

**Charles D. Baker**  
Governor

**Karyn Polito**  
Lieutenant Governor



**Marylou Sudders**  
Secretary

**Monica Bharel, MD, MPH**  
Commissioner

# **Determination of Need Health Priorities Guideline**

**January 2017**



## How to Use this Document

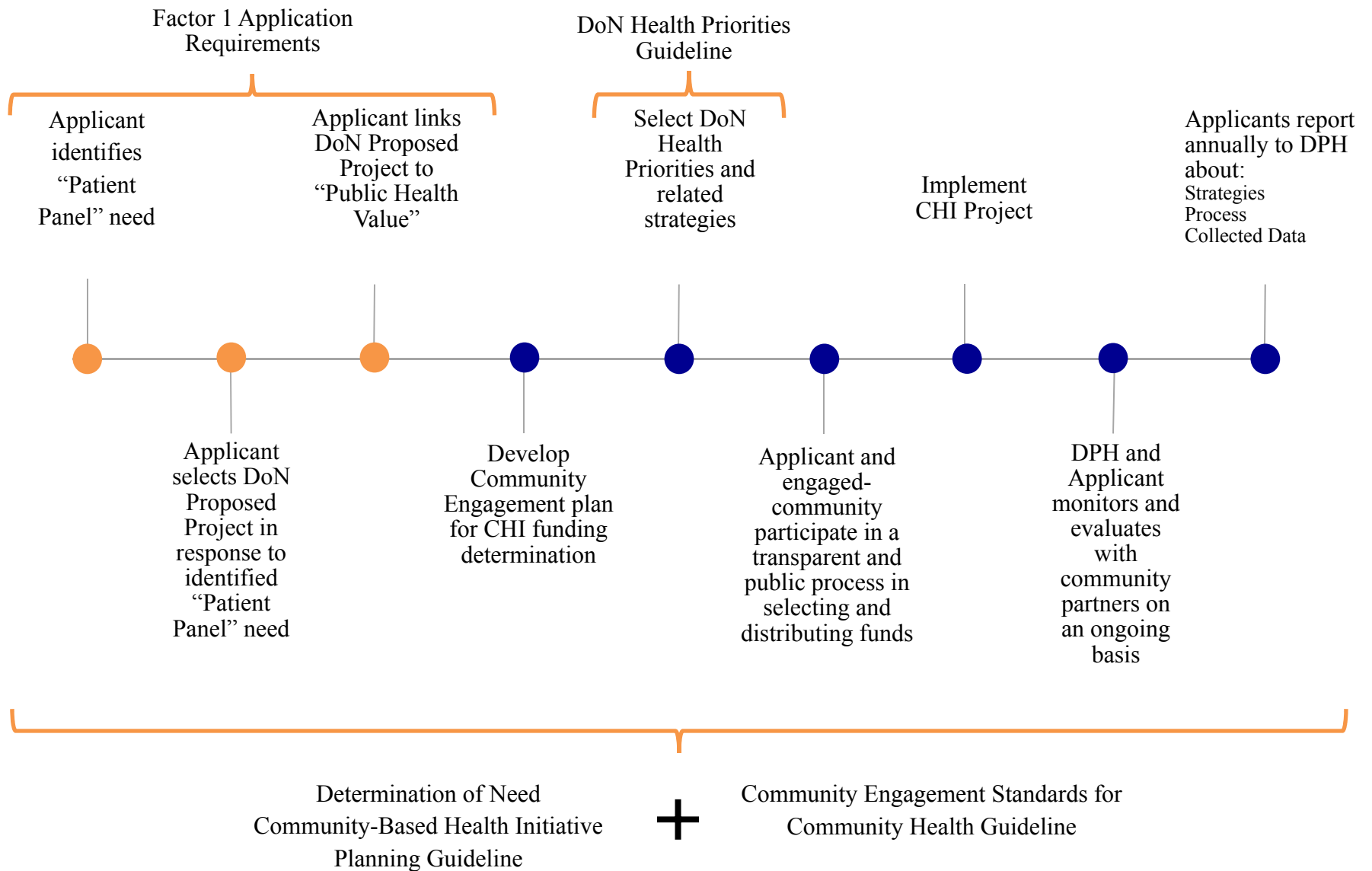
The Community-Based Health Initiative (CHI) or Factor 6 of the Determination of Need (DoN) process serves to connect hospital expenditures to public health goals by making investments in DoN Health Priorities. DPH supports the development of CHIs that impact the DoN Health Priorities through the issuance of three (3) sets of DPH Guidelines, including the *DoN Health Priorities Guideline* (this document). To this end, Applicants are directed to first review the *DoN Community-Based Health Initiative (CHI) Planning Guideline* prior to review of other Guidelines, as the *CHI Planning Guideline* document serves as the roadmap for understanding the CHI process.

A brief summary of each of the CHI Guidelines is as follows:

- The *Community-Based Health Initiative (CHI) Planning Guideline* describes the processes necessary for DoN Applicants to comply with many of the requirements associated with Factors 2 and 6 requiring successful development of a Community-Based Health Initiative funding plan. Applicants should read this document first.
- The *Community Engagement Standards for Community Health Planning Guideline* provides standards for public participation in community health planning, explanation of how engagement processes are evaluated by DPH, and a description of how the CHI process synergizes with regular and ongoing Community Health Needs Assessments (CHNAs) and Community Health Improvement Planning (CHIPs) conducted by DoN Applicants and their community partners. In order to evaluate the engagement process, the following forms are associated with these standards:
  - The *Community Engagement Plan* form;
  - The *Community Engagement Applicant Self-Assessment* form; and,
  - The *Community Engagement Stakeholder Assessment* form.
- The *DoN Health Priorities Guideline* (this document) establishes and defines the six (6) social determinants of health (SDH) selected by DPH as Health Priorities pursuant to 105 CMR 100.000 and establishes criteria for strategy selection that ensures strategies are evidence-informed, impactful, and designed to address one or more of the DoN Health Priorities. The Applicant will be required to complete and submit the *DoN Health Priority Strategy Selection* form. The selection of a strategy(ies) to impact the DoN Health Priorities is to occur ***after*** a DPH approved community engagement process, and may also occur following issuance of a Notice of Determination of Need, if approved.
- While defining “Public Health Value” as required pursuant to Factor 1 and CHI are distinct, DPH encourages that staff from the Applicant institution responsible for CHI-related processes and requirements be involved as collaborative partners with an Applicant’s DoN Project submission. Accordingly, DPH has placed the determination of Public Health Value on the CHI Timeline  
The CHI timeline is depicted on the following page.

# Community-Based Health Initiative Timeline

*Use of the Guidance Documents*



## Table of Contents

<b><u>How to Use this Document .....</u></b>	<b><u>2</u></b>
<b><u>Executive Summary .....</u></b>	<b><u>5</u></b>
<b><u>DoN Health Priority Descriptions .....</u></b>	<b><u>6</u></b>
Built Environment.....	7
Social Environment .....	13
Housing .....	18
Violence.....	22
Education .....	26
Employment .....	31
<b><u>Rationale for Current EOHHS/DPH Focus Issues.....</u></b>	<b><u>36</u></b>
Chronic Disease with a focus on Cancer, Heart Disease and Diabetes .....	36
Housing Stability/Homelessness .....	37
Mental illness and Mental health.....	37
Substance use disorders (SUDs) .....	39
<b><u>Community Health Initiative (CHI) Strategy Selection.....</u></b>	<b><u>41</u></b>
1. Impact on Health Priorities .....	41
2. Evidenced Base .....	44
3. Buckets of Prevention .....	45
4. Strategy Feasibility and Impact .....	47
Submission Checklist.....	48
<b><u>Appendix A: DPH Recommended Strategies.....</u></b>	<b><u>49</u></b>

# Executive Summary of the Determination of Need Health Priorities Guideline

The environments in which we live, work, learn, and play have an enormous impact on our health. While research shows that addressing people’s physical, social and economic environments can encourage healthy behaviors and improve health, the fewest resources are allocated to these Social Determinants of Health (SDHs). As providers take on increased financial risk for their patients, addressing SDHs of both the patient populations and the larger community will be critically important for managing risk, improving health outcomes and producing long-term health care cost savings. The goal of the Determination of Need (DoN) process is to promote population health and increased public health value. By Focusing on the SDHs, DoN Health Priorities allow the Commonwealth to address health inequities based on race, class, and other socioeconomic factors which are a result of historical policies and practices.<sup>1</sup>

Because access to care alone is not sufficient, the Massachusetts Department of Public Health (DPH), with broad stakeholder input has identified six (6) SDHs, which make up the Determination of Need (DoN) Health Priorities. These Health Priorities: support successful transition by providers to increased financial risk; advance the Executive Office of Health and Human Services and DPH issue priorities; allow for greater collaboration and synchronization of investments regionally/statewide; and, encompass critical, ongoing community-based activities.

## DoN Health Priorities

The DoN Health Priorities are six (6) common social determinants of health:

- 1) Social Environment
- 2) Built Environment
- 3) Housing
- 4) Violence and Trauma
- 5) Employment
- 6) Education

## Current EOHHS/ DPH Focus Issues

Statewide trends and overall burden of morbidity and mortality point to:

- 1) Substance use disorders (SUDs)
- 2) Housing Stability/Homelessness
- 3) Mental illness and mental health
- 4) Chronic disease with a focus on Cancer, Heart Disease and Diabetes

The *DoN Health Priorities Guideline* provides an overview of each of the six (6) DoN Health Priorities, along with an overview of how Applicants will choose strategies with a focus on the four (4) current EOHHS/DPH Issue Priorities and the criteria required for a strategy to be approved (*Note: this process is highlighted in the flow chart below*). The Guideline also includes a list of DPH-supported strategies that meet these criteria. As these DPH-supported strategies may come with DPH technical support, Applicants are strongly encouraged to consider these strategies (*See Appendix A*).

<sup>1</sup> Countering the Production of Inequities to Achieve an Equitable Culture of Health: Extended Summary. <https://www.preventioninstitute.org/publications/countering-production-health-inequities-extended-summary>

## Executive Summary (cont.)

### Selection Process Overview



### Selection Criteria

All proposed DoN Health Priority strategies must be submitted to DPH for review and approval. For a proposed strategy to be approved, it must meet the following four (4) criteria:

<b>Impact on Health Priorities</b> <i>The strategy must impact one or more of the six (6) DoN Health Priorities.</i>
<input checked="" type="checkbox"/> One or more
<input type="checkbox"/> Logic model/causal pathway
<input type="checkbox"/> Literature/evidence documenting impact of strategy on SDH(s)
<b>Evidence</b> <i>The strategy must be evidence-informed or evidence-based.</i>
<input checked="" type="checkbox"/> Must be one or more
<input type="checkbox"/> Proven
<input type="checkbox"/> Prove It
<b>Buckets of Prevention</b> <i>The strategy must be either a “total population/community-wide prevention” strategy and/or an “innovative community-clinical linkage” intervention.</i>
<input checked="" type="checkbox"/> Must fall within one or more
<input type="checkbox"/> Bucket 2: Innovative Community/Clinical Linkage
<input type="checkbox"/> Bucket 3: Total Population or Community-Wide Prevention
<b>Strategy Feasibility &amp; Impact</b> <i>The strategy must be feasible and impactful as it relates to reach, population, and community support, with a focus on reducing health inequities.</i>
<input checked="" type="checkbox"/> Must account for all
<input type="checkbox"/> Reach
<input type="checkbox"/> Population/ community to be impacted
<input type="checkbox"/> Political will or community support

# DoN Health Priority Descriptions

## Built Environment

The Built Environment encompasses the physical parts of where we live, work, travel and play, including transportation, buildings, streets, and open spaces. The built environment is a complex system made up of “hard” infrastructure, such as houses, parks, and transportation systems, as well as “soft” infrastructure, such as walkability and air quality. These characteristics impact available resources and services across neighborhoods and communities, and thus influence an individual's ability to adopt behaviors that promote health. In other words, the availability, quality and placement of components in the built environment affect the opportunities we have, the decisions we make, and the way we live our lives.

Communities with robust built environments—and therefore more resources and services—are linked with better health outcomes. Research has also shown that communities of lower socioeconomic status and communities of color are at a disadvantage with respect to many elements of the built environment (e.g., fewer food stores, more fast food outlets, fewer places for physical activity, and problems related to aesthetic and safety perceptions), thus contributing to unacceptable health disparities.<sup>1</sup> Therefore, efforts to change behaviors that impact health and address health equity are most effective when they also address the environments in which people make their daily choices. Below are some examples of specific components of the built environment that impact health:

### 1) Active transportation options

- Safe, accessible and affordable active modes of transport, including bicycling and walking, alone and in combination with public transit, offer opportunities to incorporate physical activity into the daily routine.<sup>2</sup> Increases in physical activity levels are associated with a lower risk of chronic disease including obesity, diabetes, cardiovascular diseases, and some cancers.<sup>3</sup>
- Automobile commuting is associated with environmental hazards such as air pollution, which is a primary trigger for asthma attacks.<sup>4</sup> Investments in active modes of transportation have been associated with reductions in the number of vehicle miles traveled, and therefore, air pollution. They have also been associated with increased pedestrian and cyclist safety, improved community safety, and an increased sense of community.<sup>5,6</sup>

---

<sup>1</sup> Lovasi GS, Hutson MA, Guerra M, Neckerman KM. Built Environments and Obesity in Disadvantaged Populations. *Epidemiologic Reviews* 2009;31:7-20. doi: 10.1093/epirev/mxp005.

<sup>2</sup> de Nazelle A, Nieuwenhuijsen MJ, Antó JM, et al. Improving health through policies that promote active travel: a review of evidence to support integrated health impact assessment. *Environ Int.* 2011; 37(4):766-77.

<sup>3</sup> Centers for Disease Control and Prevention. Physical Activity and Health. (2015, June 4) Retrieved from: <https://www.cdc.gov/physicalactivity/basics/pa-health/>

<sup>4</sup> Trasande L, Thurston G. The role of air pollution in asthma and other pediatric morbidities. *J Allergy Clin Immunol.*2005;115(4):689– 699

<sup>5</sup> County Health Rankings & Roadmaps - What Works for Health. Streetscape design. (2015, October 1). *Robert Wood Johnson Foundation.* Retrieved from: <http://www.countyhealthrankings.org/policies/streetscape-design>

- Investments in modes of transportation beyond automobiles also increase access to health care services, especially for vulnerable populations, such as those with lower incomes and/or those who are under/uninsured.<sup>7</sup>

## 2) Access to parks and open spaces

- Parks and open spaces contribute to quality of life by providing communities with social and psychological benefits, as well as health benefits. Parks provide spaces for engaging in physical activity, which helps to prevent many chronic conditions. Evidence shows that the presence of parks and recreation settings correlate with increased levels of physical activity.<sup>8</sup> Evidence also shows an association between parks and open spaces and improvements in mental health, birth outcomes, and the economy; reductions in stress and crime; and decreases in disparities.<sup>9,10</sup>

## 3) Air quality

- In general, the more vehicle miles traveled in a community, the worse the air pollution.<sup>11</sup> Children living in areas with more polluted air experience decreased lung function, increased asthma severity, bronchitis, lung cancer, and other illnesses,<sup>12,13</sup> and adults with asthma living near heavily trafficked roads are also at increased risk for hospitalization for asthma attacks. Air quality is worse in communities with more racial/ethnic minorities and lower income and less educated communities.<sup>14</sup>
- Air quality is significantly impacted by the presence or absence of tobacco use. Tobacco harms the user, and secondhand smoke exposure causes serious health problems for others. For adults, this includes lung cancer, heart disease and respiratory illness; and for children this includes respiratory illness, ear infections,

---

<sup>6</sup> Reynolds, Conor, et al. (2010). Active Transportation in Urban Areas: Exploring Health Benefits and Risks. National Collaborating Centre for Environmental Health. pg.1-5. Retrieved from:

[http://www.nccch.ca/sites/default/files/Active\\_Transportation\\_in\\_Urban\\_Areas\\_June\\_2010.pdf](http://www.nccch.ca/sites/default/files/Active_Transportation_in_Urban_Areas_June_2010.pdf)

<sup>7</sup> Syed, S. T., Gerber, B. S., & Sharp, L. K. (2013). Traveling Towards Disease: Transportation Barriers to Health Care Access. *Journal of Community Health*, 38(5), 976–993. <http://doi.org/10.1007/s10900-013-9681-1>

<sup>8</sup> Durand CP, Andalib M, Dunton GF, Wolch J, Pentz MA. A Systematic Review of Built Environment Factors Related to Physical Activity and Obesity Risk: Implications for Smart Growth Urban Planning. *Obes Rev*. 2011;12(501):e173-e182.

<sup>9</sup> County Health Rankings & Roadmaps - What Works for Health. Green space & parks. Robert Wood Johnson Foundation. (2015, September 1) Retrieved from: <http://www.countyhealthrankings.org/policies/green-space-parks>

<sup>10</sup> Bedimo-Rung, A., Mowen, J., Cohen, D. (2005). The significance of parks to physical activity and public health: a conceptual model. *American Journal of Preventive Medicine*, 28(2): 159–168. Retrieved from:

<http://www.sciencedirect.com.ezproxy.bu.edu/science/article/pii/S0749379704003046>

<sup>11</sup> Design, Community & Environment; Reid Ewing; Lawrence Frank and Company, Inc.; and Richard Kreutzer, Understanding the Relationship Between Public Health and the Built Environment, prepared for the LEED-Neighborhood Development Core Committee, at 120 (May 2006).

<sup>12</sup> S. Lin et al., Childhood Asthma Hospitalization and Residential Exposure to State Route Traffic, Vol. 88, *Environmental Research*, at 73-81 (2002).

<sup>13</sup> W. Pearson et al., Distance-Weighted Traffic Density in Proximity to a Home is a Risk Factor for Leukemia and Other Childhood Cancers, *Journal of Air and Waste Management Association* (February 2000)

<sup>14</sup> Y. Meng et al., Living Near Heavy Traffic Increases Asthma Severity, UCLA Center for Health Policy Research (2006, August). Retrieved from:

<http://healthpolicy.ucla.edu/publications/Documents/PDF/Living%20Near%20Heavy%20Traffic%20Increases%20Asthma%20Severity.pdf>



asthma attacks and sudden infant death syndrome.<sup>15</sup> Effective population-based tobacco control interventions can reduce smoking initiation and use among adults and youth.

#### **4) Access to healthy foods**

- An individual's food choices are influenced by their food environment. Research suggests that residents who have better access to supermarkets and other fresh food retailers tend to have healthier diets. So consuming a healthy diet may be more difficult if healthy food options are not readily available, easily accessible, or affordable in their communities. In particular, low-income and underserved communities, as well as rural communities, often have limited access to stores that sell healthy food, especially high-quality fruits and vegetables.<sup>16,17</sup> Inadequate consumption of healthy foods and overconsumption of calorie-dense foods is associated with cardiovascular disease, obesity, some cancers, type-2 diabetes, and anemia.<sup>18</sup>

#### **5) Unintentional injury**

- Unintentional injury is a leading cause of death and disability in the U.S. In fact, more children die as a result of these types of injuries than any other cause.<sup>19</sup> Many unintentional injuries result from the built environment including from homes, buildings, neighborhoods, playgrounds, and roadways. Because the built environment can be modified to help prevent both intentional and unintentional injury, addressing the environmental factors related to injury is an important public health opportunity that directly impacts health.

#### **6) Neighborhood conditions surrounding homes**

- Housing is intertwined with the built environment as it affects where we live and the physical amenities and conditions surrounding homes. Homes in neighborhoods that provide residents access to safe green spaces and parks, fresh, affordable produce, employment opportunities, and transportation, promote health, whereas neighborhoods that lack these features and services can negatively impact health behaviors and health outcomes.<sup>20</sup>

---

<sup>15</sup> Centers for Disease Control & Prevention, *The Health Consequences of Smoking—50 Years of Progress. A Report of the Surgeon General*, U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, Editor. 2014: Atlanta, GA.

<sup>16</sup> Powell L. Food store availability and neighborhood characteristics in the United States. *Preventive Medicine* 2007;44:189–195.

<sup>17</sup> Liese AD, Weis KE, Pluto D, Smith E, Lawson A. Food store types, availability and cost of foods in a rural environment. *J Am Dietetic Assoc* 2007;107(11):1916–23.

<sup>18</sup> Centers for Disease Control and Prevention. Healthy Food Environment. (2010, June 3) Retrieved from: [https://www.cdc.gov/healthyplaces/healthtopics/healthyfood\\_environment.htm](https://www.cdc.gov/healthyplaces/healthtopics/healthyfood_environment.htm)

<sup>19</sup> Centers for Disease Control and Prevention. Ten leading causes of death and injury. (2016, February 25) Retrieved from: <http://www.cdc.gov/injury/wisqars/leadingcauses.html>

<sup>20</sup> Housing and Health - Issue Brief #7 Exploring the Social Determinants of Health. *Robert Wood Johnson Foundation*. (2011, May) Retrieved from: [http://www.rwjf.org/content/dam/farm/reports/issue\\_briefs/2011/rwjf70451](http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2011/rwjf70451)

A selection of example strategies that impact the built environment and health are provided below (*note*: these are policy and systems level change strategies and not meant as examples whereby CHI resources would pay for direct infrastructure change):

- **Introduction or Expansion of Public Transportation System** helps people access healthcare facilities and places to shop for healthy food. In addition, public transportation access decreases injury rates from motor vehicle crashes, reduces exposure to air pollutants and increases levels of physical activity.<sup>21</sup>
- **Green space and parks** can be created, under-utilized recreation areas can be renovated, or vacant lots, abandoned infrastructure can be rehabilitated. Rails to trails programs, brownfield redevelopment, community gardens, and park enhancements are examples of efforts to increase recreational open space, trails, and parks. Such efforts can be applied to spaces accessible by foot, bike, and other types of transportation, and are frequently implemented in low income neighborhoods. There is some evidence that these efforts increase physical activity and may also reduce obesity rates, crime and stress; and improve mental health and birth outcomes.<sup>22</sup>
- **Tobacco pricing** can be affected by point-of-sale fees. Researchers suggest expanding cessation services in conjunction with price increases and incorporating funding for tobacco prevention and control, working together to build acceptance of these policies. There is strong evidence that this strategy decreases tobacco use and consumption, improves quit rates among adults and young people, and reduces tobacco initiation among young people.<sup>23</sup> Increasing tobacco prices may reduce disparities in tobacco use and may also general substantial health care cost savings.
- **Healthy food in convenience stores** is important as those stores often provide the only retail food options in many low income neighborhoods food deserts. While corner stores traditionally sell non-perishable, often unhealthy items like snack foods, many successful efforts added fresh produce and healthier food options in these venues. Offering fresh produce and other healthy foods in convenience or corner stores increases access to and purchasing of other healthy foods, especially in food deserts and low income urban and rural communities.<sup>24</sup> Multi-component interventions that include changes to food availability, infrastructure, and communication/education have shown the most positive outcomes.
- **Fair Housing Laws:** Strengthening enforcement of fair housing laws, including the Federal Fair Housing Act and other state and local regulations prohibiting racial discrimination in housing markets, and evaluating housing antidiscrimination policy for its effects on health.<sup>25</sup>

---

<sup>21</sup> Centers for Disease Control and Prevention, Office of the Associate Director for Policy. Health Impact in 5 Years (Hi5): <http://www.cdc.gov/policy/hst/hi5/publictransportation/index.html>

<sup>22</sup> County Health Rankings & Roadmaps - What Works for Health: Green Space and Parks. *Robert Wood Johnson Foundation*. (2015, September 1) Retrieved from: <http://www.countyhealthrankings.org/policies/green-space-parks>

<sup>23</sup> County Health Rankings & Roadmaps - What Works for Health: Tobacco Pricing. *Robert Wood Johnson Foundation*. (2014, March 13) Retrieved from: <http://www.countyhealthrankings.org/policies/tobacco-pricing>

<sup>24</sup> County Health Rankings & Roadmaps - What Works for Health: Healthy food in convenience stores. (2016) *Robert Wood Johnson Foundation*. (2015, June 11). Retrieved from: <http://www.countyhealthrankings.org/policies/healthy-food-convenience-stores>

<sup>25</sup> Culture of Health - How Can Partnering with the Housing Sector Improve Health? (2016). *Robert Wood Johnson Foundation*. Retrieved from: [http://www.rwjf.org/en/culture-of-health/2016/06/how\\_can\\_partneringw.html](http://www.rwjf.org/en/culture-of-health/2016/06/how_can_partneringw.html)

To better understand this health priority, a selection of key indicators and data sources related to the built environment is provided below.

### Example Indicators

Component	Indicators	Data Sources
Access to parks, open spaces	Percent of residents within certain distance of park, open space, recreational facility	Local department of Parks & Recreation <a href="#">MassGIS</a> <sup>26</sup> (look at layers associated with greenspace)
Transportation options	Means of travel to work; median travel time to work	<a href="#">US Census</a> <sup>27</sup>
Food access	Access to fresh fruits, vegetables, and other healthy foods Access, proximity and availability of grocery stores	<a href="#">Modified Retail Food Environment Index</a> <sup>28</sup> (mRFEI) = (healthy retailers)/(healthy retailers + unhealthy retailers) <a href="#">USDA Food Atlas</a> <sup>29</sup>
Air pollution	Particulate matter (Average daily density of fine particulate matter in micrograms per cubic meter (PM2.5)  Smoking rates	<a href="#">County Health Rankings</a> <sup>30</sup> <a href="#">Behavioral Risk Factor Surveillance System</a> <sup>31</sup>
Drinking Water	Presence of health-related	<a href="#">County Health Rankings</a> <sup>32</sup>

<sup>26</sup> MassGIS Data – Protected and Recreational OpenSpace. *Mass.gov*. Retrieved from: <http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/osp.html>

<sup>27</sup> Commuting (Journey to Work). *United States Census Bureau*. Retrieved from: <https://www.census.gov/hhes/commuting/data/commuting.html>

<sup>28</sup> Census Tract Level State Maps of the Modified Retail Food Environment Index (mRFEI). *National Center for Chronic Disease Prevention and Health Promotion*. Retrieved from: [ftp://ftp.cdc.gov/pub/Publications/dnpao/census-tract-level-state-maps-mrfei\\_TAG508.pdf](ftp://ftp.cdc.gov/pub/Publications/dnpao/census-tract-level-state-maps-mrfei_TAG508.pdf)

<sup>29</sup> Food Environment Atlas (2016). *United States Department of Agriculture Economic Research Service*. Retrieved from: <https://www.ers.usda.gov/data-products/food-environment-atlas.aspx>

<sup>30</sup> Massachusetts 2016 Air pollution – particulate matter. *County Health Rankings & Roadmaps*. Retrieved from: <http://www.countyhealthrankings.org/app/massachusetts/2016/measure/factors/125/data>

<sup>31</sup> Behavioral Risk Factor Surveillance System (2016). *Centers for Disease Control and Prevention*. Retrieved from: <http://www.cdc.gov/brfss/>

	drinking water violations	
Injury	Number of deaths due to injury per 100,000 population	<a href="#">County Health Rankings</a> <sup>33</sup>

---

<sup>32</sup> Massachusetts Rankings Data. *County Health Rankings and Roadmaps*. Retrieved from: <http://www.countyhealthrankings.org/rankings/data/ma>

<sup>33</sup> Massachusetts 2016 Injury deaths. *County Health Rankings and Roadmaps*. Retrieved from: <http://www.countyhealthrankings.org/app/massachusetts/2016/measure/factors/135/map>

## Social Environment

The social environment consists of a community's social conditions and cultural dynamics. Elements of the social environment include social networks, social participation, social cohesion, social capital, social support, social inclusion, social integration, discrimination, trust, and norms.<sup>34,35,36,37</sup> When strong, these elements can: provide people with a source of support; protect people from stressors; buffer the effects of stress; connect people with resources; and influence health behaviors.<sup>38,39,40</sup> Consequently, the social environment has repeatedly been shown to impact mental and physical health outcomes, and ultimately, rates of mortality.<sup>41,42</sup>

Communities of color and communities of lower socioeconomic status are at a disadvantage with respect to many elements of the social environment, thus contributing to health disparities.<sup>43</sup> For example, communities of color are more likely to have low levels of social cohesion (i.e., levels of connectedness and solidarity among groups) in part because of racial segregation and shared perceptions about the amount of effort required to engage in group action in neighborhoods.<sup>44</sup> Discrimination, which affects shared perceptions, is another element of the social environment

---

<sup>34</sup> National Research Council and Institute of Medicine. (2013). *U.S. Health in International Perspective: Shorter Lives, Poorer Health*. Panel on Understanding Cross-National Health Differences Among High-Income Countries, Steven H. Woolf and Laudan Aron, Eds. Committee on Population, Division of Behavioral and Social Sciences and Education, and Board on Population Health and Public Health Practice, Institute of Medicine. Washington, DC: The National Academies Press. Retrieved from: <https://www.nap.edu/read/13497/chapter/12>

<sup>35</sup> Galea, S., Tracy, M., Hoggatt, K. J., DiMaggio, C., & Karpati, A. (2011). Estimated Deaths Attributable to Social Factors in the United States. *American Journal of Public Health, 101*(8), 1456–1465. <http://doi.org/10.2105/AJPH.2010.300086>

<sup>36</sup> Neighborhoods and Health. Issue Brief #8 Exploring the Social Determinants of Health (2011). *Robert Wood Johnson Foundation*. Retrieved from: [http://www.rwjf.org/content/dam/farm/reports/issue\\_briefs/2011/rwjf70450](http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2011/rwjf70450)

<sup>37</sup> De Jesus, Maria, Puleo, E., Shelton, R., Emmons, K. (2010). Associations between perceived social environment and neighborhood safety: Health implications. *Health and Place, 16*(5), 1007-1013. Retrieved from: <http://www.sciencedirect.com.ezproxy.bu.edu/science/article/pii/S1353829210000808>

<sup>38</sup> National Research Council and Institute of Medicine. (2013). *U.S. Health in International Perspective: Shorter Lives, Poorer Health*. Panel on Understanding Cross-National Health Differences Among High-Income Countries, Steven H. Woolf and Laudan Aron, Eds. Committee on Population, Division of Behavioral and Social Sciences and Education, and Board on Population Health and Public Health Practice, Institute of Medicine. Washington, DC: The National Academies Press. Retrieved from: <https://www.nap.edu/read/13497/chapter/12>

<sup>39</sup> Galea, S., Tracy, M., Hoggatt, K. J., DiMaggio, C., & Karpati, A. (2011). Estimated Deaths Attributable to Social Factors in the United States. *American Journal of Public Health, 101*(8), 1456–1465. <http://doi.org/10.2105/AJPH.2010.300086>

<sup>40</sup> How Social Factors Shape Health: The Role of Stress. Issue Brief Series: Exploring the Social Determinants of Health. *Robert Wood Johnson Foundation*. (2011, March) Retrieved from: [http://www.nmpha.org/Resources/Documents/RWJF%20Issue%20Brief%20-%20Stress%20\\_%20Health.pdf](http://www.nmpha.org/Resources/Documents/RWJF%20Issue%20Brief%20-%20Stress%20_%20Health.pdf)

<sup>41</sup> National Research Council and Institute of Medicine. (2013). *U.S. Health in International Perspective: Shorter Lives, Poorer Health*. Panel on Understanding Cross-National Health Differences Among High-Income Countries, Steven H. Woolf and Laudan Aron, Eds. Committee on Population, Division of Behavioral and Social Sciences and Education, and Board on Population Health and Public Health Practice, Institute of Medicine. Washington, DC: The National Academies Press. Retrieved from: <https://www.nap.edu/read/13497/chapter/12>

<sup>42</sup> Galea, S., Tracy, M., Hoggatt, K. J., DiMaggio, C., & Karpati, A. (2011). Estimated Deaths Attributable to Social Factors in the United States. *American Journal of Public Health, 101*(8), 1456–1465. <http://doi.org/10.2105/AJPH.2010.300086>

<sup>43</sup> Hobson-Prater, Tara, T. Leech (2012). The Significance of Race for Neighborhood Social Cohesion: Perceived Difficulty of Collective Action in Majority Black Neighborhoods. *Journal of Sociology & Social Welfare, XXXIX* (1): 89-109. Retrieved from: [https://www.wmich.edu/hhs/newsletters\\_journals/jssw\\_institutional/institutional\\_subscribers/39.1.Hobson.pdf](https://www.wmich.edu/hhs/newsletters_journals/jssw_institutional/institutional_subscribers/39.1.Hobson.pdf)

<sup>44</sup> Hobson-Prater, Tara, T. Leech (2012). The Significance of Race for Neighborhood Social Cohesion: Perceived Difficulty of Collective Action in Majority Black Neighborhoods. *Journal of Sociology & Social Welfare, XXXIX* (1): 89-109. Retrieved from: [https://www.wmich.edu/hhs/newsletters\\_journals/jssw\\_institutional/institutional\\_subscribers/39.1.Hobson.pdf](https://www.wmich.edu/hhs/newsletters_journals/jssw_institutional/institutional_subscribers/39.1.Hobson.pdf)

that contributes to health disparities and poor health outcomes.<sup>45</sup> Experiences of discrimination put minority populations at an increased risk of cardiovascular disease, hypertension, breast cancer, and more.<sup>46</sup> Thus, investing in the social environment is a matter of health equity.

Below are additional examples of how components of the social environment impact health:

### **Social networks, relationships, support, norms, cohesion, and capital**

- A social network is an individual's web of social relationships and helps define the extent to which a person is connected with others.<sup>47</sup> Social relationships are defined by trust and feelings of connectedness.<sup>48</sup> People with large, quality, stable social networks full of trusting, connected relationships, have increased access to social support, which contributes to better health outcomes.<sup>49</sup>
- Social support -- emotional, instrumental, and financial resources provided in the context of a relationship -- protects against stress.<sup>50</sup> People with low stress have better immune function, cardiovascular health, and are more likely to engage in healthy behaviors.<sup>51</sup>
- Social networks further contribute to engagement in healthy behaviors by establishing social norms that either promote or limit behaviors around healthy eating, physical activity, drug use, and more.<sup>52</sup> For example, communities with high levels of social support (and therefore reductions in stress) and social norms against drug use can have lower rates of substance use and consequently more positive health outcomes and accordingly is an Executive Office of Health and Human Services (EOHHS) issue

---

<sup>45</sup> DeLilly, Carol Rose (2012). Discrimination and Health Outcomes. *Issues in Mental Health Nursing*, 33, 801-804. Retrieved from: <http://web.b.ebscohost.com.ezproxy.bu.edu/ehost/pdfviewer/pdfviewer?vid=1&sid=a0c393db-d415-43c6-9a14-ebb2c8983cc7%40sessionmgr2>

<sup>46</sup> DeLilly, Carol Rose (2012). Discrimination and Health Outcomes. *Issues in Mental Health Nursing*, 33, 801-804. Retrieved from: <http://web.b.ebscohost.com.ezproxy.bu.edu/ehost/pdfviewer/pdfviewer?vid=1&sid=a0c393db-d415-43c6-9a14-ebb2c8983cc7%40sessionmgr2>

<sup>47</sup> De Jesus, Maria, Puleo, E., Shelton, R., Emmons, K. (2010). Associations between perceived social environment and neighborhood safety: Health implications. *Health and Place*, 16(5), 1007-1013. Retrieved from: <http://www.sciencedirect.com.ezproxy.bu.edu/science/article/pii/S1353829210000808>

<sup>48</sup> Neighborhoods and Health. Issue Brief #8 Exploring the Social Determinants of Health (2011). *Robert Wood Johnson Foundation*. Retrieved from: [http://www.rwjf.org/content/dam/farm/reports/issue\\_briefs/2011/rwjf70450](http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2011/rwjf70450)

<sup>49</sup> De Jesus, Maria, Puleo, E., Shelton, R., Emmons, K. (2010). Associations between perceived social environment and neighborhood safety: Health implications. *Health and Place*, 16(5), 1007-1013. Retrieved from: <http://www.sciencedirect.com.ezproxy.bu.edu/science/article/pii/S1353829210000808>

<sup>50</sup> Galea, S., Tracy, M., Hoggatt, K. J., DiMaggio, C., & Karpati, A. (2011). Estimated Deaths Attributable to Social Factors in the United States. *American Journal of Public Health*, 101(8), 1456-1465. <http://doi.org/10.2105/AJPH.2010.300086>

<sup>51</sup> Galea, S., Tracy, M., Hoggatt, K. J., DiMaggio, C., & Karpati, A. (2011). Estimated Deaths Attributable to Social Factors in the United States. *American Journal of Public Health*, 101(8), 1456-1465. <http://doi.org/10.2105/AJPH.2010.300086>

<sup>52</sup> National Research Council and Institute of Medicine. (2013). *U.S. Health in International Perspective: Shorter Lives, Poorer Health*. Panel on Understanding Cross-National Health Differences Among High-Income Countries, Steven H. Woolf and Laudan Aron, Eds. Committee on Population, Division of Behavioral and Social Sciences and Education, and Board on Population Health and Public Health Practice, Institute of Medicine. Washington, DC: The National Academies Press. Retrieved from: <https://www.nap.edu/read/13497/chapter/12>

priority (reducing opioid overdose and deaths).<sup>53,54</sup> Substance use disorders (SUDs) however, can be linked to several other Health Priorities including Housing, Employment, Violence and Education.

- Strong social networks and positive social relationships also contribute to health by promoting unity and facilitating collective action. Neighborhoods with strong connections and mutual trust have higher levels of social cohesion and are more likely to work together for a common goal (e.g., cleaner/safer public spaces and good schools), exchange information (e.g., about childcare, jobs, and other resources that affect health), maintain social controls (e.g., discourage crime, drug use, and vandalism), and therefore residents living in these neighborhoods are safer and have better health outcomes (e.g., lower rates of homicide, anxiety, and depression).<sup>55</sup> The capacity for collective, coordinated action is often referred to as social capital, which encompasses features of social organization like trust, norms, and networks.<sup>56</sup>

A selection of example strategies that impact the social environment and health are provided below:

- **Open Streets**, also called Ciclovía programs, allow community members to gather, socialize, walk, run, bike, skate, dance or participate in other activities on selected local streets by temporarily closing streets to motorized traffic. Some initiatives operate regularly in the same location while others change locations within an area. Open Streets events can be held regularly (e.g., weekly or monthly) or once or twice a year. Expected benefits of Open Streets include increased social cohesion, physical activity and active transportation. These programs also have the opportunity to increase social capital, improve air quality, and reduce emissions from mobile sources.<sup>57</sup>
- **Neighborhood associations** are groups of residents who work together to improve and enhance the geographic area in which they and others live. In mixed commercial and residential areas, neighborhood associations frequently include business owners or

---

<sup>53</sup> Latkin, C. A. (2015). The phenomenological, social network, social norms, and economic context of substance use and HIV prevention and treatment: A poverty of meanings. *Substance Use & Misuse*, 50(0), 1165–1168. <http://doi.org/10.3109/10826084.2015.1007764>

<sup>54</sup> RWJF Retrospective Series: Social Norms and Attitudes About Smoking (2011). *Center for Public Program Evaluation*. Retrieved from: <http://www.rwjf.org/content/dam/farm/reports/reports/2011/rwjf70008>

<sup>55</sup> Neighborhoods and Health. Issue Brief #8 Exploring the Social Determinants of Health (2011). *Robert Wood Johnson Foundation*. Retrieved from: [http://www.rwjf.org/content/dam/farm/reports/issue\\_briefs/2011/rwjf70450](http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2011/rwjf70450)

<sup>56</sup> National Research Council and Institute of Medicine. (2013). *U.S. Health in International Perspective: Shorter Lives, Poorer Health*. Panel on Understanding Cross-National Health Differences Among High-Income Countries, Steven H. Woolf and Laudan Aron, Eds. Committee on Population, Division of Behavioral and Social Sciences and Education, and Board on Population Health and Public Health Practice, Institute of Medicine. Washington, DC: The National Academies Press. Retrieved from: <https://www.nap.edu/read/13497/chapter/12>

<sup>57</sup> County Health Rankings & Roadmaps - What Works for Health. Open streets. Robert Wood Johnson Foundation. (2016, April 6) Retrieved from: <http://www.countyhealthrankings.org/policies/open-streets>



representatives. Participation in these associations increases social capital and social cohesion.<sup>58</sup>

- **Social support interventions in community settings** focus on building, strengthening, and maintaining social networks that provide supportive relationships for behavior change (e.g., setting up a buddy system, making contracts with others to complete specified levels of physical activity, or setting up walking groups or other groups to provide friendship and support). Expected benefits of these interventions include increased physical activity and physical fitness.<sup>59</sup>

To better understand this health priority, a selection of example indicators and data sources related to the social environment is provided below.<sup>60</sup>

Component	Indicators	Data Sources
Social Support	% of people who report inadequate social support; # of single parent households; # of social associations	<a href="#">Behavioral Risk Factor Surveillance System</a> <sup>61</sup> ; <a href="#">County Health Rankings</a> <sup>62</sup> ; <a href="#">American Community Survey - U.S. Census</a> <sup>63</sup>
Social Participation - Voting	% of registered voters who voted in last general election	County or City Clerk; Local board of elections
Social Participation - Volunteerism	Annual number of volunteer hours by residents	Survey or local volunteer center
Social Cohesion	Perception of neighborhood safety	<a href="#">Behavioral Risk Factor Surveillance System</a> <sup>64</sup>
Social Networks,	Sense of community	Local survey

<sup>58</sup> County Health Rankings & Roadmaps - What Works for Health. Neighborhood associations. (2015, June 4) Retrieved from: <http://www.countyhealthrankings.org/policies/neighborhood-associations>

<sup>59</sup> Physical Activity: Social Support Interventions in Community Settings. *The Community Guide*. Retrieved from: <https://www.thecommunityguide.org/findings/physical-activity-social-support-interventions-community-settings>

<sup>60</sup> Community Health Assessments and Community Health Improvement Plans for Accreditation Preparation Demonstration Project Resources for Social Determinants of Health Indicators. *National Association of County & City Health Officials*. Retrieved from: <http://www.naccho.org/uploads/downloadable-resources/Final-Resources-on-Social-Determinants-of-Health-112811.pdf>

<sup>61</sup> Behavioral Risk Factor Surveillance System (2016). *Centers for Disease Control and Prevention*. Retrieved from: <http://www.cdc.gov/brfss/>

<sup>62</sup> Massachusetts 2016 Social associations. *County Health Rankings & Roadmaps*. Retrieved from: <http://www.countyhealthrankings.org/app/massachusetts/2016/measure/factors/140/map>

<sup>63</sup> American Community Survey (ACS). *United States Census Bureau*. Retrieved from: <http://www.census.gov/programs-surveys/acs/>

<sup>64</sup> Behavioral Risk Factor Surveillance System (2016). *Centers for Disease Control and Prevention*. Retrieved from: <http://www.cdc.gov/brfss/>



Relationships, Cohesion	belonging; Interest in knowing neighbors; Number of neighbors one can ask for help	
-------------------------	--	--

## Housing

Housing as a DoN Health Priority includes the development and maintenance of safe, quality, affordable living accommodations for all people. Housing positively impacts health when there is enough space for all family members to live comfortably, children live in neighborhoods where it is safe enough to play outside, the house/apartment building is built soundly, and has the necessary physical conditions to ensure a healthy environment for the residents. Safe and stable housing provides personal security, reduces stress and exposure to disease, and provides a foundation for meeting basic hygienic, nutritional, and health care needs.<sup>65</sup> Unhealthy and unsafe housing conditions typically plague communities in which residents have fewer financial resources. As housing is a community issue, the remedies must come from community engagement with local housing resources, community economic development corporations, housing developers – all with input from community members. Building and unit design can be exclusive to some populations (i.e. people with mobility disabilities, older adults) or can be inclusive with, for example, ramps, widened doorways, accessible bathrooms and elevators.

In this context, Housing is intertwined with the built, social, and economic environments that comprise the neighborhoods within which homes exist. Homes in neighborhoods that provide residents access to: safe green spaces and parks; fresh, affordable produce; employment opportunities; and transportation, promote health.<sup>66</sup> Moreover, neighborhoods that are free from segregation and concentrated poverty create environments in which residents can more easily support and trust each other. Healthy and diverse neighborhoods can improve mental health, community safety, school performance, and civic engagement.<sup>67</sup>

Below are some examples of specific components of housing that impact health along with an example strategy for each component:

### 1) Physical conditions within homes

- Homes that are structurally sound, properly maintained, well ventilated, adequately spacious, and free from physical and environmental hazards, protect people from harmful exposures and provide them with privacy, security, and stability. On the other hand, homes that do not meet these physical conditions put people at risk of home injuries, chronic diseases, infectious communicable diseases, poor childhood development, and

---

<sup>65</sup> Housing and Health - Issue Brief #7 Exploring the Social Determinants of Health (2011, May). *Robert Wood Johnson Foundation*. Retrieved from: [http://www.rwjf.org/content/dam/farm/reports/issue\\_briefs/2011/rwjf70451](http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2011/rwjf70451)

<sup>66</sup> Shaw M. "Housing and Public Health." *Annu Rev Public Health*, 25: 397-418, 2004.

<sup>67</sup> Culture of Health - How Can Partnering with the Housing Sector Improve Health? (2016). *Robert Wood Johnson Foundation*. Retrieved from: [http://www.rwjf.org/en/culture-of-health/2016/06/how\\_can\\_partneringw.html](http://www.rwjf.org/en/culture-of-health/2016/06/how_can_partneringw.html)

illness or death from temperature extremes.<sup>68</sup> For example, poor ventilation, water leaks, and pest infestations can cause an accumulation of mold, indoor air pollutants, and allergens that contribute to allergies and asthma.<sup>69,70</sup> Moreover, homes with lead paint put children at risk of lead poisoning, which can cause permanent damage to the developing brain and nervous system resulting in cognitive disabilities and behavior problems.<sup>71</sup> Furthermore, housing with a non-functioning heating system can result in increased mortality, especially among vulnerable populations like the elderly, when temperatures are extreme.<sup>72</sup>

## 2) Housing affordability

- A lack of affordable housing limits people's choices about where they live. High housing costs relative to income creates a situation in which residents are living in overcrowded or lower cost substandard housing, moving to a neighborhood where housing costs are lower with the potential loss of social support networks and sometimes employment, or become homeless.<sup>73</sup> Homelessness or unstable housing exacerbates chronic medical conditions and may lead to the development of new health problems. Accordingly ending individual and family homelessness through creating access to affordable, safe housing is an Executive Office of Health and Human Services issue priority.. Studies have shown that access to safe, quality, affordable, healthy housing is linked with better health outcomes, especially among vulnerable populations.<sup>74</sup>

A selection of example strategies that impact housing and health are provided below:

- **Healthy home environment assessments conducted** by home visitors, often community health workers, can remediate environmental health risks within the home.<sup>75</sup> Programs typically focus on improving asthma management via low cost changes such as improved ventilation, integrated pest management, and other forms of allergen control. Programs may also provide low emission vacuums, allergen-impermeable bedding, covers, air

---

<sup>68</sup> Housing and Health - Issue Brief #7 Exploring the Social Determinants of Health (2011, May). *Robert Wood Johnson Foundation*. Retrieved from: [http://www.rwjf.org/content/dam/farm/reports/issue\\_briefs/2011/rwjf70451](http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2011/rwjf70451)

<sup>69</sup> Health Impact Assessment Housing and Health (2016). *World Health Organization*. Retrieved from: <http://www.who.int/hia/housing/en/>

<sup>70</sup> Mueller E, Tighe R. "Making the Case for Affordable Housing: Connecting Housing with Health and Education Outcomes." *Journal of Planning Literature*, May 2007. Vol 21(4).

<sup>71</sup> Nelson G, Saegert S. "Housing and Quality of Life: An Ecological Perspective." 2010.

<sup>72</sup> Centers for Disease Control and Prevention. Blood Lead Levels--United States, 1999-2002. *Centers for Disease Control and Prevention, MMWR Morb Mortal Wkly Rep.* 2005, 513-6.

<sup>73</sup> Housing (2014). *The San Francisco Indicator Project*. (2014). Retrieved from: <http://www.sfindicatorproject.org/indicators/housing>

<sup>74</sup> Housing and Health - Issue Brief #7 Exploring the Social Determinants of Health (2011, May). *Robert Wood Johnson Foundation*. Retrieved from: [http://www.rwjf.org/content/dam/farm/reports/issue\\_briefs/2011/rwjf70451](http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2011/rwjf70451)

<sup>75</sup> Primomo J, Johnston S, DiBiase F, Nodolf J, Noren L. Evaluation of a community-based outreach worker program for children with asthma. *Public Health Nursing*. 2006;23(3):234-41.

filters, cleaning supplies, and supplies for roach abatement.<sup>76</sup> Expected outcomes of healthy home environment assessments include reduced hospital utilization as well as, potentially improving asthma management, quality of life, indoor air quality and other health outcomes.<sup>77</sup>

- **Housing rehabilitation loan and grant programs** provide funding to repair, improve, or modernize dwellings in order to remove health or safety hazards from those dwellings. Programs primarily serve families with low and median incomes, and may prioritize services for households with vulnerable members such as young children and elderly adults. These efforts are associated with improved health outcomes and improved mental health. The Bon Secours Health System in Baltimore, MD, as part of its Healthy Communities Initiative, funded the neighborhood revitalization effort to construct/rehabilitate more than 650 units of affordable housing and provided more than 60 minor-home improvement grants to existing residents.<sup>78</sup>
- **Direct investment in community land trusts or capital investment in housing development programs** provide capital for the new development of affordable housing developments. While healthy housing assessments and rehabilitation programs for existing housing are critically important, there is a pressing need in communities across the state and country for new affordable housing units. The Mayo Clinic, based in Rochester, MN was the principal investor in the community land trust First Homes by providing \$7 million to the trust. The trust was fully capitalized through a public/private partnership through the principal contribution by the Mayo Clinic and with support from the Greater Minnesota Housing Fund, Minnesota Housing Finance Agency, and USDA Rural Development. The First Homes trust met its’ initial goal of developing 875 new units of affordable housing.<sup>79</sup>

To better understand this health priority, a selection of example indicators and data sources related to housing is provided below.

Component	Indicators	Data Sources
-----------	------------	--------------

<sup>76</sup> Campbell JD, Brooks M, Hosokawa P, et al. Community health worker home visits for Medicaid-enrolled children with asthma: Effects on asthma outcomes and costs. *American Journal of Public Health*. 2015;105(11):2366-2372.

<sup>77</sup> County Health Rankings & Roadmaps - What Works for Health: Healthy home environment assessments. *Robert Wood Johnson Foundation*. (2016, July 27) Retrieved from: <http://www.countyhealthrankings.org/policies/healthy-home-environment-assessments>

<sup>78</sup> Bon Secours Housing. (2016). Retrieved from: <https://bonsecours.com/baltimore/community-commitment/housing>

<sup>79</sup> Section Four, Case Studies. Rochester, Minnesota: Mayo Clinic. <http://democracycollaborative.org/sites/clone.community-wealth.org/files/downloads/ExcerptHospitalsBuildingHealthierCommunities-MayoClinic.pdf>.

Severe housing problems	Percentage of households with at least 1 of 4 housing problems: overcrowding, high housing costs, lack of kitchen, or lack of plumbing facilities.	<a href="#">County Health Rankings</a> <sup>80</sup>
Overcrowding	Percent of households with more than 1 person per habitable room	<a href="#">American Community Survey - U.S. Census</a> <sup>81</sup>
Affordability	% of households (renters & homeowners) who paid more than 30% of their total income on housing  Cost burden of housing	<a href="#">American Community Survey - U.S. Census</a> <sup>82</sup>  <a href="#">H &amp; T affordability index</a> <sup>83</sup>  Local public housing authority
Home Ownership	Proportion of households that own their home	<a href="#">American Community Survey - U.S. Census</a> <sup>84</sup>
Housing Stability/Homelessness	Proportion of the population without permanent homes (individuals and families)	Annual Point-in-Time count of homeless

<sup>80</sup> Massachusetts 2016 Severe housing problems. *County Health Rankings & Roadmaps*. Retrieved from:

<http://www.countyhealthrankings.org/app/massachusetts/2016/measure/factors/136/map>

<sup>81</sup> American Community Survey (ACS). *United States Census Bureau*. Retrieved from: <http://www.census.gov/programs-surveys/acs/>

<sup>82</sup> American Community Survey (ACS). *United States Census Bureau*. Retrieved from: <http://www.census.gov/programs-surveys/acs/>

<sup>83</sup> H+T® Index. *The Center for Neighborhood Technology (CNT)*. Retrieved from: <http://htaindex.cnt.org/>

<sup>84</sup> American Community Survey (ACS). *United States Census Bureau*. Retrieved from: <http://www.census.gov/programs-surveys/acs/>

## Violence

Violence is the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, with the behavior likely to cause physical or psychological harm. It includes disturbances and/or more violent acts in neighborhoods, communities, and in intimate settings.<sup>85,86</sup> Violence has been shown to influence the physical, mental, and emotional health of victims and their families.<sup>87,88,89</sup> Both the fear of violence as well as the acts of violence exacerbate existing illness and increase the risk for onset of disease. As a result, a safer community is linked with better health outcomes and, accordingly, **is an Executive Office of Health and Human Services (EOHHS) issue priority (increasing the number of individuals living safely in the community).**<sup>90</sup> Violence also impacts the social and economic safety and well-being of a neighborhood, including job and housing security, educational attainment and community integration.

Violence undermines health, worsens health disparities, and is disproportionately prominent in low-income communities and communities of color. Homicide rates among 10 to 24 year-old African American males and Hispanic males exceed that of White males.<sup>91</sup> African American children are more than twice as likely to witness domestic violence, and 20 times more likely to witness a murder compared to white children.<sup>92</sup> And areas of concentrated poverty that have low housing values and schools with low high-school graduation rates put residents at increased risk of death from homicide.<sup>93</sup> Therefore, preventing violence is critical to reducing health inequities as well as improving health outcomes.

Below are some examples of specific components of violence that impact health along with an example strategy for each component:

### 1) Youth Violence

- According to CDC, youth violence refers to harmful behaviors that can start early and continue into young adulthood. The young person can be a victim, an offender, or a witness to the violence. Youth violence includes various behaviors

---

<sup>85</sup> Preventing Violence and Reducing Injury. *Prevention Institute*. Retrieved from: <https://www.preventioninstitute.org/focus-areas/preventing-violence-and-reducing-injury/preventing-violence-and-reducing-injury>

<sup>86</sup> School-Based Violence Prevention (2016). *Centers for Disease Control and Prevention*. Retrieved from: <http://www.cdc.gov/policy/hst/hi5/violenceprevention/index.html>

<sup>87</sup> Injury Prevention & Control: Division of Violence Prevention. *Centers for Disease Control and Prevention*. Retrieved from: <https://www.cdc.gov/violenceprevention/>

<sup>88</sup> Campbell, Jacquelyn, and Anna Wolf. Social Determinants of Intimate Partner Violence. *Johns Hopkins University School of Nursing*. Retrieved from: [http://web.jhu.edu/administration/provost/initiatives/sdh\\_symposium/Violence.pdf](http://web.jhu.edu/administration/provost/initiatives/sdh_symposium/Violence.pdf)

<sup>89</sup> Connecting Safety to Chronic Disease. *Prevention Institute*. Retrieved from: <https://www.preventioninstitute.org/focus-areas/preventing-violence-and-reducing-injury/connecting-safety-to-chronic-disease>

<sup>90</sup> [Centers for Disease Control and Prevention](#), [National Center for Injury Prevention and Control](#), [Division of Violence Prevention](#). Violence Prevention at CDC. Retrieved from: <https://www.cdc.gov/violenceprevention/overview/index.html>

<sup>91</sup> Centers for Disease Control and Prevention. Child Maltreatment Facts at a Glance. In; 2010

<sup>92</sup> Children's Defense Fund. Portrait of Inequality 2011: Black Children in America; 2011.

<sup>93</sup> How social factors shape health: violence, social disadvantage and health. Issue Brief Series: Robert Wood Johnson Foundation Commission to Build a Healthier America; 2011 6/15/2011

such as aggressive/violent behaviors, disruptive behaviors, and problem behaviors.<sup>94</sup> Violent acts have detrimental effects ranging from emotional and developmental harm, to serious injury or even death.

- Youth violence has significant impacts beyond individual health. It can impact the health of communities including increased health care costs, decreased property values and disrupted social services.<sup>95</sup>

## 2) Sexual Violence and Intimate Partner Violence

- Sexual Violence (SV) refers to sexual activity when consent is not obtained or not given freely. While anyone can experience SV, most victims are female and the person responsible for the violence is typically male and usually someone known to the victim.
- Intimate partner violence (IPV) describes physical, sexual, or psychological harm by a current or former partner or spouse. This type of violence can occur among heterosexual or same-sex couples and does not require sexual intimacy.<sup>96</sup> Approximately 27.3% of women and 11.5% of men in the U.S. have experienced contact sexual violence, physical violence, or stalking by an intimate partner.<sup>97</sup>
- Apart from deaths and injuries, SV and IPV are associated with a number of adverse health outcomes including asthma, bladder and kidney infections, cardiovascular disease, circulatory conditions, central nervous system disorders, joint disease, and more.<sup>98</sup>
- Victims of IPV also face reproductive, psychological, and social consequences and are more likely to engage in negative health behaviors such as high-risk sexual behavior, using harmful substances, unhealthy diet-related behaviors, and overuse of health services leading to increased health care costs.<sup>81</sup>

A selection of example strategies that impact violence and health are provided below:

- **Universal school-based violence prevention programs** provide students and school staff with information about violence, change how youth think and feel about violence, and enhance interpersonal and emotional skills such as

---

<sup>94</sup> School-Based Violence Prevention (2016). *Centers for Disease Control and Prevention*. Retrieved from: <http://www.cdc.gov/policy/hst/hi5/violenceprevention/index.html>

<sup>95</sup> Mercy J, Butchart A, Farrington D, Cerdá M. Youth violence. In: Krug E, Dahlberg LL, Mercy JA, Zwi AB, Lozano R, editors. *The World Report on Violence and Health*. Geneva, Switzerland: World Health Organization; 2002. p. 25–56.

<sup>96</sup> Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, Division of Violence Prevention. Intimate Partner Violence. Available from: <http://www.cdc.gov/violenceprevention/intimatepartnerviolence/index.html>

<sup>97</sup> Breiding MJ, Smith SG, Basile KC, Walters ML, Chen J, Merrick MT. Prevalence and characteristics of sexual violence, stalking and intimate partner violence victimization – National Intimate Partner and Sexual Violence Survey, United States, 2011. *MMWR*. 2014;63(No. SS08); 1-18.

<sup>98</sup> Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, Division of Violence Prevention. Retrieved from: <https://www.cdc.gov/violenceprevention/index.html>

communication and problem-solving, empathy, and conflict management.<sup>99</sup> The purpose of universal school-based violence prevention is to reduce both violence and victimization among students.<sup>100</sup> These programs are associated with reductions in violent behavior at all grade levels and among all students in all environments regardless of socioeconomic status, race and ethnicity, or crime rate. In addition, specific programs have been associated with reductions in delinquency, alcohol and substance abuse, and improvements in academic performance.<sup>101</sup>

- **Safe Dates** is designed to prevent the initiation of emotional, physical, and sexual abuse in adolescent dating relationships. Safe Dates has five components: a ten-session course, a play script, a poster contest, parent materials, and a teacher training outline. This type of youth intimate partner violence prevention program has received an evidence rating of ‘some evidence’ by RWJF What Works for Health for its effectiveness of increasing knowledge of intimate partner violence and reducing intimate partner violence.<sup>102</sup>

---

<sup>99</sup> The Guide to Community Preventive Services, *School-Based Programs to Reduce Violence*. The Community Guide: What Works to Promote Health 2005 May 20, 2014; Available from: <http://www.thecommunityguide.org/violence/schoolbasedprograms.html>.

<sup>100</sup> County Health Rankings & Roadmaps- What Works for Health: School-based programs to reduce violence and bullying. March 27, 2014; Available from: <http://www.countyhealthrankings.org/policies/school-based-violence-bullying-prevention-programs>.

<sup>101</sup> Washington State Institute for Public Policy, Good Behavior Game. Benefit-Cost Results December 2015; Available from: Good Behavior Game.

<sup>102</sup> County Health Rankings & Roadmaps - What Works for Health: Youth intimate partner violence prevention programs. (2016). *Robert Wood Johnson Foundation*. Retrieved from: <http://www.countyhealthrankings.org/policies/youth-intimate-partner-violence-prevention-programs>



To better understand this health priority, a selection of example indicators and data sources related to violence is provided below.

Component	Indicators	Data Sources
Youth Violence	# days carrying weapon, gun, feeling unsafe; # times threatened with weapon, in physical fight, forced sexual intercourse, sexual behavior; bullying; suicide	<a href="#">Youth Risk Behavior Surveillance System</a> <sup>103</sup>
Sexual Violence and Intimate Partner Violence	# of domestic violence arrests; substantiated sexual assaults,	Local or state departments of social services or human services; Local police departments; <a href="#">Uniform Crime Reporting</a> <sup>104</sup>
Other Community Violence	Crime data, such as aggravated assaults, robbery rate, homicides per 100,000; Violent crime rates  % individuals reporting feeling safe in their community	<a href="#">Uniform Crime Reporting</a> <sup>105</sup> ; Local police departments  Local survey

<sup>103</sup>Youth Risk Behavior Surveillance System (YRBSS). *Centers for Disease Control and Prevention*. Retrieved from: <http://www.cdc.gov/healthyouth/data/yrbs/index.htm>

<sup>104</sup>Uniform Crime Reporting. *Federal Bureau of Investigation*. Retrieved from: <https://ucr.fbi.gov/>

<sup>105</sup>Uniform Crime Reporting. *Federal Bureau of Investigation*. Retrieved from: <https://ucr.fbi.gov/>

## Education

Education refers to a person’s educational attainment – the years or level of overall schooling a person has.<sup>106</sup> Individuals with higher levels of educational attainment are more likely to engage in healthy behaviors (e.g., regular physical activity, routine screenings), have better health outcomes, and live longer and accordingly is an Executive Office of Health and Human Services issue priority (increasing educational attainment).<sup>107,108</sup> Conversely, lower levels of educational attainment are associated with a higher prevalence of cardiovascular risk factors, diabetes, and obesity.<sup>109,110</sup> Children of educated adults also experience better health outcomes compared to children of less educated adults.<sup>111</sup> For example, infant mortality rates are lower among children of more educated mothers compared to children of less educated mothers.<sup>112</sup>

Communities with lower socioeconomic status and communities of color are at a disadvantage with respect to attaining high levels of education, thus contributing to health disparities.<sup>113</sup> These groups are more likely to drop out of high school and therefore less likely to complete a high school education.<sup>114</sup> As a result, investing in education helps to support health equity. Investments in education include, but are not limited to, investments in school funding and resources (e.g., teacher salaries, training, and support), improvements to school characteristics (e.g., reducing the student-to-teacher ratio), and improvements to the educational environment of the community at large (e.g., creating a library or increasing the number or availability of local newspapers).<sup>115</sup>

---

<sup>106</sup> Education and Health. Issue Brief #5 Exploring the Social Determinants of Health. *Robert Wood Johnson Foundation*. (2011, April) Retrieved from: [http://www.rwjf.org/content/dam/farm/reports/issue\\_briefs/2011/rwjf70447](http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2011/rwjf70447)

<sup>107</sup> Low MD, Low BJ, Baumler ER, Huynh PT. Can education policy be health policy? Implications of research on the social determinants of health. *J Health Polit Policy Law* 2005;30(6):1131-62.

<sup>108</sup> Mirowsky J, Ross CE. Education, social status, and health. Hawthorne, NY: Aldine de Gruyter; 2003.

<sup>109</sup> Havranek E, et al. “Social Determinants of Risk and Outcomes for Cardiovascular Disease, a Scientific Statement from the American Heart Association.” *Circulation*. 2015; 132: 873-898.

<sup>110</sup> Centers for Disease Control and Prevention. “CDC Health Disparities and Inequalities Report – United States, 2013.” *Morbidity and Mortality Weekly Report*. November 2013.

<sup>111</sup> Education and Health. Issue Brief #5 Exploring the Social Determinants of Health (2011). *Robert Wood Johnson Foundation*. Retrieved from: [http://www.rwjf.org/content/dam/farm/reports/issue\\_briefs/2011/rwjf70447](http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2011/rwjf70447)

<sup>112</sup> Braverman PA, Cubbin C, Egerter S, Williams DR, Pamuk E (2010). Socioeconomic disparities in health in the United States: what the pattern tells us. *American Journal of Public Health*. 100(1): S186-96.

<sup>113</sup> Centers for Disease Control and Prevention. “CDC Health Disparities and Inequalities Report – United States, 2013.” *Morbidity and Mortality Weekly Report*. November 2013.

<sup>114</sup> Woolf S and Braveman P (2011). Where Disparities Begin: the Role of Social and Economic Determinants--And Why Current Policies May Make Matters Worse. *Health Affairs*, 30(10): 1852-1859.

<sup>115</sup> Hillemeier M, Lynch J, Harper S, Casper M. Data Set Directory of Social Determinants of Health at the Local Level (2004). Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention.

Three of the primary pathways by which education impacts health are highlighted below:

## 1) Health knowledge and behaviors

- Education increases an individual's health knowledge, literacy, coping skills, and problem-solving skills.<sup>116</sup> This increases one's potential to control events and outcomes in life. As a result, people with higher levels of education may be better equipped to make better-informed decisions about their medical care and management. Their health knowledge, literacy, and skills also make them more likely to engage in healthy behaviors such as healthy eating, physical activity, and smoke-free living. Moreover, better-educated individuals are more likely to live in higher-income neighborhoods that support healthy behaviors because they provide access to services and amenities (e.g., stores that sell affordable, healthy foods and to safe, affordable recreational facilities and spaces) (see *Economic resources* below).<sup>117,118</sup>

## 2) Economic resources

- In today's society, economic resources are inextricably linked to education. Education provides individuals with economic advantages including better jobs, higher incomes, and economic stability.<sup>119</sup> For example, higher-educated individuals are more likely to secure higher-paying jobs with safer, less stressful working conditions than lower-paying jobs. As a result, individuals who have attained a higher level of education have a reduced risk of injury and fatality from exposure to occupational hazards and work-related psychosocial stressors compared to lower-educated individuals.<sup>120</sup>
- Education generally leads to higher incomes. Higher incomes provide individuals with economic security and housing stability, including the means to afford quality homes in safe neighborhoods with grocery stores, parks, and places to exercise.<sup>121</sup> Higher incomes promote health by enabling individuals to live in environments that make it easier for them to adopt and maintain healthy behaviors.

---

<sup>116</sup> Mirowsky J, Ross CE. Education, learned effectiveness and health. *London Rev Educ* 2005;3(3):205–20.

<sup>117</sup> Grimm KA, Moore LV, Scanlon KS. Access to health food retailers—United States, 2011. *CDC health disparities and inequalities report—United States*, 2013. *MMWR* 2013;62(3):20–6. Available at <http://www.cdc.gov/mmwr/pdf/other/su6203.pdf>. Accessed November 11, 2014.

<sup>118</sup> Powell LM, Slater S, Chaloupka FJ, et al. Availability of physical activity-related facilities and neighborhood demographic and socioeconomic characteristics: A national study. *Am J Public Health* 2006;96:1676–80.

<sup>119</sup> Why Does Education Matter So Much to Health?. *Robert Wood Johnson Foundation*. (2013, March). Retrieved from: <http://www.rwjf.org/en/library/research/2012/12/why-does-education-matter-so-much-to-health-.html>

<sup>120</sup> Education and Health. Issue Brief #5 Exploring the Social Determinants of Health. *Robert Wood Johnson Foundation*. (2011, April) Retrieved from: [http://www.rwjf.org/content/dam/farm/reports/issue\\_briefs/2011/rwjf70447](http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2011/rwjf70447)

<sup>121</sup> Diez Roux AV, Mair C. Neighborhoods and health. *Ann N Y Acad Sci* 2010;1186:125-45.

- Higher-paying jobs also provide numerous employment-based resources and benefits that lower-paying jobs do not, including health insurance, sick leave, retirement benefits, and wellness programs--all of which support and promote health.<sup>122</sup>
- Finally, higher-educated individuals are more employable (i.e., have more job skills) than less educated individuals, protecting them from unemployment and its negative effects (e.g., poorer health and higher mortality rates).<sup>123</sup>

### 3) Social and psychological factors

- Education provides individuals with a greater sense of control over one's life, a higher social standing, and a stronger social network, factors that are linked to better health, healthier lifestyle decisions, and fewer chronic conditions. In turn, strong social networks provide emotional and practical support, which contributes to good health.<sup>124</sup>

A selection of example strategies that impact education and health are provided below.

- **Dropout Prevention Programs** provide at-risk students with specific supports such as mentoring, counseling, vocational or social-emotional skills training, college preparation, supplemental academic services, or case management. Programs can be delivered in school or community settings and can focus on individual at-risk students or on entire schools with low graduation rates. These scientifically supported programs are associated with increased high school graduation rates and may reduce absenteeism. Moreover, dropout prevention programs produce economic benefits to government and society, reducing productivity loss, health care costs, crime, and welfare costs.<sup>125</sup>
- **From Neurons Neighborhoods** is a policy-oriented intervention designed by Public Health—Seattle & King County (PHSKC) that focuses explicitly on social and economic environmental factors to complement existing efforts focused on the family and individual.<sup>126</sup> The ultimate goal is “universal access” to environments that support healthy development, school readiness, and success in school. This is achieved by developing a partnership with early childhood development stakeholders, building a common knowledge base, developing and disseminating a local policy agenda informed by science, organizing support at the community level, and monitoring the policy environment.

<sup>122</sup>Gabel J, Levitt L, Holve E, Pickreign J, Whitmore H, Dhont K, et al. Job-based health benefits in 2002: some important trends. *Health Aff* 2002;21(5).

<sup>123</sup> Bartley M, Ferrie J, Montgomery SM. Health and labor market disadvantage: unemployment, non-employment, and job insecurity. In: Marmot M, Wilkinson RG, editors. *Social Determinants of Health*. 2nd ed. Oxford: Oxford University Press; 2006

<sup>124</sup> Education and Health. Issue Brief #5 Exploring the Social Determinants of Health. *Robert Wood Johnson Foundation*. (2011, April) Retrieved from: [http://www.rwjf.org/content/dam/farm/reports/issue\\_briefs/2011/rwjf70447](http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2011/rwjf70447)

<sup>125</sup> County Health Rankings & Roadmaps, Dropout Prevention Programs. (2016, July 5). Retrieved from: <http://www.countyhealthrankings.org/policies/dropout-prevention-programs>

<sup>126</sup> Horsley K, Ciske SJ. From Neurons to King County Neighborhoods: Partnering to Promote Policies Based on the Science of Early Childhood Development. *Am J Pub Health*. April 2005, Vol 95, No. 4, p. 562-567.

To better understand this health priority, a selection of example indicators and data sources related to education is provided below.<sup>127,128</sup>

<b>Component</b>	<b>Indicator</b>	<b>Data Sources</b>
Graduation rates/ Educational attainment	Educational attainment among persons aged $\geq 25$ years  Number of diploma recipients; number of other high school completers  High school graduation rates	<a href="#">Census Bureau</a> <sup>129</sup>  <a href="#">National Center for Education Statistics Common Core of Data (CCD)</a> <sup>130</sup>  <a href="#">U.S. Department of Education, No Child Left Behind</a> <sup>131</sup>  Local school districts or state department of education
Dropout rates	Percent of high-school age persons not enrolled, not high school graduates  Dropout rates for grades 7-12 and 9-12  High school dropout rates	<a href="#">Census Bureau</a> <sup>132</sup>  <a href="#">CCD Local Education Agency (School District) Universe Dropout Data</a> <sup>133</sup>  <a href="#">U.S. Department of Education, No Child Left Behind</a> <sup>134</sup>
Literacy rates	Reading assessment results  % of adults who are illiterate	<a href="#">U.S. Department of Education, No Child Left Behind</a> <sup>135</sup>

<sup>127</sup> Hillemeier M, Lynch J, Harper S, Casper M. Data Set Directory of Social Determinants of Health at the Local Level (2004). Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention.

<sup>128</sup> Community Health Assessments and Community Health Improvement Plans for Accreditation Preparation Demonstration Project Resources for Social Determinants of Health Indicators. *National Association of County & City Health Officials*. Retrieved from: <http://www.naccho.org/uploads/downloadable-resources/Final-Resources-on-Social-Determinants-of-Health-112811.pdf>

<sup>129</sup> United States Census Bureau. *U.S. Department of Commerce*. Retrieved from: <https://www.census.gov/>

<sup>130</sup> Common Core of Data (CCD). *National Center for Education Statistics*. Retrieved from: <https://nces.ed.gov/ccd/>

<sup>131</sup> Common Core of Data (CCD). *National Center for Education Statistics*. Retrieved from: <https://nces.ed.gov/ccd/>

<sup>132</sup> No Child Left Behind. *U.S. Department of Education*. Retrieved from: <http://www2.ed.gov/nclb/landing.jhtml>

<sup>133</sup> Common Core of Data (CCD): Local Education Agency (School District) Universe Survey Dropout and Completion Data. *National Center for Education Statistics*. Retrieved from: <http://nces.ed.gov/ccd/drpagency.asp>

<sup>134</sup> Common Core of Data (CCD). *National Center for Education Statistics*. Retrieved from: <https://nces.ed.gov/ccd/>

<sup>135</sup> Common Core of Data (CCD). *National Center for Education Statistics*. Retrieved from: <https://nces.ed.gov/ccd/>

		<a href="#">National Assessment of Adult Literacy</a> <sup>136</sup>
Test scores	Reading, math, and science assessment results  Average SAT/ACT scores	<a href="#">MCAS</a> <sup>137</sup> ; <a href="#">U.S. Department of Education, No Child Left Behind</a> <sup>138</sup>  <a href="#">College Board</a> <sup>139</sup>
Post secondary education	Post-secondary enrollment	<a href="#">Census Bureau</a> <sup>140</sup>
Absenteeism	Truancy/absenteeism rates	State department of education; Local school districts
School readiness	% of children who attend licensed preschool programs; % of households with children ages 2-5 years where children are read to or told stories every day by a family member	Local surveys; Local school districts or state departments of education

<sup>136</sup>National Assessment of Adult Literacy (NAAL). *National Center for Education Statistics*. Retrieved from: <https://nces.ed.gov/naal/>

<sup>137</sup> Massachusetts Comprehensive Assessment System. *Mass.gov*. Retrieved from: <http://www.doe.mass.edu/mcas/>

<sup>138</sup> Common Core of Data (CCD). *National Center for Education Statistics*. Retrieved from: <https://nces.ed.gov/ccd/>

<sup>139</sup> College Starts Here. *College Board*. Retrieved from: <https://www.collegeboard.org/>

<sup>140</sup> No Child Left Behind. *U.S. Department of Education*. Retrieved from: <http://www2.ed.gov/nclb/landing.jhtml>

## Employment

Employment, the availability of safe, stable, quality, well-compensated work for all people<sup>141</sup> impacts health in many ways. Jobs that protect against exposure to physical risks and hazards; environments that support healthy activities and behaviors; organizational structures that limit stress; and wages, salaries, and benefits that protect against poverty and support and promote health,<sup>142</sup> are key to individual and community health.

Unemployment –the inability to secure any job – is associated with poor health, including increased stress, high blood pressure, heart disease, stroke, arthritis, and depression and, accordingly, **is an Executive Office of Health and Human Services issue priority (increasing job skills and life skills training)**.<sup>143</sup> Unemployment can lead to homelessness, which has additional negative health consequences (see *Housing* for more information). Employment and education are intertwined, with education providing opportunities for people to obtain safe, quality, fairly compensated work (see *Education* for more information).<sup>144</sup>

Racial and ethnic minorities are more likely than non-Hispanic whites to earn less income, live in poverty, and experience unemployment. As a result, they have higher rates of poor health outcomes and mortality.<sup>145,146,147,148,149</sup> Unable to access safe, high-paying jobs, these communities also make up a substantial portion of the “working poor.”<sup>150</sup> The working poor are at a disadvantage with respect to many elements of employment (e.g., their jobs are less likely to pay well and/or offer health insurance and other benefits and are more likely to put them at risk of exposure to occupational hazards), thus contributing to health disparities. Consequently, investing in employment is a matter of health equity.

---

<sup>141</sup> Employment - Why Is Employment Important to Health?. *County Health Rankings*. (2016) Retrieved from: <http://www.countyhealthrankings.org/our-approach/health-factors/employment>

<sup>142</sup> Work, Workplaces and Health. Issue Brief #9 Exploring the Social Determinants of Health (2011). *Robert Wood Johnson Foundation*. Retrieved from: [http://www.rwjf.org/content/dam/farm/reports/issue\\_briefs/2011/rwjf70459](http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2011/rwjf70459)

<sup>143</sup> How does Employment--or Unemployment--Affect Health? (2013). Health Policy Snapshot Public Health and Prevention. *Robert Wood Johnson Foundation*. Retrieved from: [http://www.rwjf.org/content/dam/farm/reports/issue\\_briefs/2013/rwjf403360](http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2013/rwjf403360)

<sup>144</sup> Why Does Education Matter So Much to Health? (2013). *Robert Wood Johnson Foundation*. Retrieved from: <http://www.rwjf.org/en/library/research/2012/12/why-does-education-matter-so-much-to-health-.html>

<sup>145</sup> Woolf S and Braveman P. “Where Disparities Begin: the Role Of Social And Economic Determinants – And Why Current Policies May Make Matters Worse.” *Health Affairs* 30, no. 10 (2011): 1852-1859.

<sup>146</sup> Hahn R, Eaker E, Barker N, Teutsch S, Sosniak W, Krieger N. “Poverty and Death in the United States – 1973 and 1991.” *Epidemiology* 1995; 6: 490-497.

<sup>147</sup> VCU Center on Human Needs. “Project on Societal Distress – Income in the United States.” October 2010 Robert Wood Johnson Foundation (RWJF). “Issue Brief #1: Exploring the Social Determinants of Health: What Shapes Health-Related Behaviors?” March 2011

<sup>148</sup> Centers for Disease Control and Prevention. “CDC Health Disparities and Inequalities Report – United States, 2013.” *Morbidity and Mortality Weekly Report*. November 2013

<sup>149</sup> Employment - Why Is Employment Important to Health?. *County Health Rankings*. Retrieved from: <http://www.countyhealthrankings.org/our-approach/health-factors/employment>

<sup>150</sup> Wicks-Lim, Jeannette (2012). The Working Poor A Booming Demographic. *New Labor Forum*. 21(3): 17-25. Retrieved from: <http://nlf.sagepub.com.ezproxy.bu.edu/content/21/3/17.full.pdf+html>



Below are examples of specific components of employment that impact health:

## 1) Physical aspects of work and the workplace

- The physical aspects of both the type of work and the workplace in which the work is conducted can influence a person's risk of physical injury and illness. For example, physically demanding jobs or jobs with uncomfortable working positions can put workers at risk of physical injury, while sedentary jobs put workers at an increased risk of obesity and chronic disease.<sup>151</sup> Moreover, workplaces with inadequate ventilation and/or temperature control issues can contribute to allergies and asthma, while workplaces with loud noises, lead, pesticides, aerosols, ammonia, cleaning products, asbestos, etc. can have dangerous health consequences for employees long-term.<sup>152</sup>

## 2) Psychosocial aspects of work and how work is organized

- An employee's work schedule, commute, level of decision-making authority, perceived balance between effort and reward (e.g., earnings, benefits, esteem, job security, and career opportunities), ability to contribute to and influence work-related decisions, quality of workplace relationships (e.g., whether or not filled with respect, transparency, and fairness), level of social support at work, and perceptions of gender and racial discrimination in the workplace all impact physical and mental health.<sup>153</sup> For example, evening and night shift workers are subject to fatigue, disturbances in their circadian rhythms, and sleep deprivation.<sup>154</sup> Employees with little to no decision-making authority are more likely to experience psychological distress, and are at an increased risk of chronic illness (e.g., cardiovascular disease) and unhealthy coping behaviors (e.g., smoking).<sup>155</sup> Moreover, workplaces with high levels of social support positively impact employees' mental health, while workplaces with low levels can have detrimental effects such as an increased risk of psychiatric disorders.<sup>156</sup>

---

<sup>151</sup> Warburton DE, Nicol CW, Bredin SS. "Health Benefits of Physical Activity: The Evidence," *Canadian Medical Association Journal* , 174(6): 801-9, 2006

<sup>152</sup> Robinson JC. "Hazardous Occupations within the Job Hierarchy." *Industrial Relations* , 27(2), 1988.

<sup>153</sup> Work, Workplaces and Health. Issue Brief #9 Exploring the Social Determinants of Health (2011). *Robert Wood Johnson Foundation*. Retrieved from: [http://www.rwjf.org/content/dam/farm/reports/issue\\_briefs/2011/rwjf70459](http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2011/rwjf70459)

<sup>154</sup> Spurgeon A, Harrington JM, Cooper CL. "Health and Safety Problems Associated with Long Working Hours: A Review of the Current Position." *Occupational and Environmental Medicine* , 54(6): 367-375, 1997.

<sup>155</sup> Karasek RA and Theorell T. *Healthy Work: Stress, Productivity and the Reconstruction of Working Life* . New York: Basic Books, 1990.

<sup>156</sup> Stansfeld S, Shipley M, Marmot M. "Work Characteristics Predict Psychiatric Disorders: Prospective Results from the Whitehall II Study." *Occupational and Environmental Medicine*, 56, 1999



### 3) Work-related resources and opportunities

- The resources and opportunities made available to employees through their jobs also impact health. These resources and opportunities include income, health insurance, wellness programs, sick leave, personal leave, child and elder care resources, and retirement benefits.
- Employees' income levels and health insurance benefits directly impact health by determining people's access to medical care; higher paid individuals and those working at jobs with insurance benefits having increased access.<sup>157</sup> High income levels provide economic security, educational opportunities, and housing stability, in safe neighborhoods, with sound school systems, grocery stores, and places to exercise with connected health outcomes.<sup>158</sup> Therefore, higher incomes promote health by enabling individuals to live in environments that make it easier for them to adopt and maintain healthy behaviors.
- Work-based benefits beyond income like health insurance, wellness programs, sick leave, personal leave, child and elder care resources, and retirement benefits also promote health by providing employees with the time, flexibility, financial means, and resources to support their health and accommodate any health-related issues they may face.<sup>2</sup> Unfortunately, lower-paying jobs are less likely to offer these benefits, and therefore low-wage workers – much of whom make up the working poor – are disproportionately exposed to health-impairing working conditions.

S strategies that impact employment and health are provided below:

- **Vocational training for adults** supports acquisition of job-specific skills through education, certification programs, or on-the-job training. Programs may also include training and assistance in job searches, personal development resources, and other comprehensive support services (e.g., child care during training). Some programs provide participants with financial compensation for the duration of their participation. Expected benefits of vocational training for adults include increased employment and increased earnings, and other potential benefits include reduced recidivism. Moreover, this strategy is likely to decrease disparities.<sup>159</sup>
- **Multi-component workplace supports for active commuting and worksite obesity prevention interventions** are examples of strategies that change the working environment to make it easier to eat well and be more physically active throughout the

---

<sup>157</sup> Work, Workplaces and Health. Issue Brief #9 Exploring the Social Determinants of Health (2011). *Robert Wood Johnson Foundation*. Retrieved from: [http://www.rwjf.org/content/dam/farm/reports/issue\\_briefs/2011/rwjf70459](http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2011/rwjf70459)

<sup>158</sup> Education and Health. Issue Brief #5 Exploring the Social Determinants of Health (2011). *Robert Wood Johnson Foundation*. Retrieved from: [http://www.rwjf.org/content/dam/farm/reports/issue\\_briefs/2011/rwjf70447](http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2011/rwjf70447)

<sup>159</sup> County Health Rankings & Roadmaps- What Works for Health: Vocational training for adults. (2014, April 8). Retrieved from: <http://www.countyhealthrankings.org/policies/vocational-training-adults>

day. Multi-component workplace supports could mean investing in the physical infrastructure to make it possible to bike to work (bike parking, shower facilities) as well as financial incentives such as bicycle commuting reimbursements. Similarly worksite obesity interventions can work to change increase availability of healthy food in cafeterias and vending machines and support active workplaces through modifications to workstations or making it easier to use stairs. These interventions provide the opportunity for hospitals to work in collaboration with public and private employers.<sup>160</sup>

To better understand this health priority, a selection of example indicators and data sources related to employment is provided below.<sup>161</sup>

<b>Component</b>	<b>Indicator</b>	<b>Data Sources</b>
Unemployment rates	Unemployment rates (total, by race/ethnicity, sex, occupation, and industry)	<a href="#">MA Labor Workforce and Development</a> <sup>162</sup> <a href="#">Bureau of Labor Statistics, Local Area Series</a> <sup>163</sup>
Labor market turnover	Labor force participation rates (total, by race/ethnicity and sex)	<a href="#">Bureau of Labor Statistics, Geographic Profile Series</a> <sup>164</sup>
Workforce Characteristics - Racial/ethnic/gender diversity	Percent distribution of employed persons by sex, race/ethnicity, and occupation	<a href="#">Bureau of Labor Statistics, Geographic Profile Series</a> <sup>165</sup>
Full vs. part-time employment	Percent of workers who work part-time	<a href="#">Census Bureau</a> <sup>166</sup>
Work-related injuries	Number and rate of hospitalizations and emergency department visits for work-related injuries	Counts: CHIA Case Mix data Denominator data: American Community Survey

<sup>160</sup> County Health Rankings & Roadmaps- What Works for Health: <http://www.countyhealthrankings.org/policies/worksite-obesity-prevention-interventions> (2014, January 18) and <http://www.countyhealthrankings.org/policies/multi-component-workplace-supports-active-commuting> (2015, July 15).

<sup>161</sup> Hillemeier M, Lynch J, Harper S, Casper M. Data Set Directory of Social Determinants of Health at the Local Level (2004). Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention.

<sup>162</sup> Labor and Workforce Development. *Mass.gov*. Retrieved from: <http://www.mass.gov/lwd/>

<sup>163</sup> Local Area Unemployment Statistics. *Bureau of Labor Statistics*. Retrieved from: <http://www.bls.gov/lau/>

<sup>164</sup> Geographic Profile of Employment and Unemployment. *Bureau of Labor Statistics*. Retrieved from: <http://www.bls.gov/gps/>

<sup>165</sup> Geographic Profile of Employment and Unemployment. *Bureau of Labor Statistics*. Retrieved from: <http://www.bls.gov/gps/>

<sup>166</sup> United States Census Bureau. *U.S. Department of Commerce*. Retrieved from: <https://www.census.gov/>

Work-related exposures to hazardous chemicals	Number and rate of elevated blood lead levels in adults	Counts: MA Occupational Lead Poisoning Registry Denominator data: American Community Survey
Fatal work-related injuries	Number and rate fatal occupational injuries	Counts: Census of Fatal Occupational Injuries Denominator data: American Community Survey

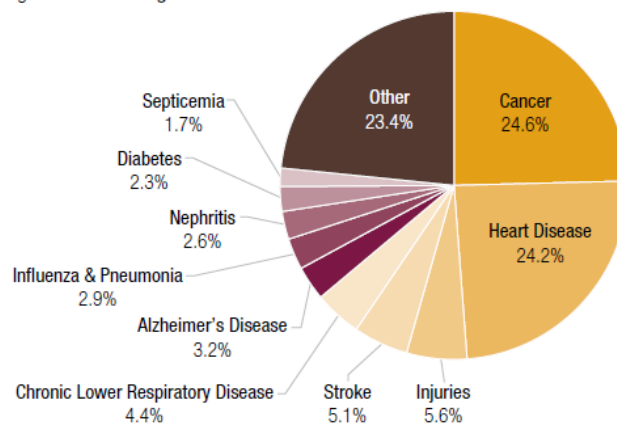
## Rationale for Current EOHHS/DPH Focus Issues

The four (4) EOHHS/DPH Issue Priorities are included for three primary reasons: 1. They are trending negatively, 2. They represent issues that are driving mortality/morbidity and health care cost, and 3. Are either a social determinant of health (e.g. housing stability/homelessness) or are issues that are sustainably addressed using a social determinant of health approach (e.g. prevention of heart disease and diabetes requires addressing opportunities for physical activity and access to healthy food). A summary of each of the issues is as follows:

### Chronic Disease with a focus on Cancer, Heart Disease and Diabetes

Cancer, Diabetes, and Heart Disease make up over 50% of deaths in Massachusetts.<sup>167</sup> Further as depicted in the Health Policy Councils Cost Trends report, many of the top 20 most costly drug classes are for these conditions – accounting for over \$2.028 billion spent in MA each year.<sup>168</sup> These costs are also rising dramatically – costs for diabetes medications alone have increased by over 80% over the past four (4) years costing \$582.8 Million in 2014.

Figure 14.2 Leading Causes of Death



Source: MDPH Death File, 2007.

These conditions are also trending negatively: the number of Americans with diabetes will range from 1 in 3 to 1 in 5 by 2050 (1 in 10 U.S. adults has diabetes now). The prevalence is expected to rise sharply over the next 40 years due to an aging population. These conditions also represent prime examples of health disparities. For example, diabetes is the 4<sup>th</sup> leading cause of death among Black and Hispanic MA residents (as opposed to 9<sup>th</sup> among whites). The reasons for these disparities are rooted in inequitable access to health promoting opportunities, therefore the strategies designed to address these outcomes should have a social determinant of health focus.

<sup>167</sup> Massachusetts Department of Public Health. Health of Massachusetts. Boston, MA; April 2010

<sup>168</sup> Health Policy Commission 2015 Cost Trends Report

## **Housing Stability/Homelessness**

While the health impacts of housing are more generally described in the Housing Health Priority section, DPH is further highlighting the importance of housing stability and homelessness on health outcomes. Simply, there is a housing affordability and homelessness crisis in Massachusetts. Nearly half of renters and 30 percent of homeowners in Massachusetts are “burdened” by housing costs – they spend more than 30 percent of their income on housing. In fact, in the metro Boston region, paying 40-50% of total income on housing is more common among renters (a quarter of renters put at least half of their total income to rent).<sup>169</sup> Regarding homelessness, the number of children and youth who are homeless (including those in doubled-up housing situations) has increased steadily. The number of homeless children attending school in 2014-15 was 49 percent higher than in 2009-10. Further, according to the Department of Housing and Urban Development, Massachusetts was among the top 5 states for increases in homelessness (39.7%) between 2007-2015.<sup>170</sup> It is important to note that Massachusetts is the only state with a law that requires that homeless families have a “right to shelter” and funds family shelters, which likely contributes to better measurement and data collection than other states. In addition, Massachusetts was one of just 5 states that accounted for more than half of all homeless people in families with children. Between 2007 and 2015, Massachusetts saw the second highest increase in the nation of homeless people in families with children (a 116% increase).<sup>171</sup>

While most homeless people in Massachusetts are in families, chronically homeless individuals have the most complex health needs. In a 2013 analysis of MassHealth costs and utilization, Boston HealthCare for the Homeless found that the homeless had higher rates of mental and physical health needs, and also greater health care costs.<sup>172</sup> Clearly, strategies designed to make housing more affordable, available and stable for low-income persons and communities of color and strategies that strive to create supportive living environments for homeless families and individuals will produce lasting and positive health impacts for the state.

## **Mental illness and Mental health**

Mental health is defined by the World Health Organization as a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work

---

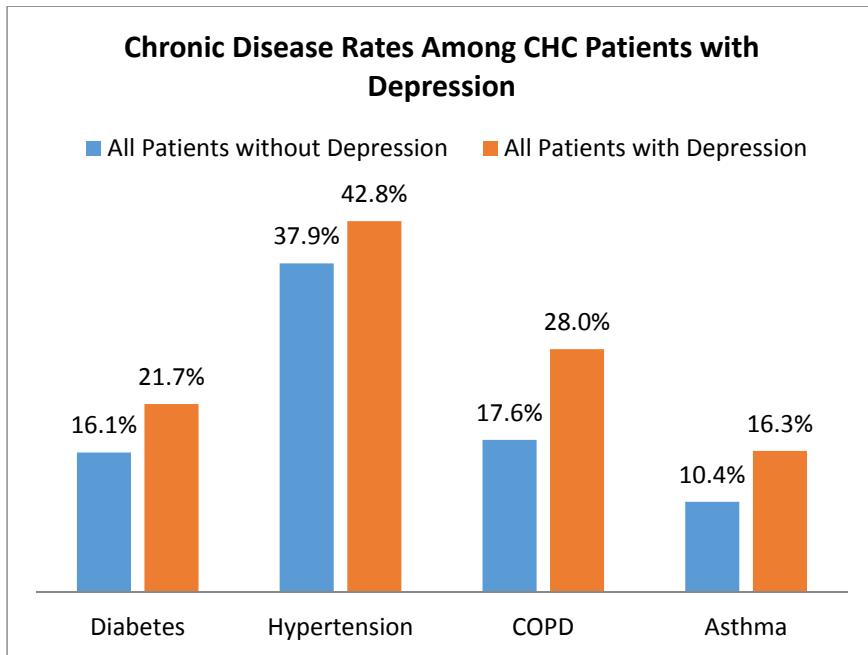
<sup>169</sup> Metropolitan Area Planning Council (2011). State of Equity in Metro Boston Indicators Report.

<sup>170</sup> 2015 AHAR: Part 1 - PIT Estimates of Homelessness in the U.S. accessed at <https://www.hudexchange.info/resource/4832/2015-ahar-part-1-pit-estimates-of-homelessness/>

<sup>171</sup> 2015 AHAR: Part 1 - PIT Estimates of Homelessness in the U.S. accessed at <https://www.hudexchange.info/resource/4832/2015-ahar-part-1-pit-estimates-of-homelessness/>

<sup>172</sup> Bharel Monica et al. (2013) Health care utilization patterns of homeless individuals in Boston: Preparing for Medicaid expansion under the Affordable Care Act. Am J Public Health. 2013 December; 103(Suppl 2): S311–S317.

productively and fruitfully, and is able to make a contribution to his or her community.<sup>173</sup> DPH is highlighting mental health for a number of reasons. Mental health is highly correlated to the occurrence and treatment for many chronic diseases as well as highly correlated with the risk factors that lead to chronic disease (i.e. physical inactivity, smoking and alcohol use)<sup>174</sup>. For example, persons with poor mental health are over twice as likely to be a current smoker (11% vs. 29%).<sup>175</sup> As another example and as depicted in the following graph, patients with diagnoses of depression at Massachusetts community health centers also exhibited consistently higher rates of chronic conditions.<sup>176</sup>



Additionally, it is unlikely that strategies designed to impact the social determinants of health will be successful without recognizing the importance of optimal mental health. For example, and as depicted in the following graph, persons with mental health conditions are less likely to have completed high school and Massachusetts residents with mental health conditions are twice

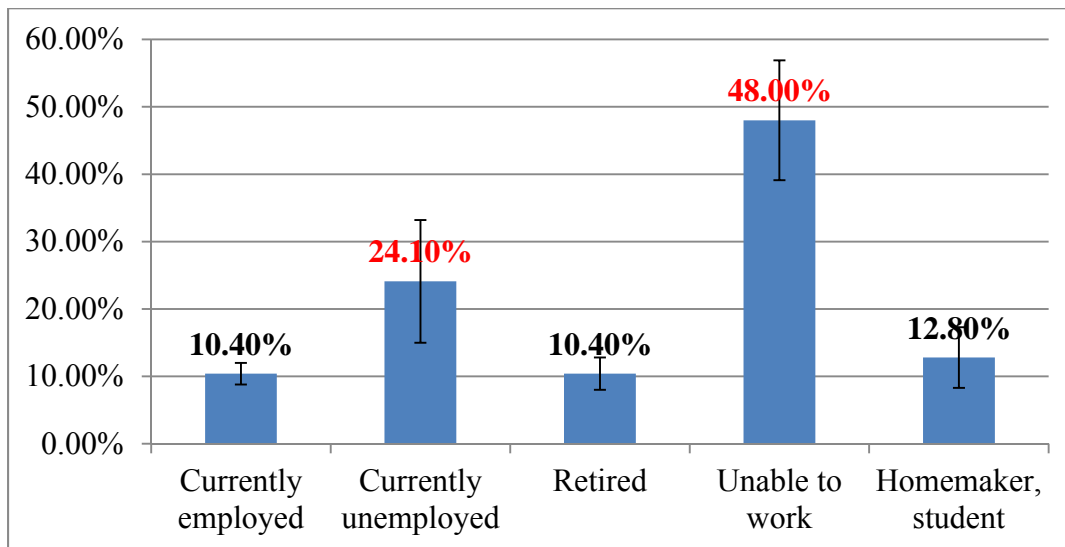
<sup>173</sup> World Health Organization. Strengthening Mental Health Promotion. Geneva, World Health Organization (Fact sheet no. 220), 2001.

<sup>174</sup>Centers for Disease Control and Prevention. Mental Health Basics <https://www.cdc.gov/mentalhealth/basics.htm> accessed December 22nd, 2016.

<sup>175</sup> WEAT - BRFSS Web Enabled Analysis Tool - 2015 BRFSS Data (Land Line/Cell Phone Combined) - Massachusetts

<sup>176</sup> 2013 Community Health Information Association Data Reporting and Visualization System (CHIA DRVS)

as likely to be unemployed vs employed and four times as likely to be unable to work vs. employed.<sup>177</sup>



*\*Significant at the  $p \leq .05$  level, The percent is based on Behavioral Risk Factor Surveillance System (BRFSS) responses for the 3 most recent years available*

In terms of cost, mental health disorders represent the most expensive medical condition in the northeast region costing over \$33 Billion annually. Clearly, a public health approach to promoting mental health and wellness, one that focuses on creating conditions (and not solely treatment) for emotional, psychological and social well-being will have positive impacts on communities in the state.

## Substance use disorders (SUDs)

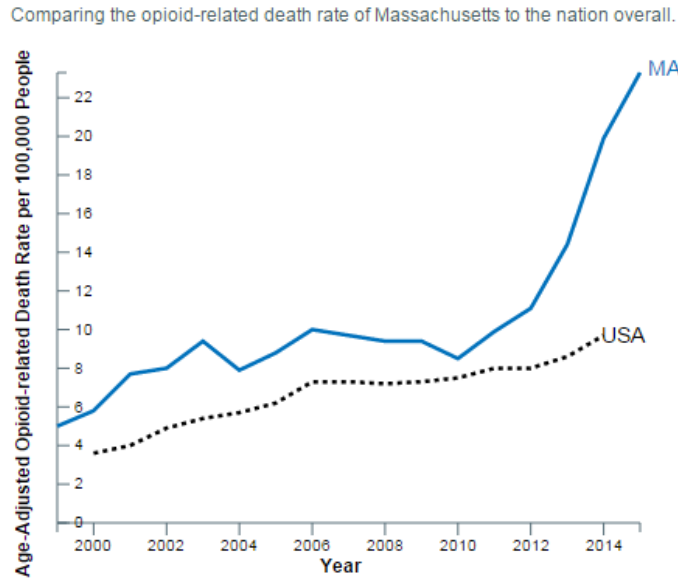
The impact of the opioid epidemic in Massachusetts is clear. While best depicted in “Massachusetts Opioid Epidemic: A data visualization of findings from the Chapter 55 report”<sup>178</sup> this issue is summarized and highlighted here. Opioid-related deaths in the state were more than four times higher in 2015 than in 2000. This recent rate of increase is several times faster than anything seen here before. In 2013–2014 alone, opioid-related deaths occurred in two-thirds of the cities and towns in Massachusetts. While this issue is national, Massachusetts stands out for the alarming death rate trend.<sup>179</sup> Further, in 2014, Massachusetts had the highest rate of opioid

<sup>177</sup> Agency for Healthcare Research and Quality. Total Expenses and Percent Distribution for Selected Conditions by Type of Service: United States, 2014. Medical Expenditure Panel Survey Household Component Data. Generated interactively. (December 22, 2016)

<sup>178</sup> <http://www.mass.gov/chapter55/>

<sup>179</sup> Centers for Disease Control and Prevention, National Center for Health Statistics. Multiple Cause of Death 1999-2014 on CDC WONDER Online Database, released 2015 and Massachusetts Registry of Vital Records and Statistics, Massachusetts Department of Public Health.

emergency department visits in the nation, at over twice the national rate and fourteen times the lowest rate.<sup>180</sup>



As stated in Chapter 55 of the Acts of 2015, “Addiction to opioids can put people at greater risk for infectious diseases like HIV or hepatitis, deteriorating conditions like cirrhosis or cognitive decline, family disruption like domestic violence or child abuse, job loss, exposure to criminal behavior, overdose, and death.” All DoN Applicants should be considering the impact of this crisis on their communities and considering strategies designed to prevent substance use disorders.

---

<sup>180</sup>Healthcare Cost and Utilization Project. Statistical Brief #219. <http://www.hcup-us.ahrq.gov/reports/statbriefs/sb219-Opioid-Hospital-Stays-ED-Visits-by-State.pdf>



# Community Health Initiative (CHI) Strategy Selection

## Overview of Criteria

All proposed CHI strategies must be submitted to DPH for review and approval. For a proposed CHI strategy to be approved it must meet the following four (4) criteria:

1. *The strategy must impact one or more of the six DoN Health Priorities*
2. *The strategy must be evidence-informed or evidence-based.*
3. *The strategy must be either a “total population/community-wide prevention” strategy and/or an “innovative community-clinical linkage” intervention.*
4. *The strategy must be feasible and impactful as it relates to reach, population, and community support, with a focus on reducing health inequities.*

Evidence demonstrating how the proposed strategy fulfills each of these requirements must be submitted to DPH for approval via the *DoN Health Priorities Selection* form (See Appendix A). Each of the submission criteria are explained in-depth in this section.

1.	2.	3.	4.
Impact on Health Priorities	Evidence	Bucket of Prevention	Strategy Feasibility & Impact
<input type="checkbox"/> One or more	<input type="checkbox"/> One or more	<input type="checkbox"/> One or more	<input type="checkbox"/> Account for all
<input type="checkbox"/> Logic model/causal pathway	<input type="checkbox"/> Proven (evidence-informed)	<input type="checkbox"/> Bucket 2: Innovative Community/Clinical Linkage <input type="checkbox"/> Bucket 3: Total Population or Community-Wide Prevention	<input type="checkbox"/> Reach <input type="checkbox"/> Population/community to be impacted <input type="checkbox"/> Political will/community support
<input type="checkbox"/> Literature/evidence documenting impact of strategy on SDH(s)	<input type="checkbox"/> Prove It (evidence-based)		

# 1. Health Priority Impact

*The strategy must impact one or more of the six DoN Health Priorities.*

Applicant must demonstrate that the proposed strategy impacts one or more of the six DoN (6) Health Priorities.

Additionally, eligible strategies include, but are not limited to, strategies that directly align with and emphasize:

Current EOHHS/ DPH

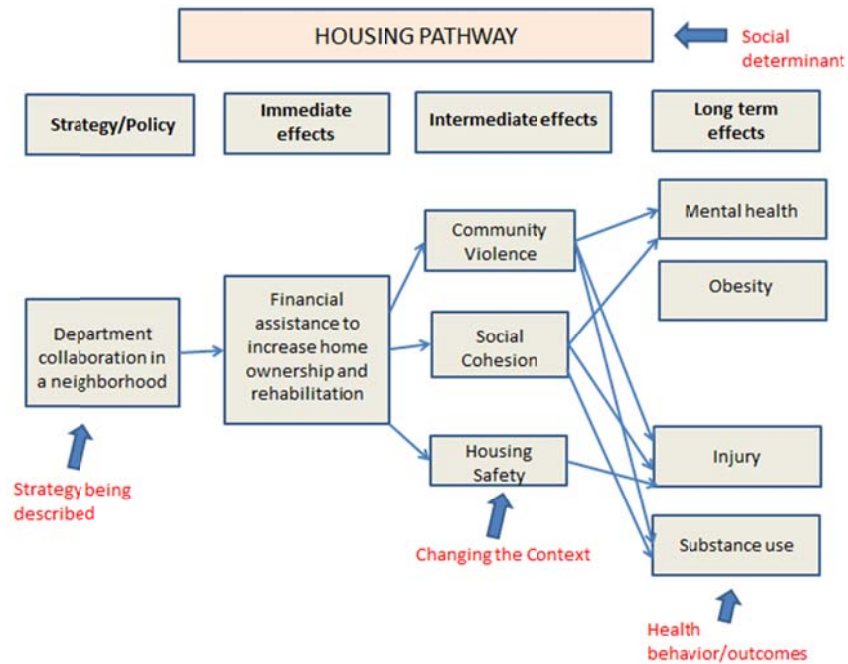
Focus Issues:

- 1) Substance use disorders (SUDs)
- 2) Housing Stability/Homelessness
- 3) Mental illness and mental health
- 4) Chronic disease with a focus on Cancer, Heart Disease and Diabetes



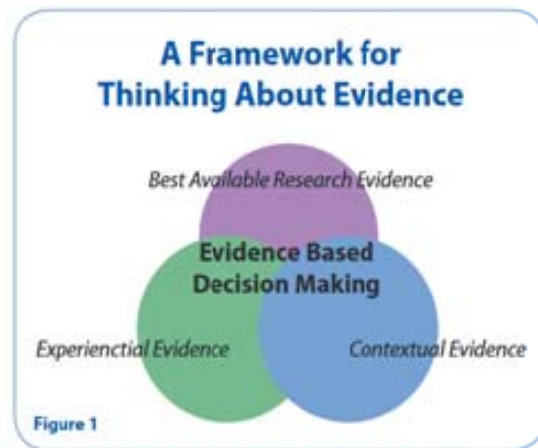
Applicants are directed to review their CHNA/CHIP work to identify areas of overlap with these issues, ensuring that the strategies designed to impact these issues meet the remaining criteria detailed in this document. If overlap does exist, DPH will expect that Applicants first consider these priorities and strategies. Ultimately, the choice of strategies is a local decision as long as the strategies meet the criteria in this Guideline. DPH will review summary information on these issues provided by the Applicant in the *Community Engagement Self-Assessment* form (used by the Applicant to self-assess their CHNA) and the *Health Priority Strategy Selection* form (used by the Applicant to describe the strategies proposed for CHI funding). Documentation of a strategy impacting the DoN Health Priorities can be provided in **one of two forms**:

**Option A)** Submission of a logic model or causal pathway (see image below) that visually demonstrates the link between a cause (social determinant), the proposed strategy, and the intended outcome (e.g., health behavior or health outcome). The logic model should highlight how the strategy changes the context of the SDH, leading to the proposed outcome(s) (including short- and long-term effects). It should clearly communicate the relationship between the proposed strategy activities, outputs, and intended outcomes. A proposed strategy may impact more than one SDH. Separate logic models for each SDH *or* a single, combined logic model clearly conveying the strategy's impact on each SDH can be submitted.



- OR -

**Option B)** Reference to peer-reviewed-literature and other evidence documenting the impact of the strategy on the DoN Health Priorities. For example, the Centers for Disease Control and Prevention’s (CDC) Health Impact in 5 Years (HI-5) initiative highlights strategies that have been shown to impact the SDH and provides the evidence-base. In addition, CDC’s Community Health Improvement Navigator (CHI Navigator) provides a database of interventions that have demonstrated impact on socioeconomic factors and the physical environment. The Robert Wood Johnson Foundation’s (RWJF) County Health Rankings and Roadmaps *What Works for Health* provides information to help select and implement evidence-informed policies, programs, and system changes that will improve the variety of factors known to affect health, including SDH. Applicants are required to cite the literature demonstrating the impact of their proposed strategy on the selected DoN Health Priorities from one of the aforementioned sources or another comparable source. Applicants will submit a brief



\*Source: Centers for Disease Control and Prevention

narrative describing the literature with a focus on how the strategy *changes the context* of the SDH (e.g. this option is simply the narrative form of Option A, logic model/causal pathway).

For both Option A and Option B, DPH directs the Applicant to identify the health inequity that is being changed by the proposed strategy. By focusing on the DoN Health Priority, Applicants can direct attention and funds to address policies and practices that have produced inequities.

## 2. Evidenced Base

### ***The strategy must be shown through evidence-informed or evidence-based information to impact health outcomes***

Each strategy must, in addition to impacting a DoN Health Priority(ies), be linked with one or more *health outcome(s)*. Proposed strategies must be well-informed by the best available research evidence (evidence-informed) or have a strong evidence-base. Further, local experience and expertise (e.g., cultural appropriateness, community conditions, professional insight) should be combined with the best available evidence from research (e.g., peer-reviewed literature, systematic reviews, best practice literature) to provide a strong rationale for how the strategy is linked to the health outcome(s).

Documentation of an evidence base can be provided in one of two forms:

**Option A) “Proven”:** Include a brief summary of the evidence base as outlined by the trusted source, making sure to clearly state the assigned evidence-base score/ranking for that strategy. Examples of sources to assess evidence of effectiveness include the Robert Wood Johnson Foundation’s *What Works for Health*<sup>181</sup> and The Community Guide<sup>182</sup> (see below). Comparable sources may be considered at the discretion of the review team.

- [\*What Works for Health\*](#) strategies have been reviewed and assigned an evidence rating based on the quantity, quality and findings of relevant research. There are six evidence ratings that range from scientifically supported (strongest) to evidence of ineffectiveness (weakest). DPH will review strategies falling under the three highest levels:
  - **Scientifically Supported:** Strategies with this rating are most likely to make a difference. These strategies have been tested in multiple robust studies with consistently positive results.

---

<sup>181</sup> County Health Rankings & Roadmaps - What Works for Health. *Robert Wood Johnson Foundation*. Retrieved from: <http://www.countyhealthrankings.org/roadmaps/what-works-for-health>

<sup>182</sup> The Community Guide. *USA.gov*. Retrieved from: <https://www.thecommunityguide.org/>

- **Some Evidence:** Strategies with this rating are likely to work, but further research is needed to confirm effects. These strategies have been tested more than once and results trend positive overall.
- **Expert Opinion:** Strategies with this rating are recommended by credible, impartial experts but have limited research documenting effects; further research, often with stronger designs, is needed to confirm effects.
- [The Community Guide](#) conducts systematic reviews of interventions in many topic areas to learn what works to promote public health. For each particular topic, reviews identify all relevant studies, assess their quality and summarize the evidence to help make sense of large bodies of scientific literature. Findings are described as Recommended, Recommended Against or Insufficient Evidence.
  - DPH will review Recommended strategies, which means the systematic review of available studies provides strong or sufficient evidence that the intervention is effective.

**Option B) “Prove It”:** In the absence of an existing analysis, Applicants can submit a brief statement that includes citations (e.g., local studies, peer-reviewed articles, literature reviews) that clearly demonstrates the strategy is backed by evidence. The evidence should highlight the health outcome(s) that have been linked to the strategy.

An example of a strategy that meets the “Proven” criteria is a rapid re-housing program that provides support services to move families or individuals experiencing homelessness into permanent housing, usually within 30 days.<sup>183</sup> *What Works for Health* rates this strategy as having Some Evidence, therefore meeting the evidence requirement.<sup>184</sup>

### 3. Buckets of Prevention

*The strategy must be either a ‘total population/community-wide prevention’ strategy and/or an ‘innovative community-clinical linkage’ intervention.*

CDC has developed a conceptual population health and prevention framework with three (3) categories—or “buckets”—of prevention.<sup>185</sup> CHI investments that focus on community-based strategies remains a guiding principle under the new regulation. Using the Buckets of Prevention, DPH will review only strategies that address: **Bucket 2: Innovative Community-Clinical Linkages, and/or Bucket 3: Total Population or Community-Wide Prevention.**

<sup>183</sup> County Health Rankings & Roadmaps - What Works for Health: Rapid re-housing programs. (2016, August 5) Retrieved from: <http://www.countyhealthrankings.org/policies/rapid-re-housing-programs>

<sup>184</sup> County Health Rankings & Roadmaps - What Works for Health: Rapid re-housing programs. (2016, August 5) Retrieved from: <http://www.countyhealthrankings.org/policies/rapid-re-housing-programs>

<sup>185</sup> Auerbach J. The 3 Buckets of Prevention. *J Public Health Management Practice*, 2016, 22(3), 215-218.

## THE 3 BUCKETS OF PREVENTION



\* Adapted from Auerbach, J. The 3 Buckets of Prevention.[Editorial] *Journal of Public Health Management & Practice*. 22(3):215-218, May/June 2016.

**Bucket 2:** Innovative community-clinical linkage strategies allow for the opportunity to extend care and prevention activities from the clinical to community setting. They include interventions that occur in community settings, but that impact clinical outcomes (offering a “community-clinical linkage”). As defined by Agency for Healthcare Research and Quality (“AHRQ”), community-clinical linkage strategies can include coordinating services at a given location, establishing new evidence based programs at non-clinical organizations, coordinating services between different locations, and/or establishing referral protocols to connect patients with resources outside the clinic.<sup>186</sup> These strategies are intended to 1) better equip high risk individuals to make critical lifestyle changes related to unhealthy behaviors, 2) expand access to a menu of evidence based services that clinicians cannot provide themselves, but may want to refer patients to, 3) build partnerships and capacity with community organizations to offer these kinds of evidence based services, and 4) create established protocols to connect community organizations with the patients for whom their evidence-based programs were designed. Community-clinical linkage strategies supported by CHI resources must be implemented in a way that improves these linkages beyond the applicant’s patient panel and occur in the community. Further, the strategy must be designed to address one or more of the SDHs that comprise the DoN Health Priorities. This means the strategy works to change the context of the SDH for the population being served. Examples are strategies that use community health workers to assess the home for asthma triggers as a way to augment control of asthma.

<sup>186</sup> Clinical-Community Linkages. Content last reviewed June 2015. Agency for Healthcare Research and Quality, Rockville, MD. <http://www.ahrq.gov/professionals/prevention-chronic-care/improve/community/index.html>



**Bucket 3:** Total population or community-wide prevention strategies include those that are not oriented to a single patient or even to all those within a practice or covered by a given insurer. Rather, the target is an entire population or subpopulation typically identified by a geographic area such as a neighborhood, city, or county. Interventions and strategies occur in such settings as the community, school, or workplace and are policy, systems or environmental (PSE) changes that change the context of the SDH for all populations. Examples include the passage of smoke-free ordinances that allow an entire community to breathe smoke free air and a school-based policy to increase physical activity among children.

#### **4. Strategy Feasibility and Impact**

*“The strategy must be feasible and impactful as it relates to reach, population, and community support, with a focus on reducing health inequities.”*

Applicants must address each of the following elements: Reach; Population/community to be impacted; and Community support. Applicants must include a description of each as they relate to any chosen strategy.

**Reach:** To maximize impact on population health, there is growing recognition of the importance of community-wide strategies that aim to address policies, systems and environments. When considering the reach of proposed strategies, Applicants must consider maximum reach, that is, the percent of the population that can potentially be impacted by the strategy. However, Applicants are also directed to consider how a community-wide strategy addresses health inequities and should be choosing strategies that impact broad numbers of people while also addressing underlying inequities. This is particularly important for Bucket 3 strategies.

**Population/community to be impacted:** Applicants must identify how/if a priority population(s) identified in the CHNA will be impacted by the proposed strategy. Priority populations are those that are determined through the use of community and patient level data to be most at-risk and/or experiencing disparities in outcomes. DPH requires that CHNAs, at a minimum, include an assessment of the following populations: people with disabilities, low-income, limited-English and communities of color, Additionally, DPH will require a summary statement of how populations are being impacted by Substance Use, Housing Stability/Homelessness, Mental illness and mental health and Chronic Disease with a focus on Cancer, Heart Disease and Diabetes. This “hotspotting” of populations occurs best when health and other socio-economic indicators are paired with each other to determine the most effective way to impact the SDHs that are driving health outcomes for different population

groups. Applicants must also provide a rationale for why they have selected a particular community for strategy implementation. The expectation is that efforts will be focused on populations and communities experiencing health inequities.

**Community support:** Applicants must assess the level of support for implementing the proposed strategy. This includes seeking input from those at the neighborhood/community-level and those from both the health care and non-health sectors. This is particularly important for Bucket 3 strategies. Use the following criteria for assessing Community support:

- High: Strong support for strategy. (e.g., strategy is likely to be successfully implemented within 1 year from start date)
- Medium: Moderate support for strategy. (e.g., strategy is likely to be successfully implemented within 1-2 years if additional support and resources can be leveraged)
- Low: Low support or explicit barrier for strategy. (e.g., successful implementation of strategy not likely in next 2 years)

## Submission Checklist

As you gather your submission materials for each of these selection criteria, the following checklist can be used. Please make sure to include citations, and all relevant supporting materials.

1. Impact on Health Priorities	2. Evidence	3. Bucket of Prevention	4. Strategy Feasibility & Impact
<input type="checkbox"/> One or more	<input type="checkbox"/> One or more	<input type="checkbox"/> One or more	<input type="checkbox"/> Account for all
<input type="checkbox"/> Logic model/causal pathway  <input type="checkbox"/> Literature/evidence documenting impact of strategy on SDH(s)	<input type="checkbox"/> Proven (evidence-informed)  <input type="checkbox"/> Prove It (evidence-based)	<input type="checkbox"/> Bucket 2: Innovative Community/Clinical Linkage  <input type="checkbox"/> Bucket 3: Total Population or Community-Wide Prevention	<input type="checkbox"/> Reach  <input type="checkbox"/> Population/community to be impacted  <input type="checkbox"/> Political will/community support



## **Appendix A: DPH Recommended Strategies**

The purpose of this section is to provide an example list of DPH strategies that meet the strategy selection criteria outlined in this document and that also come with DPH technical assistance.

Appendix A will be a separate document and made available to Applicants during the DoN Application process. These strategies will include several options that address the four (4) Focus Issues of:

- 1) Substance use disorders (SUDs)
- 2) Housing Stability/Homelessness
- 3) Mental illness and mental health
- 4) Chronic disease with a focus on Cancer, Heart Disease and Diabetes

An example strategy meeting the CHI Strategy Selection criteria is provided on the following pages. This is provided as an example and the full list of DPH strategies will be made available to Applicants during the DoN Application process.

**DPH Recommended Strategies (Example)**

**Strategy name:** Asthma Home Visiting

**Bureau:** Bureau of Community Health and Prevention

**Contact:** Erica Marshall, Director, Asthma Prevention and Control Program

617-624-5401

[erica.marshall@state.ma.us](mailto:erica.marshall@state.ma.us)

**Brief strategy description:** Multi-trigger multi-component asthma home visits for high-risk pediatric patients led by a community health worker (CHW).

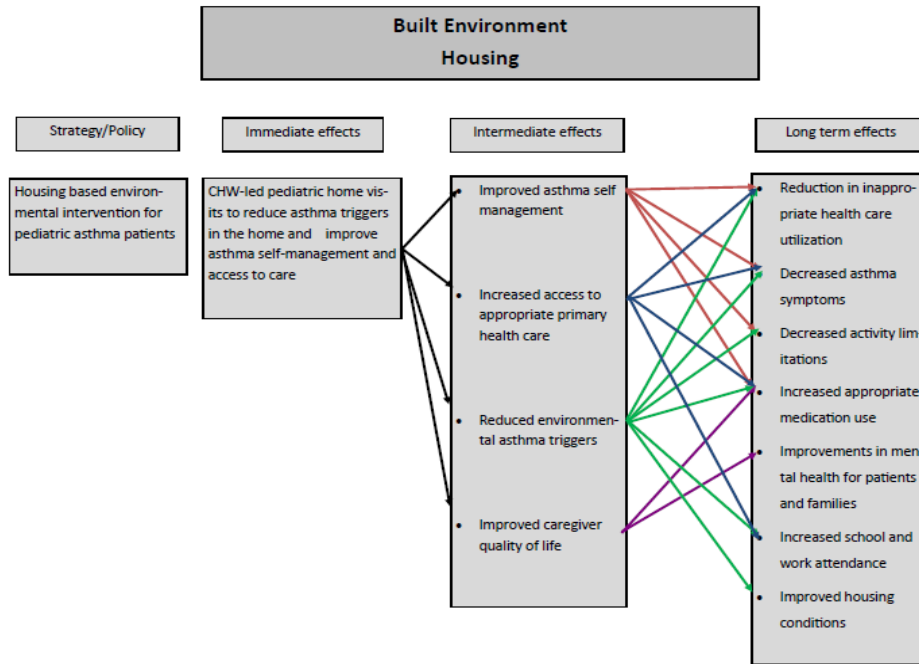
**Impacted Health Priorities:**

- Built environment
- Housing

**Strategy Selection Criteria:**

1.	2.	3.	4.
Impact on Health Priorities	Evidence	Bucket of Prevention	Strategy Feasibility & Impact
<input checked="" type="checkbox"/> One or more	<input type="checkbox"/> One or more	<input type="checkbox"/> One or more	<input type="checkbox"/> Account for all
<input checked="" type="checkbox"/> Logic model/causal pathway  <input type="checkbox"/> Literature/evidence documenting impact of strategy on SDH(s)	<input checked="" type="checkbox"/> Proven (evidence-informed)  <input type="checkbox"/> Prove It (evidence-based)	<input checked="" type="checkbox"/> Bucket 2: Innovative Community/Clinical Linkage  <input type="checkbox"/> Bucket 3: Total Population or Community-Wide Prevention	<input type="checkbox"/> Reach  <input type="checkbox"/> Population/community to be impacted  <input type="checkbox"/> Political will/community support

**1. Evidence of impact on one or more of the six DoN Health Priorities:**



\*Note: Citations also available to document impact

**2. Evidence of impact on health outcomes:**

Asthma home visits for high-risk pediatric patients, led by a community health worker (CHW), have been shown to be effective in improving asthma outcomes and patient and caregiver quality of life. Numerous studies across the country and within the Commonwealth have demonstrated that this model consistently reduces asthma symptom days, improves medication adherence, reduces urgent care and hospitalization, and offers cost savings and/or a positive return on investment. The CDC National Prevention Task Force’s economic review of studies of this kind found they represent good value for the money invested, in part based on savings from averted costs of asthma care and the CDC has further included CHW-led asthma home visiting as an evidence-based strategy to improve health and control health care costs in its innovative 6 | 18 Initiative.

**3. Justification for how strategy is a ‘total population/community-wide prevention’ strategy and/or an ‘innovative community-clinical linkage’ strategy:**

**Innovative Community-Clinical Linkage:** The CHWs work as part of the healthcare team to improve communication among patients, their families, and the clinical team, and to assess asthma triggers in patients' homes. The intervention includes offering several low-cost items (mattress covers, HEPA vacuum, etc.) when needed to remove the environmental triggers. The CHW also educates patients and families about asthma self-management, and double checks

their understanding of medications, reinforcing the asthma action plan created by the clinical providers. The CHW also helps to assess factors influencing patients' ability to self-manage their care, advocates with their landlords, and links them to community resources and supports. In this model, CHWs can be located in diverse clinical settings where the CHW is closely integrated into the primary or specialty care clinical team or may work in a community based program that has more limited contact with the clinicians serving their clients. Clinical settings can include community health centers, hospital-based clinics, private pediatric offices, and clinical provider groups. CHW's can be centrally managed for multiple practices. Regardless of where CHW is located, strong communication with primary care providers is a key component to the model's success.

#### **4. Strategy feasibility and impact:**

- **Reach**
- **Population/community to be impacted**
- **Political will/community support**

**\*Note:** Given that these elements will vary depending on where/how the strategy is implemented, detailed information is not provided in this strategy overview; rather is to be provided by each Applicant.

Broadly, asthma home visiting seeks to impact two primary populations:

- i. Pediatric (ages 2-18) low-income, often Medicaid patients from diverse ethnic/racial/linguistic backgrounds
- ii. High-risk pediatric patients. A sample high-risk definition includes:
  - a. Not well or very poorly controlled asthma as assessed by standardized asthma control test
  - b. Hospitalized for asthma in the last 12 months
  - c. Emergency room visit for asthma in the last 12 months
  - d. Unscheduled office visit for asthma in the last 12 months
  - e. One or more episodes/year of oral corticosteroids because of worsening asthma in the last 12 months.

**5. Training/technical assistance:** The Asthma Prevention and Control Program provides a range of training and technical assistance to programs implementing CHW-led asthma home visiting programs. These services are provided free of charge. Trainings offered include a 4-day CHW training, 1.5 day CHW Supervisor training and Physician Asthma Care Education (PACE) training for clinical providers. The APCP also offers technical assistance in the form of program start-up support, support utilizing the Massachusetts Standardized Asthma

Home Visiting Toolkit, and coordination of the Massachusetts Asthma Learning Collaborative, which focuses on quality improvement in the Institute for Healthcare Improvement (IHI) model.

- 6. Cost to implement:** \$70,000 per year per full-time CHW or \$1,500 per patient, including supplies.