

Healthy Neighborhoods

Position Statement of the American Heart Association

Introduction

Where someone lives is a strong predictor of how long and how well they live.^{1,2,3,4,5} Whether a home is considered "healthy" depends upon not only its structure but also the neighborhood in which it is located.

There is substantial evidence that neighborhoods' socioeconomic environments have important impacts on health.^{6,7,8,9,10} Healthy neighborhoods may be defined as safe and socially-supportive, as well as providing easy access to jobs and schools, healthy food, healthcare, social services and amenities, green open spaces, and public and active transportation options.¹¹ Living in a healthier neighborhood has been shown to help families build prosperity, pursue healthy lifestyles, and achieve greater overall wellbeing.^{12,13, 14,15,16,17} Conversely, a less healthy neighborhood can create barriers to active lifestyles and create toxic stress.¹⁸

As housing becomes more expensive nationwide, lower-income residents are finding it increasingly difficult to access healthy neighborhoods and the benefits they convey. Where neighborhoods are supported with investments in social resources, health outcomes tend to be better—but because these neighborhoods are more desirable, the cost of housing tends to be higher. However, there is tremendous potential to improve population health outcomes by economically integrating, and equitably investing in, neighborhoods.

The American Heart Association (AHA) supports investment in healthy neighborhoods; reduction of exposures to environmental health hazards; the incorporation of equity into neighborhood development policies; and flexibility for localities to implement healthy neighborhood policies without undue constraints at the state or federal level.

Background

The negative effects of poverty on health are well understood; lower-income populations tend to experience higher rates of poor health outcomes. A robust body of evidence also demonstrates a relationship between the level of prosperity of one's neighborhood and wellbeing—even independent of his or her own socioeconomic status.^{19,20,21,22}

Living in a low-income neighborhood is associated with a higher risk of chronic disease, including cardiovascular disease (CVD), and disease-related mortality.^{23,24,25,26,27,28,29} Whether racial segregation exacerbates or reflects existing racial cardiovascular health disparities is unclear, but many studies have found that racial minority neighborhoods have poorer social, built, natural, food, and active environments and are generally less supportive of health.^{30,31,32,33,34,35}

Safe Neighborhoods and the Social Environment

Whether a neighborhood is safe and socially-supportive can have important health implications. Living in a violent neighborhood has profound health effects. Neighborhood violence can increase cardiometabolic risk, discourage physical activity, and even deter residents from seeking necessary medical care.^{36,37,38,39} In contrast,

American Heart Association • Advocacy Department • 1150 Connecticut Ave, NW • Suite 300 • Washington, D.C. 20036 policyresearch@heart.org • 202-785-7900 • @AmHeartAdvocacy • #AHAPolicy neighborhoods with supportive social environments can improve health, including cardiovascular health.^{40,41,42,43,44,45,46}

Additionally, because social isolation is known to have many negative health and well-being outcomes including increased risk of mortality and poorer quality of life—integrated neighborhoods can protect against poor health outcomes.^{47,48,49,50,51,52,53,54} Social integration and strong social networks within neighborhoods can decrease the burden of vascular events, including coronary heart disease, and enhance chances of survival after heart transplantation.^{55,56,57}

Neighborhood Access to Healthcare Services, Healthy Food, and Spaces for Physical Activity

In neighborhoods that provide access to health-related services, amenities, and resources, people tend to be healthier and engage in healthier behaviors.^{58,59} Access to healthcare providers, healthy food retailers, and spaces for physical activity make it easier for people to adopt and maintain healthy habits and lifestyles.

Access to Healthcare Services — While provider access is only one determinant of health status, it is essential that people are able to access care when they need it.⁶⁰ This is especially true of patients with or at risk of CVD, who may need relatively more screenings and consultations to help control the disease.⁶¹ Neighborhoods with fewer primary and non-acute healthcare services can create barriers to accessing necessary healthcare, especially among people with limited mobility and access to transportation.^{62,63,64}

Access to Healthy Food Retailers —Living in "food deserts," in which healthy food is scarce, and/or "food swamps," in which unhealthy food is abundant, can make it difficult to maintain a healthy diet. Lower-income people tend to be particularly susceptible to the food options in their area, and are more at risk of obesity if those options are unhealthy.^{65,66,67} Healthy food retailers tend to be less common among lower-income and minority neighborhoods than higher-income and white neighborhoods.

Spaces for physical activity — Greater expanses of green and active spaces have been shown to improve physical and mental health, in part by increasing physical activity and facilitating connection to nature and other people.^{68,69,70,71,72} Greener neighborhoods may protect against CVD and other chronic illnesses, even among relatively high-risk residents.^{73,74} Improvements as simple as increasing tree cover and vegetation can significantly improve health, including cardiovascular health, and improve health-related quality of life.⁷⁵

However, the benefits of parks may not be equitable or consistent. Poorly-kept parks may not be used, and people who live in unsafe neighborhoods may not utilize even well-maintained parks. Furthermore, green and active spaces that are over a half mile away may be too distant to benefit those who are older, less mobile, or whose neighborhoods feel unsafe.^{76,77}

Public and Active Transportation

Communities with public transportation options and/or which are designed to promote active transportation can increase daily exercise and promote other healthy behaviors. Transportation barriers can independently predict unmet need for medical care, and can also limit access to healthy food and spaces for physical activity.⁷⁸ In communities with fewer resources, residents without access to a car may rely on public transportation to see a doctor, buy groceries, or be active outside. Additionally, walkability—indicating the relative ease of walking—can increase residents' physical activity and thereby help reduce health risk factors such as obesity.^{79,80} Walkable communities may also provide better access to healthcare than less-walkable communities.⁸¹ In general, policies that promote public and active transportation are likely to have significant beneficial impacts on cardiovascular health.⁸²

Environmental hazards

Less-healthy built environments expose residents to pollution and toxins or fail to provide sufficient protection against environmental health hazards like extreme weather. Living near a source of pollution, such as an industrial site or high-traffic roadway, or without access to temperature-controlled spaces, is associated with poor health outcomes.^{83,84,85,86,87,88} Neighborhoods with less-healthy built environments also tend to contain higher concentrations of housing code violations and foreclosures, which may be independently associated with poorer cardiovascular health.^{89,90}

Equity and Displacement

Historically, local planning and development have both intentionally and unintentionally concentrated poverty and people of certain races—as well as unhealthy environmental conditions—in certain geographic areas and neighborhoods.⁹¹ Although "redlining," or the process of zoning cities to create racially-segregated communities, was banned under federal law in 1968, its legacy persists among neighborhoods which remain segregated and inequitably developed today. Alongside this segregation, health disparities have formed. ^{92,93,94} Investing in development that improves environmental health and is inviting to people of various backgrounds and abilities can both enhance neighborhood diversity and improve population health outcomes.

Although bringing supportive resources into a community can make it healthier, this development may also make the area more attractive to new, often wealthier, residents. An influx of inequitable development can increase the cost of living in an area and force long-time, lower-income residents to move out—a process known as gentrification.^{95,96} In contrast, equitable development involves working with existing residents to ensure that new development aligns with their needs and desires. As development occurs, policies, programs and other strategies to make new services, amenities, and resources more affordable (e.g. SNAP, affordable housing requirements, etc.) can protect current residents from the ramifications of gentrification.

Pre-emption of local policies

In a federal system, laws issued by higher levels of government may preempt those of lower-level governments. Unfortunately, in many states nationwide, legislatures are using their preemption powers to block specific local neighborhood development policies. For example, nine states have preempted cities from implementing inclusionary zoning, which would create more economically-integrated neighborhoods.⁹⁷ Similar laws have been passed in 31 states to prohibit rent control and affordable housing requirements.^{98,99,100}

AHA Positions on Healthy Neighborhoods

Living in a community that makes it easy to be active, eat well, access primary care, and minimize stress encourages a heart-healthy lifestyle. AHA has long supported efforts to empower people to adopt the healthy behaviors that help prevent and manage CVD. The AHA believes that policymakers across all levels of governments can work with communities to ensure that neighborhoods are safe and socially supportive, promote economic mobility, and connect residents to the resources they need to achieve and maintain good health. To this end, AHA supports policies that facilitate access to healthy communities.

• Local, state, and federal policies should incentivize healthcare services to locate near or within easy access of every neighborhood. To ensure that all people have easy access to high-quality healthcare, cities should work with providers to establish clinics, hospitals, and primary care offices in or within access

to public transportation of every neighborhood, leveraging supportive state and federal policies and resources.

- Local and state policies should incentivize healthy food retailers to accept SNAP and WIC, or otherwise provide healthy food at affordable prices among all neighborhoods. Local and state governments should incentivize healthy food retailers that accept SNAP and WIC to move into neighborhoods with poor healthy food access, and work with existing retailers to improve their healthy food selection by becoming SNAP- and WIC-certified. Additionally, these incentives should consider which healthy food options are culturally relevant to neighborhood residents, especially with regards to staple foods and cooking methods.
- Every level of government should work to promote public and active transportation. By encouraging more equitable development of bus lines, bike infrastructure, and walkways, government at every level can help create communities that better encourage people to be active. Such options should be mindful and as inclusive as possible of differently-abled people, especially as appropriate under the Americans with Disabilities Act, but also including features such as audio-visual walk signals, sidewalk cutouts for wheelchairs, and smooth surfaces for people with limited mobility. Health effects across ages and abilities should be considered indispensable in transportation planning.
- State and local governments should work to create and maintain public spaces that promote physical activity and provide access to nature in every community. To improve health and wellbeing, local governments should build at least one small green and active space per half-square mile across their communities.¹⁰¹ Maintaining these spaces should also be a key priority, as park quality, safety, and upkeep are strongly correlated with their use and ability to improve health outcomes.^{102,103}
- Governments at every level should ensure that no neighborhood exposes residents to unsafe levels of environmental health hazards. At its most basic, a healthy home should protect residents from environmental health hazards such as pollution, contaminated soil and/or water, and extreme weather. However, there remain measurable disparities in risks and outcomes between neighborhoods in close proximity to health hazards. Governments at every level should work to ensure that no residents are put at risk by their own neighborhood environment.
- Governments at every level should work to include consideration of health equity in neighborhooddevelopment policies. Federal, state, and local governments should recognize the inequities that have previously resulted from policymaking. To identify instances in which a policy decision may create or worsen health and/or other inequities, government at every level should adopt policy analysis frameworks for their housing policies that include equity as a criterion.¹⁰⁴
- *City and local communities should not face legal barriers to implementing healthy changes for their residents.* Regarding neighborhood development, preemption of equity-driven and health-informed policymaking flies in the face of public wellbeing. State and federal laws should not hinder the ability of localities from acting in the best interests of their residents.

⁴ Bilal, U., Auchincloss, A.H., and A.V. Diez-Roux. Neighborhood Environments and Diabetes Risk and Control. *Current Diabetes Reports*. Sept 2018; 18(9): 62. DOI: 10.1007/s11892-018-1032-2

⁵ Ou, J.Y., et al. Self-rated health and its association with perceived environmental hazards, the social environment, and cultural stressors in an environmental justice population. *BMC Public Health*. Aug 2018; 18(1): 970. DOI: 10.1186/s12889-018-5797-7

⁶ King, K. and C. Ogle. Negative Life Events Vary by Neighborhood and Mediate the Relation Between Neighborhood Context and Psychological Well-being. PLoS One. Apr 2014; 9(4):e93539. doi: 10.1371/journal.pone.0093539

⁷ Kersten, E.E., et al. Neighborhood child opportunity and individual-level pediatric acute care use and diagnoses. Pediatrics. May 2018; 141(5): e20172309. DOI: 10.1542/peds.2017-2309

⁸ Loberg, J.A., et al. Associations of race, mechanism of injury, and neighborhood poverty with in-hospital mortality from trauma: A population-based study in the Detroit metropolitan area. *Medicine*. Sept 2018; 97(39): e12606. doi: 10.1097/MD.00000000012606

⁹ Sharp, G., Denney, J.T., and R.T. Kimbro. Multiple Contexts of Exposure: Activity spaces, residential neighborhoods, and self-rated health. *Social Science Medicine*. Dec 2015; 146:204-13. doi: 10.1016/j.socscimed.2015.10.040

¹⁰ Akresh, I.R., Do, D.P., and R. Frank. Segmented assimilation, neighborhood disadvantage, and Hispanic immigrant health. *Social Science Medicine*. Jan 2016; 149:114-21. doi: 10.1016/j.socscimed.2015.12.013

¹¹ Supra n. 6 (King and Ogle)

¹² Robert Wood Johnson Foundation. Where We Live Matters for Our Health: Neighborhoods and Health. Issue Brief 3: Neighborhoods and Health. Sept 2008.
¹³ Arora, Anita. Population Well-Being Measures Help Explain Geographic Disparities in Life Expectancy At The County Level. *Health Affairs*. Nov 2016; 35(11). doi: 10.1377/hlthaff.2016.0715

¹⁴ Corburn, Jason, Curl, Shasa, and Gabino Arrendondo. A Health-In-All-Policies Approach Addresses Many of Richmond, California's Place-Based Hazards, Stressors. Health Affairs. Nov 2014; 33(11). doi: 10.1377/hlthaff.2014.0652

¹⁵ Leonard, T., et al. Do neighborhoods matter differently for movers and non-movers? Analysis of weight gain in the longitudinal Dallas Heart Study. Health and Place. March 2017 44: 52-60. DOI: 10.1016/j.healthplace.2017.01.002

¹⁶ Kim, J.H., C. Lee, and W. Sohn. Urban Natural Environments, Obesity, and Health-Related Quality of Life among Hispanic Children Living in Inner-City Neighborhoods. International Journal of Environmental Research and Public Health. Jan 2016; 13(1). pii: E121. doi: 10.3390/ijerph13010121

¹⁷ Todd, M., et al. GIS-measured walkability, transit, and recreation environments in relation to older Adults' physical activity: A latent profile analysis. Preventive Medicine. Dec 2016; 93:57-63. doi: 10.1016/j.ypmed.2016.09.019

¹⁸ Shariff-Marco, S., et al. Impact of Social and Built Environment Factors on Body Size among Breast Cancer Survivors: The Pathways Study. *Cancer Epidemiology, Biomarkers & Prevention*. Apr 2017; 26(4): 505-515. doi: 10.1158/1055-9965.EPI-16-0932

¹⁹ Kersten, E.E., et al. Neighborhood child opportunity and individual-level pediatric acute care use and diagnoses. Pediatrics. May 2018; 141(5): e20172309. DOI: 10.1542/peds.2017-2309

²⁰ Loberg, J.A., et al. Associations of race, mechanism of injury, and neighborhood poverty with in-hospital mortality from trauma: A population-based study in the Detroit metropolitan area. *Medicine*. Sept 2018; 97(39): e12606. doi: 10.1097/MD.00000000012606

²¹ Sharp, G., Denney, J.T., and R.T. Kimbro. Multiple Contexts of Exposure: Activity spaces, residential neighborhoods, and self-rated health. *Social Science Medicine*. Dec 2015; 146:204-13. doi: 10.1016/j.socscimed.2015.10.040

²² Akresh, I.R., Do, D.P., and R. Frank. Segmented assimilation, neighborhood disadvantage, and Hispanic immigrant health. *Social Science Medicine*. Jan 2016; 149:114-21. doi: 10.1016/j.socscimed.2015.12.013

²³ Codispoti, Christopher D., et al. Living in lower income zip codes is associated with more severe chronic rhinosinusitis. *Annals of Allergy, Asthma and Immunology.* Feb 2018; 120(2): 207-209.

²⁴ Fletcher, J.M. and S.M. McLaughlin. Neighborhood Factors During Adolescence: Modest Effects on Cardiovascular Risk, Small Impact on Obesity and Depression. *Health Affairs*. 34(9). doi: 10.1377/hlthaff.2015.0292

²⁵ Boylan, J.M. and S.A. Robert. Neighborhood SES is particularly important to the cardiovascular health of low SES individuals. *Social Science Medicine*. Sept 2017; 188: 60-68. doi: 10.1016/j.socscimed.2017.07.005

²⁶ Lippert, A.M., et al. Associations of Continuity and Change in Early Neighborhood Poverty With Adult Cardiometabolic Biomarkers in the United States: Results from the National Longitudinal Study of Adolescent to Adult Health, 1995-2008. *American Journal of Epidemiology*. May 2017; 185(9): 765-776. doi: 10.1093/aje/kww206

²⁷ Dez Roux, A.V., et al. The Impact of Neighborhoods on CV Risk. *Global Health*. Sept 2016; 11(3): 353-363. doi: 10.1016/j.gheart.2016.08.002

²⁸ Kranjac, A.W., et al. Neighborhood and social environmental influences on child chronic disease prevalence. *Population and Environment*. Dec 2018; 40(2): 93-114. DOI: 10.1007/s11111-018-0303-9

²⁹ Akwo, E.A. Neighborhood Deprivation Predicts Heart Failure Risk in a Low-Income Population of Blacks and Whites in the Southeastern United States. Circ Cardiovasc Qual Outcomes. 2018;11:e004052. DOI: 10.1161/CIRCOUTCOMES.117.004052

³⁰ Pool, L.R., et al. Longitudinal Associations of Neighborhood-level Racial Residential Segregation with Obesity Among Blacks. Epidemiology. Mar 2018; 29(2): 207-214. doi: 10.1097/EDE.0000000000000792

³¹ Matoba, N. and J.W. Collins Jr. Racial Disparity in Infant Mortality. Seminars in Perinatology. Oct 2017; 41(6): 354-359. doi: 10.1053/j.semperi.2017.07.003

³² Arroyo-Johnson, C., et al. Still Separate, Still Unequal: Social Determinants of Playground Safety and Proximity Disparities in St. Louis. Journal of Urban Health. Aug 2016; 93(4):627-38. doi: 10.1007/s11524-016-0063-8

³³ Lee, J.G., et al. Neighborhood Inequalities in Retailers' Compliance with the Family Smoking Prevention and Tobacco Control Act of 2009, Jan 2014-July 2014. Preventing Chronic Disease. Oct 2015; 12:E171. doi: 10.5888/pcd12.150231

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¹ U.S. Small-area Life Expectancy Estimates Project – USALEEP. *National Center for Health Statistics*. 2018. Available at: https://www.cdc.gov/nchs/nvss/usaleep/usaleep.html

² Dwyer-Lindgren, L., et al. Self-reported general health, physical distress, mental distress, and activity limitation by US county, 1995-2012. *Population Health Metrics*. April 2017; 15: 16. doi: 10.1186/s12963-017-0133-5

³ Dwyer-Lindgren, L., et al. Variation in Life expectancy and mortality by cause among neighborhoods in King County, WA, USA, 1990-2014: a census tract-level analysis for the Global Burden of Disease Study 2015. Lancet Public Health. Sept 2017; 2(9):e400-e410. doi: 10.1016/S2468-2667(17)30165-2.

³⁴ Zenk, S.N., et al. Relative and absolute availability of healthier food and beverage alternatives across communities in the United States. American Journal of Public Health. Nov 2014; 104(11): 2170-2178. doi: 10.2105/AJPH.2014.302113

³⁵ Rice, L.J., et al. Use of segregation indices, Townsend Index, and air toxics data to assess lifetime cancer risk disparities in metropolitan Charleston, South Carolina, USA. International Journal of Environmental Research and Public Health. May 2014; 11(5):5510-26. doi: 10.3390/ijerph110505510

³⁶ Butcher, F., et al. The impact of neighborhood disorganization on neighborhood exposure to violence, trauma symptoms, and social relationships among at-risk youth. Social Science & Medicine. Dec 2015; 146: 300-306. doi: 10.1016/j.socscimed.2015.10.013

³⁷ Miller, G.E., et al. Functional connectivity in central executive network protects youth against cardiometabolic risks linked with neighborhood violence. Proceedings of the National Academy of Sciences of the United States of America. Nov 2018; 115(47): 12063-12068. DOI: 10.1073/pnas.1810067115

³⁸ Masho, S.W., et al. Understanding the role of violence as a social determinant of preterm birth. American Journal of Obstetrics and Gynecology. Feb 2017; 216(2): 183.e1-183.e7. doi: 10.1016/j.ajog.2016.10.001

³⁹ Tung, E.L., et al. Neighborhood Crime and Access to Health-enabling Resources in Chicago. Preventive Medicine Reports. March 2018; 9: 153-156. DOI: 10.1016/j.pmedr.2018.01.017

⁴⁰ Mier, N., et al. Relative Association of Multi-Level Supportive Environments on Poor Health among Older Adults. *International Journal of Environmental Research and Public Health*. Apr 2017; 14(4). pii: E387. doi: 10.3390/ijerph14040387

⁴¹ Kim, E.S., A.M. Hawes, and J. Smith. Perceived neighborhood social cohesion and myocardial infarction. Journal of Epidemiology and Community Health. Nov 2014; 68(11):1020-6. doi: 10.1136/jech-2014-204009.

 ⁴² Yuma-Guerrero, P.j, Cubbin, C., and K. von Sterberg. Neighborhood Social Cohesion as a Mediator of Neighborhood Conditions on Mothers' Engagement in Physical Activity: Results From the Geographic Research on Wellbeing Study. Health Education and Behavior. Dec 2017; 44(6): 845-856. DOI: 10.1177/1090198116687537
⁴³ Kim, E.S. and I Kawachi. Percieved Neighborhood Social Cohesion and Preventive Healthcare Use. American Journal of Preventive Medicine. Aug 2017; 53(2): e35-e40. doi: 10.1016/j.amepre.2017.01.007

⁴⁴ Dauner, N.K., Wilmot, N.A. and J.F. Shultz. Investigating the temporal relationship between individual-level social capital and health in fragile families. BMC Public Health. Nov 2015; 15:1130. doi: 10.1186/s12889-015-2437-3

⁴⁵ Samuel, L.J., et al. Social engagement and chronic disease risk behaviors: the Multi-Ethnic Study of Atherosclerosis. Preventive Medicine. Feb 2015; 71: 61-66. Doi: 10.1016/j.ypmed.2014.12.008

⁴⁶ York, Cornwell E. Social Resources and Disordered Living Conditions: Evidence from a national sample of community-residing older adults. Research on Aging. July 2014; 36(4): 399-430. doi: 10.1177/0164027513497369

⁴⁷ Alcaraz KI, et al. Social isolation and mortality in us black and white men and women. Am J Epidemiol. 2019; 188(1):102-109. doi: 10.1093/aje/kwy231 [doi].

⁴⁸ Hagstrom E, et al. Psychosocial stress and major cardiovascular events in patients with stable coronary heart disease. J Intern Med. 2018; 283(1):83-92. doi: 10.1111/joim.12692 [doi].

⁴⁹ Xia NA, Li H. Loneliness, social isolation, and cardiovascular health. Antioxidants and Redox Signaling. 2018; 28(9): 837-851.

⁵⁰ Friedler B, Crasper J, McCullough L. One is the deadliest number: The detrimental effects of social isolation on cerebrovascular diseases and cognition. Acta Neuropathol. 2015; 129(4):493-509. doi: 10.1007/s00401-014-1377-9 [doi].

⁵¹ Venna VR, McCullough LD. Role of social factors on cell death, cerebral plasticity and recovery after stroke. Metab Brain Dis. 2015;30(2):497-506. doi: 10.1007/s11011-014-9544-1 [doi].

⁵² Henning-Smith C. Quality of life and psychological distress among older adults: The role of living arrangements. J Appl Gerontol. 2016;35(1):39-61. doi: 10.1177/0733464814530805 [doi].

⁵³ Theeke L, et al. Quality of life and loneliness in stroke survivors living in appalachia. J Neurosci Nurs. 2014; 46(6):E3-E15. doi: 10.1097/JNN.0000000000000097 [doi].
⁵⁴ Cho HJ, Seeman TE, Kiefe CI, Lauderdale DS, Irwin MR. Sleep disturbance and longitudinal risk of inflammation: Moderating influences of social integration and social isolation in the coronary artery risk development in young adults (cardia) study. Brain Behav Immun. 2015; 46:319-326. doi: 10.1016/j.bbi.2015.02.023 [doi].

55 Fei K, Albala S, Quarles L, Boden-Albala B. Dense households and weak social networks increase risk of recurrent vascular events. Stroke. 2018;45:ATMP70.

⁵⁶ Change SC, et al. Social integration and reduced risk of coronary heart disease in women: The role of lifestyle behaviors. Circulation Research. 2017; 120(12):1927-1937. doi: 10.1161/CIRCRESAHA.116.309443 [doi].

⁵⁷ Spaderna H. Role of depression and social isolation at time of waitlisting for survival 8 years after heart transplantation. J Am Heart Assoc. 2017; 6(12). doi: 10.1161/JAHA.117.007016 [doi].

⁵⁸ Corburn, Jason, Curl, Shasa, and Gabino Arrendondo. A Health-In-All-Policies Approach Addresses Many of Richmond, California's Place-Based Hazards, Stressors. Health Affairs. Nov 2014; 33(11). doi: 10.1377/hlthaff.2014.0652

⁵⁹ Leonard, T., et al. Do neighborhoods matter differently for movers and non-movers? Analysis of weight gain in the longitudinal Dallas Heart Study. Health and Place. March 2017 44: 52-60. DOI: 10.1016/j.healthplace.2017.01.002

⁶⁰ Lessard, L.N., Alcala, E., and J.A. Capitman. Pollution, Poverty, and Potentially Preventable Childhood Morbidity in Central California. Journal of Pediatrics. Jan 2016; 168: 198-204. DOI: 10.1016/j.jpeds.2015.08.007

⁶¹ Heart-Health Screenings. American Heart Association. Available at: <u>https://www.heart.org/en/health-topics/consumer-healthcare/what-is-cardiovascular-</u>

disease/heart-health-screenings

⁶² Anderson, K.F., et al. Racial/ethnic residential segregation, the distribution of physician's offices and access to health care: The Case of Houston, Texas. Social Sciences. July 2018; 7(8): 119. DOI: 10.3390/socsci7080119

⁶³ Vanderwielen, L.M., et al. Not near enough: Racial and ethnic disparities in access to nearby behavioral health care and primary care. Journal of Health Care for the Poor and Underserved. Aug 2015; 26(3): 1032-1047.

⁶⁴ Qato, D.M., et al. 'Pharmacy Deserts' Are Prevalent in Chicago's Predominantly Minority Communities, Raising Medication Access Concerns. Health Affairs. Nov 2014; 33(11). doi: 10.1377/hlthaff.2013.1397

⁶⁵ Eckert, J. and I. Vojnovic. Fast food landscapes: Exploring restaurant choice and travel behavior for residents living in lower eastside Detroit neighborhoods. Applied Geography. Dec 2017; 89: 41-51.

⁶⁶ Cooksey-Stowers, K., et al. Food swamps predict obesity rates better than food deserts in the United States. International Journal of Environmental Research and Public Health. Nov 2017; 14(11): 1366. DOI: 10.3390/ijerph14111366

⁶⁷ Hager, E.R., et al. Food swamps and food deserts in Baltimore City, MD, USA: Associations with dietary behaviours among urban adolescent girls. Public Health Nutrition. Oct 2017; 20(14): 2598-2607.

⁶⁸ Jilcott Pitts, S.B., et al. Associations Between Neighborhood-Level Factors Related to a Healthful Lifestyle and Dietary Intake, Physical Activity, and Support for Obesity Prevention Polices Among Rural Adults. Journal of Community Health. 2015; 40(2): 276-284. DOI: 10.1007/s10900-014-9927-6

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⁶⁹ Lee, R.E., et al. Contribution of neighborhood income and access to quality physical activity resources to physical activity in ethnic minority women over time. American Journal of Health Promotion. Mar 2015; 29(4): 210-216. DOI: 10.4278/ajhp.130403-QUAN-148

⁷⁰ Perez, L.G., et al. Neighborhood Social Cohesion and Depressive Symptoms Among Latinos: Does Use of Community Resources for Physical Activity Matter? Journal of Physical Activity and Health. Oct 2015; 12(10): 1361-1368. doi: 10.1123/jpah.2014-0261

⁷¹ Cerin, E., et al. Objectively-assessed neighbourhood destination accessibility and physical activity in adults from 10 countries: An analysis of moderators and perceptions as mediators. Social Science and Medicine. Aug 2018; 211: 282-293. DOI: 10.1016/j.socscimed.2018.06.034

⁷² Swierad, E.M. and T.T.K Huang. An Exploration of Psychosocial Pathways of Parks' Effects on Health: A Qualitative Study. International Journal of Environmental Research and Public Health. Aug 2018; 15(8). pii: E1693. doi: 10.3390/ijerph15081693

⁷³ Brown, S.C., et al. Neighborhood Greenness and Chronic Health Conditions in Medicare Beneficiaries. *American Journal of Preventive Medicine*. July 2016; 51(1): 78-89. Doi: 10.1016/j.amepre.2016.02.008.

⁷⁴ Pearson, A.L., et al. Evidence of the Relationship between the Human Postmortem Microbiome and Neighborhood Blight and Greening Efforts. Annals of the American Association of Geographers. 2019. DOI: 10.1080/24694452.2018.1519407

⁷⁵ Todd, M., et al. GIS-measured walkability, transit, and recreation environments in relation to older Adults' physical activity: A latent profile analysis. Preventive Medicine. Dec 2016; 93:57-63. doi: 10.1016/j.ypmed.2016.09.019

⁷⁶ Jiang, Y., et al. Association between Natural Resources for Outdoor Activities and Physical Inactivity: Results from the Contiguous United States. International Journal of Environmental Research and Public Health. Aug 2016; 13(8): pii: E830. doi: 10.3390/ijerph13080830

⁷⁷ Besenyi, G.M., et al. Planning for health: a community-based spatial analysis of park availability and chronic disease across the lifespan. Health Place. May 2014; 27: 102-105. doi: 10.1016/j.healthplace.2014.02.005

⁷⁸ Haley, D.F., et al. Public housing relocations and relationships of changes in neighborhood disadvantage and transportation access to unmet need for medical care. Journal of Health Care for the Poor and Underserved. Feb 2017; 28(1): 329-349. DOI: 10.1353/hpu.2017.0026

⁷⁹ James, P., et al. Interrelationships between walkability, air pollution, greenness, and body mass index. Epidemiology. 2017; 28(6): 780-788. DOI:

10.1097/EDE.00000000000724

⁸⁰ Burgoine, T., et al. Associations between BMI and home, school and route environmental exposures estimated using GPS and GIS: Do we see evidence of selective daily mobility bias in children? International Journal of Health Geographics. Feb 2015; 14(1): 8. DOI: 10.1186/1476-072X-14-8

⁸¹ Chaiyachati, K.H., et al. Evaluating the association between the built environment and primary care access for new Medicaid enrollees in an urban environment using Walk and Transit Scores. Preventive Medicine Reports. March 2018; 9: 24-28. DOI: 10.1016/j.pmedr.2017.12.001

⁸² Nicholas, W., et al. Routine Assessment of Health Impacts of Local Transportation Plans: A Case Study From the City of Los Angeles. *American Journal of Public Health*. March 2019; 109(3): 490-496.

⁸³ Lewis, J., Hoover, J., and D. MacKenzie. Mining and Environmental Health Disparities in Native American Communities. Current Environmental Health Reports. June 2017; 4(2): 130-141. doi: 10.1007/s40572-017-0140-5

⁸⁴ Park, S.S., et al. Investigating the real-world emission characteristics of light-duty gasoline vehicles and their relationship to local socioeconomic conditions in three communities in Los Angeles, California. Journal of the Air and Waste Management Association. Oct 2016; 66(10): 1031-1044. DOI: 10.1080/10962247.2016.1197166

⁸⁵ Stewart, I.T., Bacon, C.M., and W.D. Burke. The uneven distribution of environmental burdens and benefits in Silicon Valley's backyard. Applied Geography. Dec 2014; 55: 266-277. DOI: 10.1016/j.apgeog.2014.09.016

⁸⁶ Patton, A.P., et al. Spatial and temporal differences in traffic-related air pollution in three urban neighborhoods near an interstate highway. Atmospheric Environment. Sept 2014; 99: 309-321. DOI: 10.1016/j.atmosenv.2014.09.072

⁸⁷ Eisenman, D.P., et al. Heat Death Associations with the built environment, social vulnerability and their interactions with rising temperature. Health and Place. Sept 2016; 41: 89-99. DOI: 10.1016/j.healthplace.2016.08.007

⁸⁸ Gronlund, C.J., et al. Climate change and temperature extremes: A review of heat- and cold-related morbidity and mortality concerns of municipalities. Maturitas. Aug 2018; 114: 54-59. DOI: 10.1016/j.maturitas.2018.06.002

⁸⁹ Chambers, Earle C., et al. Relationship between area mortgage foreclosures, homeownership, and cardiovascular disease risk factors: The Hispanic Community Health Study/Study of Latinos. *BMC Public Health*. Jan 2019; 19: 77.

⁹⁰ Arcaya, M., et al. Effects of Proximate Foreclosed Properties on Individuals' Systolic Blood Pressure in Massachusetts, 1987 to 2008. Circulation. 2014;129:2262-2268. DOI: 10.1161/CIRCULATIONAHA.113.006205

⁹¹ Kneebone, Elizabeth and Nathalie Holmes. U.S. concentrated poverty in the wake of the Great Recession. Brookings. March 31, 2016. At:

https://www.brookings.edu/research/u-s-concentrated-poverty-in-the-wake-of-the-great-recession/

⁹² Koteki, J.A., et al. Separate and Sick: Residential Segregation and the Health of Children and Youth in Metropolitan Statistical Areas. Journal of Urban Health. 2018. DOI: 10.1007/s11524-018-00330-4

⁹³ Bower, K.M., et al. Racial Residential Segregation and Disparities in Obesity among Women. *Journal of Urban Health*. Oct 2015; 92(5):843-52. doi: 10.1007/s11524-015-9974-z

⁹⁴ Haveranek, Edward P., et al. Social Determinants of Risk and Outcomes for Cardiovascular Disease—A Scientific Statement from the American Heart Association. *Circulation*. Sept 2015; 132(9): 873-898.

⁹⁵ Smith, R.J., Lehning, A. J., and K. Kim. Aging in Place in Gentrifying Neighborhoods: Implications for Physical and Mental Health. *Gerontologist.* Jan 2018; 58(1):26-35. doi: 10.1093/geront/gnx105

⁹⁶ Gibbons, J. and M.S. Barton. The Association of Minority Self-Rated Health with Black versus White Gentrification. *Journal of Urban Health*. Dec 2016; 93(6): 909-922. ⁹⁷ Inclusionary Zoning Preemption. *Local Solutions Support Center*. Available at: <u>http://www.supportdemocracy.org/equitablehousing/</u>

98 CO Rev Stat § 38-12-301 (2016). Available at: https://law.justia.com/codes/colorado/2016/title-38/tenants-and-landlords/article-12/part-3/section-38-12-301

⁹⁹ MN Rev Stat §471.9996 RENT CONTROL PROHIBITED (2018). Available at: <u>https://www.revisor.mn.gov/statutes/cite/471.9996</u>

¹⁰⁰ Rent Control Preemption. Local Solutions Support Center. Available at: <u>http://www.supportdemocracy.org/equitablehousing/</u>
¹⁰¹ Besenyi, G.M., et al. Planning for health: a community-based spatial analysis of park availability and chronic disease across the lifespan. Health Place. May 2014; 27: 102-105. doi: 10.1016/j.healthplace.2014.02.005

¹⁰² Arroyo-Johnson, C., et al. Still Separate, Still Unequal: Social Determinants of Playground Safety and Proximity Disparities in St. Louis. Journal of Urban Health. Aug 2016; 93(4):627-38. doi: 10.1007/s11524-016-0063-8

¹⁰³ Mullenbach, L.E., A.J. Mowen, and B.L. Baker. Assessing the Relationship Between a Composite Score of Urban Park Quality and Health. Preventing Chronic Disease. Nov 2018; 15: E136. doi: 10.5888/pcd15.180033

American Heart Association • Advocacy Department • 1150 Connecticut Ave, NW • Suite 300 • Washington, D.C. 20036 policyresearch@heart.org • 202-785-7900 • @AmHeartAdvocacy • #AHAPolicy ¹⁰⁴ Joshi, Pamela K., et al. Integrating Racial/Ethnic Equity Into Policy Assessments to Improve Child Health. *Health Affairs*. Dec 2014; 33(12). https://doi.org/10.1377/hlthaff.2014.1169