law and Policy to Meet New Challenges*. Washington, DC: The National Academies Press, 2011. doi:10.17226/13093. Accessed January 2016.
[45] National Research Council and Institute of Medicine. *U.S. Health in International Perspective: Shorter Lives, Poorer Health*. Washington, DC: The National Academies Press. 2013. doi:10.17226/13497. Accessed January 2016.
[46] Institute of Medicine. *Primary Care and Public Health: Exploring Integration to Improve Population Health*. Washington, DC: The National Academies Press. 2012. doi:10.17226/13381. Accessed January, 2016.
[47]Harrington DW, Elliott SJ. Weighing the importance of neighbourhood: A multilevel exploration of the determinants of overweight and obesity. *Soc Sci Med*. 2009; 68 (4): 593-600. http://www.ncbi.nlm.nih.gov/pubmed/19095339. Accessed January 2016.
[48] Prevention Institute. Public Health Contributions to Preventing Violence. Prevention Institute website. http://www.preventioninstitute.org/component/jlibrary/article/id-321/127.html. January 2012. Accessed December 14, 2015.

[49] Pinderhughes H, Davis R, Williams M. *Adverse Community Experiences and Resilience: A Framework for Addressing and Preventing Community Trauma.*Oakland: Prevention Institute; 2016. Available at: http://www.preventioninstitute.org/component/jlibrary/article/id-372/127.html. Accessed May 2016.
[50] Pinderhughes H, Davis R, Williams M. *Adverse Community Experiences and Resilience: A Framework for Addressing and Preventing Community Trauma.* Oakland: Prevention Institute; 2016. Available at: http://www.preventioninstitute.org/component/jlibrary/article/id-372/127.html. Accessed February 2016.
[51] Pinderhughes H, Davis R, Williams M. *Adverse Community Experiences and Resilience: A Framework for Addressing and Preventing Community Trauma.* Oakland: Prevention Institute; 2016. Available at: http://www.preventioninstitute.org/component/jlibrary/article/id-372/127.html. Accessed February 2016.
[52] Prevention Institute. *Making Connections for Mental Health and Wellbeing Among Men and Boys in the U.S.: A Report on the Mental Health and Wellbeing of Men and Boys in the U.S. and Opportunities to Advance Outcomes Related to Prevention, Early Intervention, and Stigma Reduction.* Oakland: Prevention Institute; 2014. Available at: http://preventioninstitute.org/component/jlibrary/article/id-358/127.html. Accessed February 2016.
[53] Prevention Institute. *Making Connections for Mental Health and Wellbeing Among Men and Boys in the U.S.: A Report on the Mental Health and Wellbeing of Men and Boys in the U.S. and Opportunities to Advance Outcomes Related to Prevention, Early Intervention, and Stigma Reduction.* Oakland: Prevention Instityute; 2016. Available at: http://preventioninstitute.org/component/jlibrary/article/id-358/127.html. Published October 2014. Accessed February 2016.
[54] Policy Link. Equitable Development Toolkit Affordable Housing Development 101. PolicyLink website. http://www.policylink.org/sites/default/files/affordable-housing.pdf. April 2008. Accessed February 2016.
[55] CSDH. *Closing the gap in a generation: health equity through action on the social determinants of health. Final Report of the Commission on Social Determinants of Health*. Geneva: World Health Organization; 2008. Available at: http://apps.who.int/iris/bitstream/10665/43943/1/9789241563703_eng.pdf. Accessed January 2016.
[56] Prevention Institute. The Spectrum of Prevention: Developing a Comprehensive Approach To Injury Prevention. Prevention Institute website. http://www.preventioninstitute.org/index.php?option=com_jlibrary&view=article&id=105&Itemid=127. August 1999. Accessed January 2016.
[57] Health Care Incentives Improvement Institute. Value-Based Payment - Metrics for Transformation. Health Care Incentives. Health Care Incentives Improvement Institute website. http://www.hci3.org/tools-resources/metrics-tracking-transformation-us-health-care/value-based-payment-metrics-transformation. Accessed December 14, 2015.
[58] U.S. Department of Health & Human Services. Better, Smarter, Healthier: In Historic Announcement, HHS Sets Clear Goals and Timeline for Shifting Medicare Reimbursements from Volume to Value. U.S. Department of Health & Human Services website. http://www.hhs.gov/about/news/2015/01/26/better-smarter-healthier-in-historic-announcement-hhs-sets-clear-goals-and-timeline-for-shifting-medicare-reimbursements-from-volume-to-value.html. January 26, 2015. Accessed December 14, 2015.