CHIA
Chronicles of Health Impact Assessment
Improving community health through health impact assessments

October 2020 VOLUME 5 ISSUE 1

# LETTER FROM THE EDITOR

This issue of Chronicles of Health Impact Assessment is centered on the theme of "bridging," with numerous examples of entities working together to assess and improve community health. This issue also offers many opportunities for potential replication of successful programs and lessons learned from around the country.

Included in this issue is a book review of "Bridging Silos," a book that describes best practices through the examination of three case studies. Although community health needs may vary across the country, successful strategies employed in one community may also be implemented effectively elsewhere. An interesting national study of policies and risks associated with motorized scooters reveals that there are significant risks for riders and pedestrians, and knowledge of policies is generally lacking. There are clear public health implications for e-scooters in our country. Another article details a study of policy monitoring, with a focus on communication with local health departments and identification of potential health impact assessment opportunities. An informative article describes an HIA Learning Collaborative, designed to improve the ability of community partners to effectively implement HIAs, an idea which may be replicated in other communities. Finally, this issue includes an article featuring a description of how local, state, and federal entities can work together to improve the built environment and improve community health.

We continue to need more volunteers to be peer reviewers. Being a peer reviewer is a time sensitive process as we have a goal to have the comments and suggestions back to the authors within a month of consenting to be a reviewer. As a peer reviewer, you are providing valuable feedback on how to make the article more useful and easier to comprehend. We have included the application to be a peer reviewer at the end of this issue. Additionally, if you would like to be a guest editor in the future, please submit your name and the topic you would like to write about and recruit at least two additional articles to me at cylstone@iu.edu.

We hope you have a great fall.

Cynthia Stone, CHIA Editor

Carol Mills, Community Engagement Associate for CHIA

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# LETTER FROM THE SOCIETY OF PRACTITIONERS OF HEALTH IMPACT ASSESSMENT

Dear Readers,

Welcome to the fall edition of the Chronicles of Health Impact Assessment.

Whilst the papers in this issue weren't written with the pandemic we are globally facing in mind, maybe the themes they present is even more paramount in this current climate: using data-driven approaches to understanding public health issues; engagement with community stakeholder network; learning how to implement a new (to the user) framework or lens with which to view emergent issues; and of course, leveraging new partnerships in the face of limited resources to realize demonstrable improvement in health outcomes.

For many, life in this modern pandemic has cast a spotlight on this thought: How do we find a balance of the opportunities, challenges, and lasting impacts that inevitably come from decisions made on a community scale? Considering this as it relates to HIA, a core opportunity is the collaboration it can bring to the table, involving different stakeholders, both internal and external, developing importantly robust and transparent engagement with the communities that will be affected by a policy or program.

Yet, there is a cost in time, and resources. Skills, time and capacity are prime needs to drive both an individual HIA and the organizational thinking to consider the value of health impacts no matter what type of policy or program. The overall opportunity and cost need to ultimately provide value to the audience – that what was invested was returned at a desirable rate, such that the investment is made again and again. In that we see institutionalization of the lens through which health receives at least equal billing to financial, political, and other decision-making frames.

The papers in this edition highlight great examples of how HIA can be used and linking the wider Social Determinants of Health to having a unified approach across organizations which will in the end impact, preferably positively, on their people and communities. Using HIA is also a good step to developing a culture of Health in All Policies – an element maybe never envisaged when HIA was started to be used, all those decades ago.

The papers also emphasize, the importance of the effect of inequality to those vulnerable communities and the impacts of inequity, whether that is because of transport, access to food or education or green space and housing. They also underline the importance of working with public health as new and innovative practices evolve.

As we have all faced unprecedented challenges and change in recent months, these papers maybe offer current practices within the world of HIA and public health that shouldn't be ignored – HIA can help bridge new ways of thinking and working together to support those who are most vulnerable. The Chronicles of Health Impact Assessment continues to provide examples of classic themes with real-world application; a launchpad for budding practitioners as they continue to digest the evolving science. We hope the ideas here draw forth fresh energy and excitement as you continue to advance health equity in your own work.

Please continue to stay safe.

Audrey Bonner and Sophie Grinnell
Secretary for SOPHIA and Director of SOPHIA

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# ABOUT THE JOURNAL

A Health Impact Assessment (HIA) is a systematic process that uses a variety of data sources and analytic methods and input from community stakeholders to determine the potential health effects of a proposed policy, program, or plan. HIAs provide recommendations to decision makers on how to adjust the policy or program to minimize negative health effects and increase potential positive health benefits.

The editorial board and staff of CHIA strive to give expression to health impact assessment research and scholarship while serving the public health profession.

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# PROMOTING HEALTH EQUITY THROUGH THE BUILT ENVIRONMENT IN DULUTH, MN: EXTERNAL RESOURCES AND LOCAL EVOLUTION TOWARD HEALTH IN ALL POLICIES

*Katrina Smith Korfmacher, PhD*

*Abstract:*

Communities, professionals, and researchers recognize that environmental factors contribute to the health inequities experienced by vulnerable populations in the U.S. These environmental health injustices persist despite well-developed systems for both public health and environmental protection. The root cause of these issues is often "siloed" decision-making by separate health and environmental institutions. Health Impact Assessment (HIA) can be an important tool for bridging these silos to promote health equity at the local level. This raises the question: how can external resources best support local initiatives? This paper examines the interaction between national, state, and non-governmental efforts to promote HIA and local actions to promote healthy and equitable built environment in Duluth, MN. A wide range of local activities in Duluth aimed to alter the long term trends, decision processes, and institutions shaping its built environment. These included integrating health in brownfield redevelopment, local land use plans, food access, and transportation decisions. Technical and financial support from external groups played a key role in developing the community's capacity to promote health equity across public, private, and non-profit organizations. These multiple streams of action culminated in the mayor's declaration in 2016 that health and fairness would be adopted as key goals of the city's new Comprehensive Plan. How did such innovative efforts thrive in a small, post-industrial city with limited resources? Duluth's experiences provide insight into how external governmental, funding, academic, and non-profit entities can more effectively, efficiently, and equitably support the evolution of local initiatives.

## Introduction

In her first State of the City address in March 2016, Mayor Emily Larson referenced the 11 year life expectancy disparity between adjacent zip codes in Duluth, and commented that "our right to a good and healthy life should not be determined by our zip code, or our income, education, race, gender or religion…My vision is of a healthy – prosperous – sustainable – fair – and inclusive community" (Larson, 2016). This small, post-industrial city may seem an improbable place for such a strong vision for health equity to be expressed by a city leader. This statement built on over ten years of local work promoting the importance of a healthy and equitable built environment. This work evolved through a complex interplay of external resources and local activities that developed capacity in HIA. Duluth's efforts to promote health equity involved improving access to transportation, healthy food and opportunities for physical activity. The literature is rich with examples of communities where initial efforts at Health Impact Assessment evolved into broader adoption of Health in All Policies (Collins & Kaplan, 2009) (Armijo et al., 2019; Calloway, 2019; Rudolph et al., 2013). This raises the question of whether and how external institutions (funding, training, etc.) can support such local evolution. This paper explores the role of external resources, relationships, and initiatives that helped to grow Duluth's local initiatives over more than ten years. The paper concludes with lessons learned about the potential impact of external support and recommendations for future efforts to support evolution towards Health in All Policies in other communities.

## The Setting: Duluth, Minnesota

Duluth, Minnesota is a small city (86,000 residents) on the western tip of Lake Superior. Duluth emerged in the 1800's as a transportation hub for the Midwest's agricultural and industrial products. Later, it became an important industrial center focused around steel and other heavy industries. With the decline of the steel industry and growth of alternate transportation routes, Duluth's economy shrank, resulting in a 30% population loss between 1960 to 1980. As of 1983, Duluth had an unemployment rate of 16%, more than double the statewide rate and among the highest in the country (Bunnell, 2002).

Because of this industrial history, the City has a large number of brownfields, sites of known or potential environmental contamination (U.S. Environmental Protection Agency, 2020). Two former industrial sites totaling around 800 acres together comprise the largest Superfund site in Minnesota. The western part of the city is located on a narrow strip of flat land between the lake and a steep escarpment, limiting land available for new development. Duluth's economy has expanded in recent years, with several new businesses locating on former industrial sites. Duluth has become a regional center for healthcare and a gateway to outdoor recreation in the region. The city is renowned for its extensive network of bike and hiking trails, contributing to its being named the "Best Place to Live in the U.S." by Outside Magazine in 2014 (Pearson, 2014).

Despite the city's growing prosperity, significant disparities exist in economic and health status, particularly for racial and ethnic minorities. Recognizing this, community groups, public health professionals, and city staff have engaged in a wide range of "policy, systems, and environmental" (PSE) change efforts to promote health equity (Honeycutt et al., 2015). This "Healthy Duluth" work has included several Health Impact Assessments, brownfields redevelopment, transportation planning, and a comprehensive plan update. Taken together,

these efforts aimed to reduce health disparities by focusing on the built environment in low-income neighborhoods. Table 1 traces how external resources fostered and enhanced local health equity initiatives in Duluth between 2005 and 2017. Although the city has not formally adopted Health in All Policies, health equity is now infused in many local decision processes.

## Initiation of Healthy Duluth Efforts

Building on its reputation as an outdoor activity and recreation-focused community, the City of Duluth applied for and was granted designation as a Governor's Fit City in 2007 (Duluth to be named," 2007). Fit City was a voluntary designation established under the Minnesota Department of Health (MDH) in 2005 to encourage and highlight cities' commitment to supporting healthy living (New Ulm, 2006). Through Fit City, city staff convened a group of community stakeholders to promote physical activity opportunities in Duluth.

This city-led effort soon spun off into a community organization also called Fit City. Fit City members attended a CDC conference on "Community Approaches to Obesity Prevention" where they learned about other communities' efforts to pursue health equity through work to change "policies, systems, and environments" (PSE). Convinced of this approach, Fit City members decided to focus on policy work, which transitioned into the Healthy Duluth Area Coalition (HDAC). HDAC aimed to bring together multiple groups that were working to promote health and equity in the community. According to its website, "The Healthy Duluth Area Coalition is committed to changing the policies, systems and environments of our city to encourage active living and affect how residents access healthy foods. We bring together the people who can facilitate the greatest change, who advocate for wellness, and who strive for health equity. We are here to help everyone be well by supporting active living and healthy eating, and by working to make the healthy choice the default choice." HDAC's efforts were organized into five objectives, the most active of which were to promote "A Comprehensively Healthy Local Food Environment and a "Balanced and Diverse Community Transportation System" (Healthy Duluth Area Coalition, 2018). HDAC has been supported by a variety of local and external funders over time, including grants from foundations and state agencies. For example, the Center for Prevention at Blue Cross Blue Shield Minnesota provided several grants to the Healthy Duluth Area Coalition, including support for the Fair Food Access campaign's work in Lincoln Park in 2014 and funding to establish a Health Equity Collaborative in 2016 (Center for Prevention at Blue Cross Blue Shield of Minnesota, 2020).

The HDAC partners varied over time depending on current funding and projects. HDAC leveraged the knowledge and contributions of multiple partners whose work aligned with these initiatives, but whose organizations had limited ability – whether due to staff, financial, legal, or institutional constraints - to directly advocate for policy change. In addition to HDAC's activities and convening functions, many individual organizations in Duluth engaged in related activities to promote health equity through changes in the built environment. Taken together, these activities are referred to here as "Healthy Duluth" efforts.

The St. Louis County Health Department was a key player in many of these efforts. In 2008, the Center for Prevention at Blue Cross Blue Shield of Minnesota distributed copies of the video "Unnatural Causes" to local health departments across the state. "Unnatural Causes" showcases how the environment significantly impacts disparities in public health (Unnatural Causes, 2008). Health department staff who viewed

this video connected its message with health disparities they observed in Duluth. As one health department staff member noted, "I don't think the impact that Unnatural Causes had on us can be overstated" (J. Gangl, personal communication, March 17, 2016). By sharing this video of systems change efforts in other communities, the Center for Prevention played a role in mobilizing health department engagement in health equity.

The growing focus of the local health department on changing systems to promote health equity was strengthened and sustained by Minnesota's State Health Improvement Program (SHIP, renamed the State Health Improvement Partnership in 2016). SHIP was a cornerstone of Minnesota's 2008 health reform law and funded local health departments to conduct community-based activities aimed at reducing risk factors for chronic disease. The program explicitly encouraged health departments to engage in "policy, systems, and environment" (PSE) change, and later SHIP grant guidelines added a health equity focus. With SHIP support, St. Louis County health department staff played a significant role in building coalitions, sustaining local partnerships, and participating in planning efforts. For example, health department staff supported convening the Safe and Walkable Hillside Coalition, which contributed to community engagement in the first Health Impact Assessment in Duluth (6th Avenue HIA).

## Health Impact Assessment in Duluth

Another important external contribution to the Healthy Duluth work was MDH support for three Health Impact Assessments (HIAs). As described below, these HIAs built community partners' capacity and complemented HDAC's ongoing efforts to promote health equity through shaping decisions about Duluth's built environment.

Health Impact Assessment (HIA) is a voluntary approach to identifying the potential health impacts of non-health decisions (Bhatia, 2011; National Research Council Committee on Health Impact Assessment, 2011; Ricklin et al., 2016; Rhodus, et al., 2013). HIA has been promoted as a way to build consensus, engage affected communities, and develop recommendations that improve health equity. Starting around 2008, the Minnesota Department of Health made a significant and sustained commitment to supporting HIA as a tool to promote health equity. MDH obtained grants from federal agencies and foundations to help build capacity for HIA throughout the state (as of 2018, the program had identified 34 HIAs conducted in Minnesota (Minnesota Department of Health, 2020)). As part of these efforts, Duluth received technical support and funding for three HIAs between 2010 and 2014. These opportunities allowed local stakeholders to learn about HIA, use health data to analyze how built environment decisions affect health disparities, and gather community input on ways to improve environmental health equity. Although the HIAs were led by MDH, the experience of working together on these HIAs built local stakeholders' capacity and provided data, analyses, and recommendations that informed future work.

### *6th Avenue Redesign HIA, January-June 2011*

The first HIA in Duluth was supported through a MDH grant from the Association of State and Territorial Health Officials (ASTHO) to conduct three HIAs in the state. The HIA examined an ongoing effort to redesign 6th Avenue, a busy road that bisects the low-income Hillside neighborhood in downtown Duluth (St. Louis County Health and Human Services, 2011). 6th Avenue posed a major challenge to the walkability of the neighborhood. Consolidation of two neighborhood schools in 2011 required many children to cross 6th Avenue to get to their new school. Due to the dangerous traffic

on 6th Avenue, many of these children were bussed to school, despite living only a few blocks away. The HIA assessed the health impacts of the proposed 6th Avenue redesign with respect to accessibility, safety, physical activity, and livability, with a focus on vulnerable populations including children, older and disabled adults, and low-income residents. The HIA recommended increasing the number of bus stops, adding a traffic signal, enhancing crosswalks, creating a designated bike lane, and improving snow clearing (Minnesota Department of Health Climate & Health Program, 2014). The HIA's public engagement efforts built local stakeholders' understanding of how transportation planning affects community health.

***Gary-New Duluth Small Area Plan Health Impact Assessment, June 2013 – June 2014***

In 2013, Duluth conducted a second HIA on an ongoing Small Area Planning (SAP) process with MDH support through a grant from the Health Impact Project, a partnership of Pew Charitable Trusts and the Robert Wood Johnson Foundation (Korfmacher, 2019; Korfmacher 2020). The Gary-New Duluth neighborhood, located around 10 miles west of downtown, was a disinvested area that had originally been developed to house workers at the nearby U.S. Steel Duluth Works plant (City of Duluth, 2006; Minnesota Department of Health Climate & Health Program, 2014). The neighborhood lost 50% of its population between 1950 and 1980 (Bunnell, 2002). The HIA team conducted several public meetings, focus groups, and a community survey to solicit feedback from the public. The survey identified "jobs and economic development, crime prevention, and access to goods and services" as top community concerns.

The HIA identified "children, older adults, low-income people, people with lower educational attainment, disabled people, and people with pre-existing health conditions" as potentially vulnerable community members, and focused its analysis on how the SAP might affect the health of these groups in particular. The HIA provided for significant additional community engagement in the SAP process. For example, residents suggested incorporating a "community events board" into the design of new neighborhood entrance monuments recommended in the SAP (Minnesota Department of Health Climate & Health Program, 2014, p. 51).

In addition to increasing community engagement, this HIA built diverse professionals' understanding of HIA. The HIA's Technical Advisory Committee (TAC) included community groups and representatives from the county health department, Arrowhead Area Agency on Aging, the city Department of Parks and Recreation, regional transportation planners, and the local hospital. Because several members of the HIA TAC also served on the SAP Steering Committee, they were able to enhance additional stakeholders' understanding of how the plan's recommendations could promote health equity.

***Lincoln Park HIA, January 2014 – September 2015***

Whereas the Gary-New Duluth HIA was conducted parallel to the Small Area Planning process, Duluth's third HIA (also supported by the MDH Health Impact Project grant) integrated HIA fully into the planning process. This reflected a growing appreciation of HIA among community leaders. This third HIA addressed Lincoln Park, a low-income neighborhood just to the west of downtown Duluth. It is a dense urban neighborhood with some of the highest racial and ethnic diversity in the city (Minnesota Department of Health Climate & Health Program & Division, 2015).

The 2011 St. Louis County Health Status Report identified Lincoln Park area as having the lowest life expectancy in the city (Gilley, et al. 2011). Non-profit and government agencies had been actively pursuing community revitalization of the Lincoln Park neighborhood for many years. One goal of the SAP process was to provide steps the City could take to build on these efforts.

In 2011, a study by University of Minnesota-Duluth and UMN Extension had documented residents' food access challenges, including distance to full service grocery stores (10 minutes by car, 30 minutes by bus) and higher prices for food at local convenience stores (Pine & Bennett, 2011). Since 28% of households in the study area did not have a car, the study concluded that 10-15% of residents experienced significant barriers to accessing healthy food. The HIA made several recommendations to increase food access for residents. The HIA's housing recommendations focused on the potential to increase social cohesion through more home ownership, reducing housing costs so people had more money to purchase healthy food, and improvements in housing quality with stronger enforcement of housing codes. Additional recommendations related to increasing safety, community building, and social cohesion, and creating a positive sense of place. This HIA process strengthened connections between local stakeholders around health equity and enhanced their focus on food access.

**Summary: HIA in Duluth**

These three HIAs together had a significant impact on integrating health in public decisions in Duluth, including:

1. Providing an evidence base and data that could be easily referenced to inform future implementation decisions, grant proposals, and evaluation efforts.
2. Increasing public engagement, which enhanced community involvement in future efforts.
3. Building the capacity of local stakeholders to do HIA, strengthening relationships between professionals in diverse organizations, and increasing leaders' commitment to promoting health equity.

However, without external funding, the city could not provide the resources needed to complete additional HIAs on a regular basis. One more HIA was conducted in Duluth with support from the U.S. EPA on waterfront habitat restoration (Williams, et al. 2020)). Nonetheless, the experience of doing these HIAs motivated stakeholders to find other ways to integrate health into ongoing local decisions. The next sections describe additional approaches through which stakeholders in Duluth have considered health when making decisions that affect the built environment.

## Integrating Public Health in Brownfields Redevelopment

In addition to Health Impact Assessments, efforts in many other sectors, agencies, and groups in Duluth aimed to promote a healthier, more equitable built environment. The Duluth Business and Economic Development Department was in an important early contributor to promoting health equity through brownfield redevelopment. State and federal brownfields programs have increasingly emphasized the broad public health improvements that may be gained by constructive reuse of contaminated land (U.S. Environmental Protection Agency, 2018). Starting around 2008, city staff noted that the U.S. EPA's requests for brownfields redevelopment proposals prioritized projects that would improve public health outcomes. This guidance from U.S. EPA encouraged local officials to identify health-promoting

redevelopment projects. For example, with the Business and Economic Development Department's leadership, the 10.2 acre Clyde Iron Works brownfield site ("Clyde Park") was developed into a multi-sport complex with a restaurant and event venue. Clyde Park anchored the redevelopment of the distressed Lincoln Park neighborhood as a hub for recreational and sports activities. With a documented 400 blighted and/or brownfield sites in Lincoln Park alone, the ongoing focus on promoting public health through brownfield redevelopment is expected to have a significant impact on shaping this neighborhood's future.

Duluth's groundbreaking work on linking brownfields with health, in turn, leveraged additional outside resources. For example, staff at the Agency for Toxic Substances and Disease Registry (ATSDR) Brownfield/Land Reuse Initiative heard about Duluth's ongoing efforts and in 2010 invited the City to partner with them on a proposal to the Great Lakes Restoration Initiative to assess the public health benefits of restoring the St. Louis River and Lake Superior waterfront. Although the project was not funded, it resulted in a stakeholder workshop in July 2012 to identify community health indicators for successful restoration. This workshop strengthened the brownfield program staff's connections with the ongoing Healthy Duluth efforts.

Another example of leveraging outside resources came from Duluth's Business Resource Manager Heidi Timm-Bijold's ongoing relationship with the statewide nonprofit Minnesota Brownfields. In 2012, Minnesota Brownfields partnered with Duluth to develop and pilot their Health Indicator Tool, which bolstered the city's ability to identify health benefits of redevelopment projects. The Health Indicator Tool has since been disseminated as a statewide resource for documenting the public health impacts of brownfields redevelopment (Minnesota Brownfields, 2018).

The City of Duluth continued to integrate health assessments in numerous brownfield plans and related infrastructure projects, such as expansion of bike paths in low income neighborhoods. For example, in 2014 Duluth received a U.S. EPA Area-wide Planning grant for the Irving Fairmount Brownfields Revitalization Plan that included health department staff on the team and emphasized health equity as a goal for redevelopment. As Duluth Business Resource Manager Heidi Timm-Bijold said,

> *"We were not intentional about the health conversation (before), but now ...we are very clear about the conversation as it relates to food, safety, connectivity – it is just part of the discussion. So as we move forward... it is becoming normalized to think about health as part of the process" (H. Timm-Bijold, personal communication, March 17, 2016).*

## Transportation Equity

As noted above, Duluth's initial efforts focused around promoting healthy lifestyles by providing trails and other resources for physical activity. Over time, the Healthy Duluth efforts came to reframe their efforts in terms of "transportation equity" – shaping the local transportation system so all Duluth residents could access health-supportive resources, including opportunities for active and public transportation. As St. Louis County health department educator Josh Gorham stated,

> *Not only is transportation about health – active living - it's about getting to healthy food, healthcare, social activities, and much more... As socio-economic disparities became more of a priority in Public Health efforts in Duluth, we needed to reframe our*

*approach. We were no longer just talking about active transportation; we were talking about transportation equity" (J. Gorham, personal communication, March 18, 2016).*

Although individual groups still relied on outside resources to support staff and specific projects, these efforts were sustained by the integration of transportation equity goals into existing organizations' agendas and activities.

For example, the HDAC organized a series of activities to highlight the potential for promoting health equity in the built environment. Some of these events were inspired by similar efforts in other cities, and supported by local financial and staff resources. The HDAC coordinates an annual "Bike/Bus/Walk" month, including a "bike with the mayor" event (French, 2014). "Parklets" have been created by businesses temporarily taking over parking spaces as public seating and recreation spots (French, 2015). These and other events helped engage the public and raise the community's awareness of Healthy Duluth's efforts.

In addition to these "pop up" events and projects, Healthy Duluth stakeholders engaged in ongoing efforts to promote transportation equity. For example, the Lincoln Park HIA identified low-income residents' challenges accessing healthy and affordable food. In response, the city established a "Grocery Bus" specially equipped with racks for bags of food with scheduled runs from high need communities to the nearest full service grocery store (Lundy, 2016).

On an ongoing basis, Healthy Duluth Area Coalition members participated in public hearings and commented on street redesign programs, advocating successfully for traffic calming, bike lanes, and improved bus stops. In 2014, Duluth initiated a "St. Louis River Corridor Initiative" to expand trails, parks, and neighborhood improvements after the floods of 2012 (City of Duluth, 2016). In 2016, Mayor Larson affirmed her commitment to implementing the plan, prioritizing segments that serve lower income neighborhoods. Meanwhile, the Metropolitan Planning Organization's Technical Advisory Committee appointed a public health representative to ensure that health equity was "at the table" for a wide range of regional transportation decisions. These and other ongoing transportation equity efforts reflected stakeholders' success in building community understanding and support for improving the built environment into ongoing local decisions in a wide range of sectors. Having health equity-oriented stakeholders involved helped counter concerns about costs and negative impacts on private businesses (e.g. loss of public parking, added construction costs).

## Toward Health in All Policies?

These examples show how Healthy Duluth efforts increased consideration of health equity in a wide range of decisions. These initiatives started with voluntary efforts to encourage healthier lifestyles. After learning about the power of other communities' efforts to promote systems change, Healthy Duluth's efforts began to focus on policies, plans, and programs that shape the built environment. Funding and directives from the Minnesota Department of Health through the local health department supported local efforts to promote health equity, as did funding for three HIA's over a period of 4 years. At the same time, with encouragement from the U.S. EPA, the City of Duluth's brownfields redevelopment programs increasingly focused on public health outcomes. The robust network of community and government groups fostered by these activities increasingly integrated health equity considerations throughout their work, notably in the area of transportation planning.

Despite this highly evolved ecosystem for considering health in a wide range of decisions, these efforts remain decentralized and vulnerable to loss of staff and technical capacity developed through past experience. The City of Duluth considered adopting a Health in All Policies resolution, but it did not decide to do so. Stakeholders reported concerns that adopting an HiAP resolution might result in a "checklist" mentality, rather than meaningful consideration of systems changes. However, these ideas have clearly been taken up by the city leadership, as evidenced by Mayor Larson's declaration that health and fairness would be key goals in Duluth's 2016 comprehensive planning process (Larson, 2016) .

**Table 1. External resources and evolution of Duluth's local health equity initiatives***

| Date | External Resource | Local Initiative |
|---|---|---|
| 2005 | Minnesota Governor Pawlenty establishes voluntary "Fit City" program | Duluth recognized as a "Governor's Fit City, forms advisory committee |
| 2007 | | |
| 2008 | Blue Cross Blue Shield's Center for Prevention distributes copies of Unnatural Causes video to local health departments | Fit City Duluth obtains non-profit status as an organization<br><br>St. Louis County health department staff view Unnatural Causes video<br><br>Fit City members attend CDC conference |
| 2009 | CDC hosts "Community Approaches to Obesity Prevention" conference | Fit City Duluth forms 10-person team to attend CDC conference<br><br>St. Louis County health dept. initiates of Safe and Walkable Hillside Coalition |
| 2010 | | Health Duluth Area Coalition begins meeting |
| 2011 | MDH supports first HIA in Duluth (redesign of 6th Avenue) | St. Louis County Health Status report issued; credits "Unnatural Causes"<br><br>Stakeholders participate in HIA |
| 2013 | MDH supports second HIA (Gary-New Duluth Small Area Plan) | Stakeholders participate in HIA to support Small Area Plan for Gary-New Duluth |
| 2014 | MDH supports third HIA (Lincoln Park Small Area Plan)<br><br>U.S. EPA awards brownfield planning grant for Irving Fairmount<br><br>BCBS Center for Prevention grant to HDAC for Fair Food Access work | HIA integrated into Small Area Plan process for Lincoln Park<br><br>City pilots Brownfields Health Indicator Tool in Lincoln Park<br><br>St. Louis River Corridor Initiative begins<br>HDAC engages Lincoln Park residents in Fair Food Access work |
| 2015 | | "Grocery Bus" begins running |
| 2016 | BCBS Center for Prevention grant to HDAC for health equity work | Mayor sets "health and fairness" as goals of city's Comprehensive Plan<br>HDAC initiates Health Equity Collaborative |
| 2000-2017 | U.S. EPA emphasizes public health as goal of brownfields redevelopment | City receives over $17 million in brownfield grants; leverages over $100 million |

*This table highlights several types of external resources (financial, technical, or human) supporting health equity initiatives in Duluth, but is not comprehensive.

## What Can We Learn From Duluth About Supporting Evolution of HiAP in Other Communities?

> *"There has been a momentous but intentional aligning of the stars around this work" (Heidi Timm-Bijold, City of Duluth Business Resource Manager, personal communication, 2016)*

The experience of Duluth, MN offers insight into how one small city embraced and implemented the idea of enhancing health equity in the built environment through policy change. By creating informal yet robust networks for collaboration, stakeholders in Duluth were able to leverage varied community, local, state, and national resources to promote a healthier, more equitable built environment through a wide range of systems and policy changes. Duluth's experience endorses the idea that local cross-section collaboration around HIA can evolve into pervasive and powerful changes in systems to promote health equity.

At the same time, the Healthy Duluth efforts also may be viewed as a case of how national, state, and non-governmental efforts to promote community innovation can make an impact at the local level. Duluth's efforts benefitted from staff support, funding, and technical resources from external private, non-profit, and government groups. Indeed, several national programs that supported particular initiatives point to Duluth as a successful model of how their ideas, programs, and resources that can be replicated in other communities.

Looking closely at Duluth's efforts over time shows that the whole story is more complex. There was an ongoing exchange of ideas, initiatives, and opportunities between local stakeholders and external resources. Local stakeholders took advantage of state and national programs, expertise, and funding to build a strong network of diverse organizations working to promote health equity through changes in the built environment. Stakeholders in Duluth attributed the sustained growth of these health equity efforts to the community's size, progressive nature, and commitment to collaboration. These characteristics allowed them to develop relationships across and collaborate between organizations with minimal formal structures. These relationships also in turn helped them identify, successfully access, and sustain resources from external agencies. These outside resources were particularly helpful during the initial development of Duluth's initiatives. However, continued support – for example, through the MDH State Health Improvement Program, Center for Prevention funding of health equity projects, and federal agencies' (particularly U.S. EPA and Department of Transportation) integration of health equity goals in their funding, policies, and programs – has been essential to sustaining these efforts.

This version of the story suggests that Duluth's evolution toward Health in All Policies may not be replicable in other communities that lack the ability to initially access resources, collaborate, and build local capacity. However, it does suggest strategies for regional and national actors to make such local initiatives possible in a broader range of communities:

- Provide opportunities for locals to learn. Duluth stakeholders reported numerous examples of learning from others' initiatives and ideas about how to promote health equity. Even the simple act of distributing the Unnatural Causes video affected locals' thinking. The opportunity to convene a team and travel to the Building Healthy Communities conference to learn from national – and particularly other local – leaders was even more

impactful. Bringing such opportunities to communities that are not actively seeking HiAP assistance may help seed new local initiatives.

- Make collaboration an expectation. By its nature, HiAP requires cross-sector collaboration. However, many organizations inadvertently discourage collaboration, because it can take time away from achieving direct institutional or professional goals. Building collaboration into job descriptions, performance reviews, and reporting can counteract these barriers. External institutions can encourage this. For example, the State Health Improvement Program's guidance to local health departments to foster local partnerships had a tremendous impact on the human resources available to health equity efforts in Duluth.

- Build health equity into review criteria for funding. An increasing number of funders, including both foundations and government agencies (e.g. the U.S. EPA and U.S. Department of Transportation) include public health promotion among the criteria for evaluating proposals for non-health projects. These cues were acted upon by Duluth's brownfield redevelopment and transportation agencies, significantly advancing the local focus on health in externally funded plans and projects. Providing incentives and guidance on how to address health in a non-health funding opportunities could significantly boost local efforts.

- Support sustained convening. It is particularly difficult for local groups to sustain funding for convening collaborative efforts. Collaboration by definition takes a long time, has uncertain outcomes, and often results in unexpected new directions. As the Duluth case reaffirms, sustained convening over many years is necessary to build local capacity, leverage additional funding, bring in new partners, and adapt action agendas over time. Modest long-term support for local conveners can have a multiplier effect on local initiatives' evolution toward HiAP.

- Be patient. Collaboration takes a long time, but making impacts on local decision processes takes longer. Evidence of policy, environmental, or health outcomes – takes longer still. As well, local systems changes can seldom be attributed to a single effort. Duluth's experience shows how stakeholders can "help the stars align" toward health equity-promoting decisions, but that the process may be indirect, diffuse, and non-continuous. Funders should be mindful of this timeline as they set expectations for outcomes, encourage documentation of process changes, and integrate intermediate metrics like increased capacity into evaluations.

With increasing recognition that environmental factors contribute to the health inequities experienced by vulnerable populations, moving toward Health in All Policies at the local level is critical. Strategically deployed human, financial, and technical resources from external sources can fertilize local cross-sector collaborations and build local capacity for HiAP. Duluth's experience shows that such local initiatives have tremendous potential to bridge the silos between environmental and public health and address the root causes of environmental injustices.

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**CORRESPONDING AUTHOR**
Katrina Smith Korfmacher, PhD
Department of Environmental Medicine
University of Rochester
Box EHSC
601 Elmwood Avenue
Rochester, NY 14642
Katrina_korfmacher@urmc.rochester.edu

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# HEALTH IMPACT ASSESSMENT AND CITY COUNCIL POLICY: IDENTIFYING OPPORTUNITIES TO ADDRESS LOCAL SOCIAL DETERMINANTS OF HEALTH & PLACE-HEALTH RELATIONSHIPS, 10 YEARS LATER

*Ryan J. Petteway, DrPH, MPH; Shannon Cosgrove, MHA*

## Abstract

**Background:** Health Impact Assessment (HIA) can be used to assess any type of policy/program related to social determinants (SDH). However, local public health departments (LHDs) have been slow to adopt formal use of HIA in efforts to address local SDH, even with growing evidence linking SDH and place-health relationships. Ten years ago, we completed a review of Baltimore City Council policies to advance this conversation within the LHD. Our goal here is to revisit this review and, again, outline a process by which LHDs can: a) monitor local policies in regard to SDH and b) identify opportunities for potential HIA use.

**Methods:** We reviewed all policies introduced into Baltimore City Council in calendar years 2008 and 2009 to identify and assess those with potential health impacts. We then categorized these policies as: a) "explicitly health-related" or b) "related to SDH." We then tabulated the number and sub-types of these policies that were referred to the LHD legislative director for review/comment, i.e. submission of formal LHD assessment/comment for the legislative record.

**Results:** We assessed 597 total policies. In total, 89 policies (15%) were identified as "explicitly health-related," 34 (38%) of which were referred for LHD review/comment. In addition, 208 policies (35%) were identified as "related to SDH," 13 (6%) of which were referred for LHD review/comment. Overall, 297 (50%) policies were identified as having potential health impacts, 47 (16%) of which received LHD review/comment.

**Conclusion:** This policy review effort represents a potentially replicable process to identify HIA opportunities, and potential launch point for health-in-all-policies efforts. In Baltimore, this review work facilitated dialogue with Baltimore City officials and led to the LHD's first HIA grant.

*Keywords:* health impact assessment, social determinants of health, health in all policies, local health departments, place and health, policy

## Background

### *Health Impact Assessment, Social Determinants of Health, and Place*

The World Health Organization recognizes that "the social determinants of health are mostly responsible for health inequities" (WHO, 2016). The distribution of social determinants of health, or SDH, is largely determined by policy decisions, and experts emphasize the importance of understanding that "every aspect of government and the economy has the potential to affect health and health equity" (WHO, 2008, p.10). As such, leading public health organizations have increasingly turned attention towards addressing factors that shape the social, economic, political, and environmental conditions in which we live, learn, work, play, and age (CDC, 2015; DHHS, 2011; NACCHO, 2011; Prevention Institute, 2008; Ramirez et al., 2008). In focusing attention on addressing SDH, local health agencies have begun developing public health strategies that engage policies and practices that traditionally have been viewed as "non-health" related, including those concerning transportation, housing, zoning, education, and land use (BARHII, 2015; BPHC, 2015; Schaff et al., 2013; Schaff & Dorfman, 2019).

One analytic tool that has facilitated this work is Health Impact Assessment, or HIA (Bhatia, 2011; Harris-Roxas et al., 2012; Heller et al., 2014). HIA is commonly understood as:

> *"a systematic process that uses an array of data sources and analytic methods and considers input from stakeholders to determine the potential effects of a proposed policy, plan, program, or project on the health of a population and the distribution of those effects within the population." (National Research Council, 2011, p.5)*

Use of HIA has been increasing in the US (Dannenberg et al., 2006; Ross et al., 2014), with recent reviews showing that they have been conducted on a wide range of projects and policies (Bourcier et al., 2015; Dannenberg et al., 2014; Dannenberg et al., 2008; NCHH, 2016). However, HIA is not used regularly at local levels to assess potential health impacts of policy decisions as part of standard practice. Rather, it is used mostly on a voluntary basis by only a few city/county agencies, usually in collaboration with non-profits, universities, and the private sector. For example, based on our 2016 review of publicly available data tracking all HIAs conducted in the US, just 53 city/county health agencies had served as the lead/authoring partner for an HIA since 1999, with 90 total HIAs completed among them. This represents just 2% of the 2,532 city/county agencies defined by the National Association of City and County Health Officials as local health departments, or LHDs (NACCHO, 2013). Based on a more recent review of these data (Health Impact Project, 2020), 71 city/county LHDs—3% of all LHDS—have now served as lead/authoring partner, with 134 total HIAs completed among them. San Francisco Department of Public Health has led the way, serving as a lead partner on at least 19 HIAs. Douglass County Health Department, NE has been a lead partner on at least 9 HIAs, and a handful of other LHDs have served as a lead on at least three HIAs, including Maricopa County Department of Public Health, (AZ), Los Angeles County Department of Public Health, and Ingham County Health Department (MI).

With a growing appreciation for how "place" matters for health (Acevedo-Garcia et al., 2014; Diez Roux & Mair, 2010; Kawachi & Berkman, 2003; PolicyLink, 2007; RWJF, 2008, 2011), one would expect LHDs to actively pursue tools and strategies that hold potential to address

elements of local built, social, economic, and political environments. A core feature of HIA is that it can be used to assess any type of policy, program, project, or plan, including zoning, land use, community development, and housing—all elements, for example, that shape distributions and patterns of place-based SDH exposures, experiences, and opportunities (Braunstein & Lavizzo-Mourey, 2011; Frank et al., 2006; Maantay, 2001; Northridge & Sclar, 2003; Pastor & Morello-Frosch, 2014; Rogerson et al., 2014; Wernham, 2011; Wilson et al., 2008). Thus, by its very nature, HIA is a tool designed to address local SDH, improve place, and promote health equity (Heller et al., 2014; PolicyLink, 2013).

***HIA, SDH, and Place: A Baltimore Story***

Despite connections between HIA, SDH, and place-health relationships, LHDs have been slow to adopt the formal use of HIAs or incorporate the application of its core components and principles in the policy development process. Baltimore City Health Department (BCHD) was one such LHD. A 2010 report on health inequities revealed that, like many large cities, Baltimore has far to go to achieve health equity (BCHD, 2010). Moreover, a 2011 report focused on SDH and health at the neighborhood-level revealed significant inequities within the city (BCHD, 2011). For example, compared to other communities, predominantly black and high-poverty communities have up to 3 times as many liquor stores, 4 times as many tobacco stores, 35 times as many vacant buildings, 2.5 times as many vacant lots, and 3 times as many fast-food and carry-out restaurants (Petteway, 2012). Within this SDH context, the report uncovered a 21-year gap in life expectancy between the city's most- and least-healthy neighborhoods. Another report in 2012 demonstrated a strong connection between historic patterns of racial residential segregation (e.g. from redlining), persistent poverty, and health (Joint Center, 2012). These reports make it abundantly clear that place (and how it is "made") matters for health, and that addressing SDH is integral to any strategy to achieve health equity. Moreover, inequities in these social and environmental conditions are shaped by local policy and practice decisions, and accordingly could benefit immensely from HIA.

Two Baltimore projects that have employed HIA include *The Redline Project*, related to the proposed development of a new light-rail transit route (Ricklin, 2008), and *TransForm Baltimore*, related to a comprehensive zoning code re-write (Thornton et al., 2013). A third HIA related to a proposed community redevelopment plan, the *Downtown-Westside Redevelopment Implementation Plan*, was completed in 2014. However, while HIA is not entirely foreign to Baltimore City, to date there is no standard HIA process to evaluate the potential health impacts of local policy decisions. Moreover, currently there is no general process established to ensure health is considered from the very beginning of the policy development process, e.g. a health in all policies (HiAP) approach (Rudolph et al., 2013). The work presented here describes an attempt to move the needle in this regard, and could prove particularly timely given the iterative releases of updated Neighborhood Health Profiles (BCHD, 2017), which continue to highlight the importance of examining local policy roots of place-based SDH inequities in Baltimore City.

***Building Momentum Towards HIA Through Local Policy Reviews: Revisiting a Baltimore Study***

In this paper, we revisit and present findings from a policy review of City Council policy for Baltimore City for calendar years 2008 and 2009. We completed this work ten years ago with the following goals in mind:

1. Ascertain the amount, types, and magnitude of policies that may potentially impact the health of Baltimoreans, i.e. a low-level "screening" of all policies introduced
2. Identify policies that were referred to the Baltimore City Health Department (BCHD) for review and those that were not
3. Identify gaps in BCHD referral patterns, i.e. what kind of policy does BCHD not receive that could have potential health impacts?
4. Outline replicable processes that LHDs can use to monitor SDH policies and explore potential HIA opportunities

We have previously shared the results of the 2008 review with various LHD officials and practitioners (Petteway, 2010). We shared both the 2008 and 2009 reviews within the LHD and with various Baltimore City officials as part of our efforts to scale-up and deepen local efforts to address local SDH, and to build interest and capacity for HIA and, potentially, HiAP. These reviews were foundational in local efforts related to addressing SDH and led to the BCHD's first HIA grant in 2011. We revisit this work now as an opportunity to again highlight it's potential value in outlining a way forward for LHDs to make inroads towards HIA use and HiAP considerations in local practice to address SDH and place-health relationships. Given the pace at which public health discourse regarding SDH and health equity has grown over the last decade, we believe this "excavation" of sorts could present as timely and potentially instructive.

We briefly describe the review process and present summary review data. We then discuss major findings, limitations, and potential practice impacts and implications for LHDs.

## Methods

### *Legislation Search*

For the 2008 policy review, the online legislative database for Baltimore City Council was searched for *Resolutions* and *Ordinances* with legislative file numbers beginning with "08." In addition to an overall search, separate searches were performed for legislation sponsored by each of the 15 active City Council members for both types of legislation, and by legislative status. Only legislation introduced between 1/1/2008 and 12/31/2008 was included for the 2008 searches. All searches were performed between 2/25/2009 and 4/15/2009. This same procedure was repeated for 2009 City Council policy using "09," with all searches being performed between 4/1/2011 and 6/24/2011.

### *Legislation Review and Classification*

Summaries for all policies, including both Resolutions and Ordinances, were evaluated to ascertain basic degree of health-relatedness. Entire legislative files were read only if health-relatedness of summary content was unclear or insufficient to make a determination. Polices that were determined to be health/safety-related—directly or indirectly, and regardless of magnitude or degree of explicitness—were collated, re-evaluated, and categorized based on if they were: a) Explicitly Health/Safety-Related, or b) Related to SDH. Policies categorized as "explicitly health/safety-related" (EHR) explicitly mentioned health, safety, and/or health-related topics (e.g. asthma, smoking, trans fats), or otherwise pertained to matters commonly recognized as being related to health/safety (e.g. child welfare, firearms, sanitation, animal control) (**see Table 1**).

Policies involving topics commonly considered SDH, or that influence SDH (directly or indirectly), were categorized as Related to SDH. Considerations for which policies constituted/

affected SDH were rooted in SDH literature and core guiding documents within health equity and HIA work (PolicyLink, 2007; Ramirez et al., 2008; RWJF, 2008; WHO, 2008). These included policies that are traditionally outside the scope of "health" policy, e.g. policy regarding homelessness, parks, green buildings, affordable housing, transportation, vacant housing/ lots, living wages, zoning and community development (**see Table 1**).

Legislation that was reviewed and did not fall into the EHR or SDH categories was excluded in the remaining analysis. The EHR and SDH policies were then sorted based on their current or final legislative status: Enacted (for Resolutions), Adopted (for Ordinances), Withdrawn, Failed, or In Committee. These categorized and sorted policies were then compared to a list of policies that were forwarded from City Council to BCHD for comment and review of potential health concerns. These policies were forwarded at the discretion of each City Council subcommittee, i.e. committee members determined whether or not formal assessments/comments would be sought from various agencies for each pending policy, including BCHD. Policy review results were then tabulated—stratifying by year, type of policy, EHR or SDH, policy status, and BCHD review status.

## Findings Summary

We identified and assessed 179 Resolutions and 418 Ordinances—597 total policies—across the 2008 and 2009 calendar years (**Figure 1**). Again, a total of 89 policies (15%) were identified as "explicitly health-related," 34 (38%) of which were referred for LHD review. 208 policies (35%) were identified as "related to SDH," only 13 (6%) of which were referred for LHD review. Overall, 297 (50%) policies were identified as having potential health impacts, only 47 (16%) of which were reviewed and commented on for potential health considerations by BCHD (**Figure 2**).

**Figure 1: Summary of 2008 & 2009 Polices Referred for Health Review**

| 2008 & 2009 | Resolutions | BCHD Reviewed | Ordinances | BCHD Reviewed | R&D | BCHD Reviewed |
|---|---|---|---|---|---|---|
| Total 2008 and 2009 | 181 | | 433 | | 614 | |
| Total Reviewed (on file) | 179 | | 418 | | 597 | |
| Total Health/ Safety-Related | 93 (52%) | 16 (17%) | 204 (49%) | 31 (15%) | 297 (50%) | 47 (16%) |
| Explicitly Health/ Safety | 44 (47%) | 13 (30%) | 45 (22%) | 21 (47%) | 89 (30%) | 34 (38%) |
| Related to SDH | 49 (53%) | 3 (6%) | 159 (78%) | 10 (6%) | 208 (70%) | 13 (6%) |

Figure 1: BCHD is Baltimore City Health Department. Note that a total of 17 policies were not on file in the database and were therefore not included in this review.

**Figure 2: Summary of 2008 & 2009 Polices Referred for Health Review**

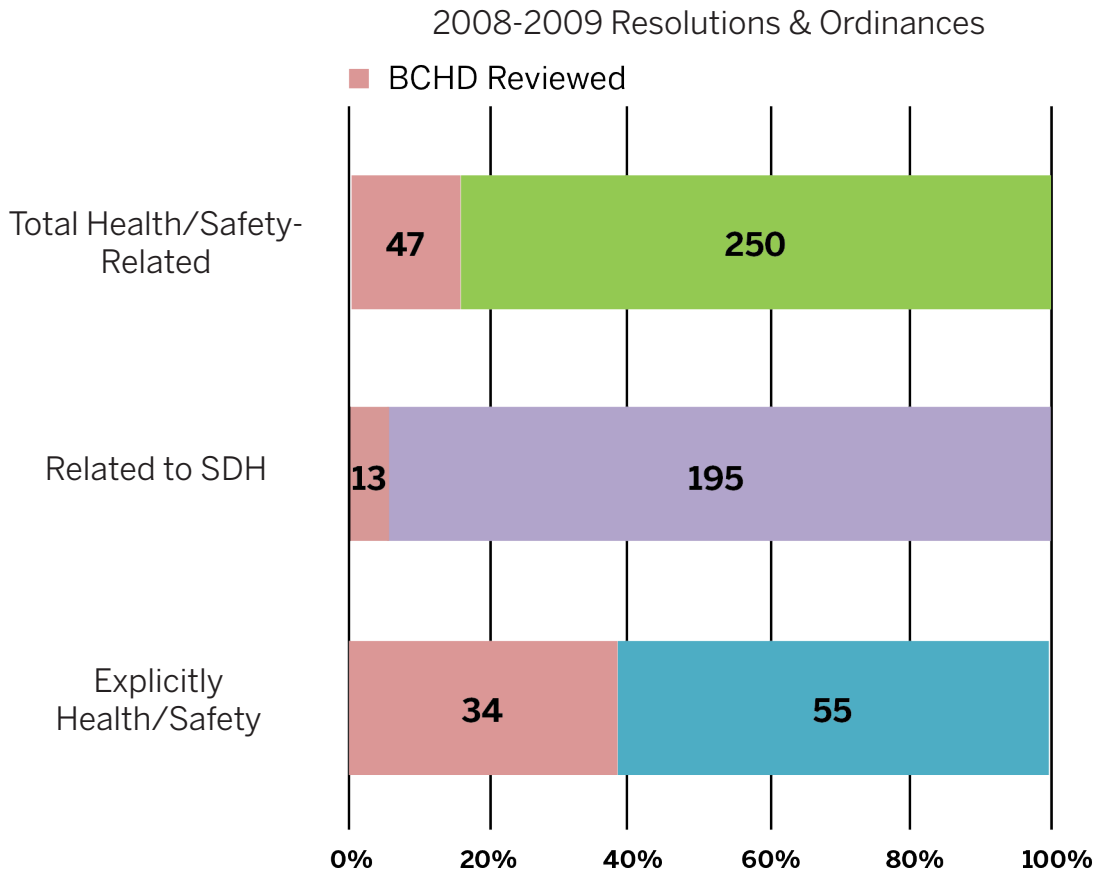


Figure 2: BCHD is Baltimore City Health Department. Note that a total of 17 policies were not on file in the database and were therefore not included in this review.

**Table 1** provides an illustrative overview of the types of policies that were identified as having potential health impacts, distinguishing those that were "explicitly health-related" and those that were "related to SDH." **Table 2** highlights some major SDH-related policies that were not reviewed for potential health impacts, thus representing significant missed opportunities to potentially improve place-health relationships in the city.

**Table 1: 25 Illustrative Examples of Policies Reviewed & Categorized for Potential Health Impacts**

| Illustrative Examples of Policies Reviewed & Categorized for Potential Health Impacts | | | | |
|---|---|---|---|---|
| **Policy Category** | **Policy Type** | **Policy Topic** | **Status[1]** | **BCHD-Reviewed** |
| **Explicitly Health-Related (EHR)** | Resolution | Asthma Awareness Month acknowledgment | Adopted | No |
| | Resolution | Baltimore Green Week acknowledgment: Healthy Cities & Healthy Lives | Adopted | No |
| | Resolution | Informational Hearing; Public Wellness and Disease Prevention Program; request for BCHD to discuss available practices/resources for Baltimore City | Adopted | Yes |
| | Resolution | Informational Hearing; Vector Control; request for City Council briefing on effectiveness of efforts | Adopted | Yes |
| | Resolution | Investigative Hearing; Decommissioning, Dismantling, and Closure of Hazardous Material Sites | In Committee | Yes |
| | Ordinance | Trans Fats; exempting certain bakeries from the provisions governing food containing trans fat | Enacted | Yes |
| | Ordinance | Repeal ban, sale of contraceptives to minors | Enacted | Yes |
| | Ordinance | Zoning ; Conditional Use; Non-profit Home and Transitional Housing Facility for the Care and Custody of Homeless Persons | Enacted | Yes |
| | Ordinance | City Streets - Bike-Safe Grates; requiring that all City street paving and repaving contracts require that drainage grates be installed in a bike-safe alignment | Enacted | No |
| | Ordinance | Flavored Tobacco Wrappings; Sale or Distribution; prohibiting the sale or distribution of flavored tobacco wrappings | Enacted | Yes |
| | Ordinance | Tobacco Products; strengthening the prohibition against the sale or transfer of unpackaged cigarettes | Failed | Yes |

[1]At time of review

**Illustrative Examples of Policies Reviewed & Categorized for Potential Health Impacts**

| Policy Category | Policy Type | Policy Topic | Status[1] | BCHD-Reviewed |
|---|---|---|---|---|
| **Explicitly Health-Related (EHR)** | Ordinance | Baltimore City Sustainability Plan; establishing a Sustainability Plan for the City of Baltimore | Enacted | Yes |
| | Ordinance | Food Service Facilities - Suspension or Non-renewal of Licenses; authorizing the suspension or non-renewal of a license for a food service facility that has received multiple environmental or civil citations | Enacted | Yes |
| **Related to SDH** | Resolution | Urging Baltimore City Public Schools CEO to adopt Non-Violent Conflict Resolution Curriculum (Education) | Adopted | No |
| | Resolution | Informational Hearing; Revocation of Federally Subsidized Housing Assistance; to keep housing free of "criminals" and those "associated with criminals or persons with criminal intent" (Housing; Criminal Justice) | Adopted | No |
| | Resolution | Celebration/acknowledgment of Bike to Work Week (Transportation) | Adopted | No |
| | Resolution | Task Force on Noise Laws and Enforcement (Environment) | Adopted | No |
| | Ordinance | Plastic Bags; imposing a surcharge on certain bags provided by dealers to customers (Environment) | Enacted | Yes |
| | Ordinance | Zoning ; Conditional Use; Nonprofit Home and Transitional Housing Facility for the Care and Custody of Homeless Persons (Housing) | Enacted | Yes |
| | Ordinance | Urban Renewal; Greenmount West (Community Development) | Enacted | No |
| | Ordinance | Zoning; Condition Use; Incinerator (Community Development) | Enacted | No |
| | Ordinance | Speed Monitoring Systems (Transportation) | Enacted | No |
| | Ordinance | Planned Unit Development; The State Center, Transit Oriented Development Business Planned Unit Development (Transportation; Community Development) | Enacted | No |
| | Ordinance | Transit and Traffic; Bike Lanes for the purpose of allowing the creation of bike lanes (Transportation) | Enacted | No |
| | Ordinance | Westport Waterfront Development District (Community Development) | Enacted | No |

**Table 2: 25 Missed Opportunities to Inform Policy Decisions Related to SDH: Illustrative Examples of Place and Health-Impacting Policies Not Reviewed by BCHD**

| 25 Illustrative Examples of Place and Health-Impacting Policies Not Reviewed by BCHD | | | |
|---|---|---|---|
| **Policy Type** | **Year** | **Policy Topic** | **Status[2]** |
| Resolution | 2008 | Informational Hearing; Revocation of Federally Subsidized Housing Assistance; to keep housing free of "criminals" and those "associate with criminals or persons with criminal intent" (Housing; Criminal Justice) | Adopted |
| Resolution | 2008 | Allowing students to use MTA transfers until 8PM on school days (Education; Transportation) | In Committee |
| Resolution | 2008 | Request for State Legislation; increase penalty for all felony gun crimes (Criminal Justice) | Adopted |
| Resolution | 2008 | Request for development & implementation of gang-related violence training for Baltimore City Public School teachers (Education; Criminal Justice) | Adopted |
| Resolution | 2009 | Baltimore City Youth Development Task; establishing a citywide task force to provide substantive direction on how to expand and allocate resources on positive youth-centered activities (Education; Community Development) | Adopted |
| Resolution | 2009 | Requesting the Baltimore City Police Department to implement online reporting systems to disclose the final internal investigation results of officer-related shootings provide a greater level transparency to the citizens of Baltimore (Criminal Justice) | Adopted |
| Resolution | 2009 | Informational Hearing; inviting the Baltimore Police Commissioner to report to the City Council on the recent mass dismissal of internal misconduct cases (Criminal Justice) | Failed |
| Resolution | 2009 | Request for Budget Action; requesting the Mayor to restore funding for recreation centers, childcare centers, Police Athletic League Centers, and City pools (Recreation; Education) | Adopted |
| Resolution | 2009 | Informational Hearing; requesting the Senior Vice President of Customer Relations and Account Services for BGE to report to the City Council on efforts to help low-income customers manage energy costs (Energy Security) | Adopted |

[2]At time of review

| Policy Type | Year | Policy Topic | Status[2] |
|---|---|---|---|
| Ordinance | 2008 | City Trees; extending certain laws for the protection of trees along public ways to apply also to trees in parks, squares, and other public places (Natural Environment; Climate) | Enacted |
| Ordinance | 2008 | Planned Unit Development; The State Center, Transit Oriented Development Business Planned Unit Development (Transportation; Community Development) | Enacted |
| Ordinance | 2008 | Planned Unit Development; The State Center, Transit Oriented Development Business Planned Unit Development (Transportation; Community Development) | Enacted |
| Ordinance | 2008 | Westport Waterfront Development District (Community Development) | Enacted |
| Ordinance | 2009 | Urban Renewal; Harlem Park II (Community Development | Enacted |
| Ordinance | 2009 | Urban Renewal; Park Heights (Community Development | Enacted |
| Ordinance | 2009 | Urban Renewal; Greenmount West (Community Development | Enacted |
| Ordinance | 2009 | Zoning; Conditional Use Permit; Incinerator (Zoning; Land Use) | Enacted |
| Ordinance | 2009 | Speed Monitoring Systems (Transportation) | Enacted |
| Ordinance | 2009 | Urban Renewal; Belair-Erdman (Community Development | Enacted |
| Ordinance | 2009 | Urban Renewal; Reistertown Plaza Transit Station (Transportation; Community Development) | Enacted |
| Ordinance | 2009 | Bike-Safe Grates; requiring that all City street paving and repaving contracts require that drainage grates be installed in a bike-safe alignment (Transportation) | Enacted |
| Ordinance | 2009 | Transit and Traffic; Bike Lanes for the purpose of allowing the creation of bike lanes (Transportation) | Enacted |
| Ordinance | 2009 | Land Bank Authority; for the purpose of establishing the Land Bank Authority of Baltimore City (Community Development) | Withdrawn |
| Ordinance | 2009 | Newly Constructed Dwellings; reauthorizing and extending for a certain period the property tax credit for newly constructed dwellings (Community Development) | Enacted |
| Ordinance | 2009 | Downtown Management District; extending the Downtown Management District to encompass an area bounded by Franklin Street to the north, Howard Street to the east, Saratoga Street to the south, and Eutaw Street to the west (Community Development) | Enacted |

## Discussion: Implications for Policy and Practice

There are perhaps three major takeaways from the work we summarized here. First, based on our review, BCHD reviewed/commented on just 16% of potentially health-impacting policies introduced during 2008 and 2009 calendar years (**Figure 2**). In other words, an overwhelming majority—84%—of Baltimore City Council policies with the potential to impact health were not reviewed accordingly. Moreover, BCHD was much more likely to review policies with explicit connections to health—reviewing 38% of EHR policies vs. just 6% of SDH polices (**Figure 2**). This means that dozens of opportunities to address local SDH were missed (see some major examples in **Table 2**). Overall, the pattern of BCHD reviews during these two years suggests a pronounced "downstream" perspective regarding what constitutes "health" policy, e.g. policies related to tobacco, trans fats, vector control, and contraceptives (**Table 1**).

Second, BCHD reviews of policy were proportionately similar between resolutions (17%) and ordinances (15%) (**Table 1**). Resolutions tend to be more symbolic and affirmational gestures towards policy values and priorities, or requests for additional information regarding topics that might eventually become a policy priority. They do not in themselves constitute true policies in the manner traditionally understood within the scope of HIA and HiAP, as they do not change laws, budgets, or practices in ways that would fundamentally alter the lived contexts of health opportunity. This suggests, perhaps, a need to better prioritize review energies such that more substantial policies, i.e. actual laws, are subjected to more frequent and rigorous review/comment for health—particularly given the extent to which major SDH-related ordinances were enacted into law without BCHD review or comment (**Table 2**).

And third, from our review, it was clear that most of the major policies that fundamentally alter place-based contexts of health opportunity and risk were not reviewed, many of which were related to zoning, urban renewal, and community development (**Table 2**). Critically, many of these unreviewed policies directly affected the neighborhoods experiencing the highest burden of health inequities, e.g. Park Heights, Greenmount, Harlem Park (BCHD, 2011, 2017)—communities in which the distribution of health opportunities and risks has been historically shaped by mechanisms of structural racism, like redlining (Joint Center, 2012). There is quite literally no point in completing future iterations, for example, of the Neighborhood Health Profiles if the policies responsible for (re)producing, maintaining, or exacerbating the inequities revealed in these reports continue to be developed and enacted without application of a critical health lens. This suggest a critical need to develop mechanisms so that such polices (e.g. urban renewal, community development) are routinely reviewed in light of potential health impacts—even in the absence of HIA resources. Reviews like the one discussed here could be used to contextualize the outcomes data made available by an increasing number of tools/platforms (CDC, 2020; NAPHSIS, 2020; PolicyMap, 2020; RWJF, 2020), and perhaps allow for more robust and locally actionable assessments of place-health relationships, drawing from—and enhancing the geographic resolution of—legal epidemiology approaches in public health (Burris et al., 2016; Ramanathan et al., 2017).

This review also had several limitations worth noting here. First, we relied on a publicly accessible policy database to identify policies in each of the years included in our review. As indicated in **Figure 1**, a total of 17 policies

were not on file in the database and we were thus unable to include them in our review. This review, while still rather extensive, is incomplete. Second, we relied on a generally imprecise process for categorizing policies in regard to their health-relatedness. As noted above, we relied on our knowledge of SDH and the guidance of core documents related to SDH and HIA in developing our broad categories of "explicitly-related to health" and "related to SDH." Moreover, we did not complete inter-rater reliability testing as part of the policy categorization process, primarily because our intention was to simply complete a rough/cursory examination of what the LHD was reviewing and not reviewing. We were aiming for a quick process that could be applied/adapted in the practical contexts of local practice, wherein many LHDs, like BCHD, do not have the staff resources or technical capacity to more formally structure and evaluate policy categorizations. We thus approached the two years of policy as a sort of test of concept/process, with the intention to enhance/refine in future iterations. We do not discount that separate reviewers more than likely would have made different category allocations for some policies, and likely would have included/retained additional policies at the health-relatedness categorization stage (we excluded 300 policies). Given that we were indeed hoping from the outset to explore/arrive at a process that other LHDs could potentially follow/replicate, formally assessing policy categorization reliability from the beginning would have afforded greater technical guidance for uptake elsewhere.

And third, we also acknowledge that our decision to use two discrete categories—EHR and SDH—presumes that each is mutually exclusive, even though, in effect, many policies have direct health connections and indirect impacts via various SDH mechanisms. Even so, we believe these categories afforded us sufficient direction to complete what we intended as a cursory/exploratory review and assessment of policies. And we accordingly believe that our general process remains transferrable if not fully replicable with the enhancement of inter-rater reliability testing.

It's important to note here that while this review was partly intended to reveal the potential vitality of HIA as a tool to assess local policy, it was mostly a way to demonstrate the need to simply consider the potential health impacts of 'non-health' policies, i.e. policies that are/affect SDH. Conducting an infinite number of HIAs is obviously not a viable goal or solution. Accordingly, we approached this review as a means to use the discourse and lens of HIA as a vehicle to open discussions regarding long-term, proactive approaches to promote health equity within and through standard policy processes, similar to efforts undertaken elsewhere (Den Broeder, 2003; Gagnon & Michaud, 2008; Wernham & Teutsch, 2015). Thus, we considered the broader aims of this work to support progress towards:

1. Developing a replicable process through which local policies possessing the ability to significantly impact the health are identified and referred for LHD review
2. Expanding the scope of 'health' policy to include all policies that shape residents' built, social, and economic environments and opportunities, including those related to zoning, community development, land use, transportation, education, and housing, i.e. moving LHD review of polices closer to HiAP

As noted above, LHD engagement and uptake of HIAs has been remarkably limited, and in the absence of either interest, resources, or capacity to conduct HIAs, LHDs might benefit from more rudimentary—but ultimately, more

foundational—tools and processes. At the time of our review, the health review process in Baltimore was not proactively led by LHD staff. Rather, City Council committee members made determinations regarding which City agencies should review/comment on each policy (e.g. the Education subcommittee sending school/education-related policies for review by Baltimore City Public Schools leadership). Our review makes it clear that such a process is insufficient. Moreover, it suggests that real-time tracking/monitoring of policy by LHD staff is a viable and more robust way to ensure a health lens is applied. The work presented here, we believe, highlights the potential value of local policy reviews as a low-cost "screening"-like process for LHDs. Such reviews can serve as a tool to identify the most significant policies in need of detailed LHD review as they are introduced. In this way, the reviews serve as a sort of gateway tool to identify potential HIA opportunities (should resources become available) and as a model process to move towards HiAP within local government, with every policy given at least a cursory examination in regard to health equity implications.

In an absence of such a review process in Baltimore City for 2008 and 2009, several significant polices were approved without any analysis of potential health impacts—failing to even be referred to BCHD for a cursory review, comment, or sign-off (**Table 2**). Examples range from transportation policy for public school students and energy security for low-income residents, to transit-oriented development projects and protecting city tree canopy, to the aforementioned community development policies. And, given the emotional and psychological health toll that deaths at the hands police #FreddieGray #KorrynGaines have on families and entire communities (Bor et al., 2018), it's worth noting that there was an entire collection of policies related to police (mis)conduct and criminalization that went unreviewed for potential health impacts, including policies that investigated the mass-dropping of police misconduct cases and called for greater transparency regarding officer-involved shootings and misconduct (**Table 2**). As previously noted, these sorts of policies would not have been referred automatically to BCHD for review. Someone would have had to have been proactively monitoring all policies as they were introduced, then flagged them for review. The fact that these policies were not referred to BCHD, and the fact that BCHD staff either did not see them or feel the need to review/comment on them, speaks rather poignantly to the myopic tendencies of LHDs in regard to health equity efforts, often failing to see the nuanced structural factors driving community and population health risks and outcomes.

Certainly, not all of the 297 policies we identified as having potential health impacts needed a detailed review. Indeed, many did not appear to need much more than a simple acknowledgment, e.g. dozens of zoning policies that modified basic elements of property lines or rights of way. On the other hand, there were dozens of policies that could have benefitted from and been potentially strengthened by a more health-conscious review, some of which possessed the ability to alter the landscape of place-based opportunities and risks for years to come. We believe this could have been averted with a basic commitment to more closely monitor policy development activities across all sectors of local government. In this light, this review could serve as a potential model process for LHDs to move in that direction—generally, the direction of an HiAP orientation and practice among LHD leadership and legislative/policy directors.

## Conclusion

The review presented here represents a potentially replicable process to monitor policy with potential health impacts and can serve as a starting point to identify HIA opportunities, or as a foundational process for HiAP. In Baltimore, this work facilitated dialogue around HIA with key City officials, including focused discussion with various City Council members on how to incorporate the principles and core philosophy of HIA into City policy development processes. These discussions strengthened rapport between the LHD and City Hall and engendered additional support/motivation to formally pursue HIA. This work led directly to the first HIA grant for the City health department, which improved prospects for integrating HIA into standard practice, and led to completion of at least 2 HIAs between 2011 and 2015. Moreover, this work was a key element to development/framing of two major LHD reports: one highlighting neighborhood SDH for the first time (the 2011 Neighborhood Health Profiles), and the other outlining the City's strategic plan/vision for health (Healthy Baltimore 2015)—which was the first official LHD report to mention HiAP as policy priority. Other LHDs might benefit from engaging in similar review processes to facilitate movement towards HIA and HiAP as part of standard practice to address local SDH, improve place-health relationships, and promote health equity.

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**CORRESPONDING AUTHOR**
Ryan J. Petteway, DrPH, MPH
Assistant Professor
Portland State University
OHSU-PSU School of Public Health
petteway@pdx.edu

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# ELECTRIC SCOOTERS (E-SCOOTERS): ASSESSING THE THREAT TO PUBLIC HEALTH AND SAFETY

*Amber R. Comer PhD, JD[1,2,4], Nate Apathy PhD[3], Carly Waite[1], Zoe Bestmann JD Candidate[4], Jacob Bradshaw JD Candidate[4], Emily Burchfield JD Candidate[4], Brittany Harmon JD Candidate[4], Rebekah Legg JD Candidate[4], Star Meyer JD Candidate[4], Patrick O'Brien JD Candidate[4], Micha Sabec JD Candidate[4], Jami Sayeed JD Candidate[4], Alexis Weaver JD Candidate[4], Lynn D'Cruz PT[1], Stephanie Bartlett PT[1], McKenzi Marchand[1], Isabel Zepeda[1], Katelyn Endri[1], John T. Finnell MD[2,5], Shaun Grannis MD, MS[2,5], Ross D. Silverman JD[3,4], Peter J. Embi MD, MS[2,5]*

## Abstract

**Objective:** To determine self-reported incidences of health and safety hazards among persons who ride rentable electric scooters (e-scooters), knowledge of e-scooter laws, and attitudes and perceptions of the health and safety of e-scooter usage.

**Methods:** A cross-sectional survey of n= 561 e-scooter riders and non-riders was conducted during June of 2019.

**Results:** Almost half of respondents (44%) report that e-scooters pose a threat to the health and safety of riders. Riders and non-riders disagree regarding the hazards that e-scooters pose to pedestrians. Among riders, 15% report crashing or falling off an e-scooter. Only 2.5% of e-scooter riders self-report that they always wear a helmet while riding.

**Conclusions:** E-scooter riders report substantial rates of harmful behavior and injuries. Knowledge of e-scooter laws is limited, and e-scooters introduce threats to the health and safety of riders, pedestrians on sidewalks, and automobile drivers. Enhanced public health interventions are needed to educate about potential health risks and laws associated with e-scooter use and to ensure health in all policies. Additionally, greater consideration should be given to public health, safety, and injury prevention when passing relevant state and local e-scooter laws.

*1. Indiana University School of Health and Human Sciences*
*2. Regenstrief Institute*
*3. Indiana University Fairbanks School of Public Health*
*4. Indiana University McKinney School of Law*
*5. Indiana University School of Medicine*

## Background

Seemingly overnight, rentable electric motorized scooters (e-scooters) appeared in cities around the country. In addition to creating a new form of transportation, they introduce new public health and safety concerns and the need for new laws and regulations (Choron & Sakran, 2019). Currently, more than 50 cities in the United States allow the use of e-scooters (Bird, n.d.a; Lime, n.d.). Although some cities considered banning e-scooters, those that have approved their use since September of 2017, have passed regulations banning e-scooters from sidewalks, setting parameters for the times that e-scooters may be used, and extending "operating while intoxicated" laws to include e-scooters (Hawkins, 2019b; Hawkins, 2019c; May & Hill, 2018; May, 2019; Renki, 2019; Sikka et al., 2019). The goals of e-scooter regulations are to protect the health and safety of e-scooter riders as well as non-riders, such as pedestrians and drivers. However, questions arise as to whether these initial regulatory attempts substantively respond to the novel morbidity and mortality risks associated with e-scooter proliferation and use.

In Portland, Oregon, a pilot of rentable e-scooters resulted in 176 e-scooter accidents resulting in emergency department (ED) visits during the six-month trial period (Portland Bureau of Transportation, 2019). Additionally, in Portland, the bureau of transportation reported a high number of complaints related to e-scooter riding on sidewalks with 3% of all injuries during the pilot program deriving from collisions with pedestrians (Portland Bureau of Transportation, 2019). A study in Los Angeles, California reported 249 ED visits related to e-scooter use during a one-year period, and Salt Lake City, Utah reported 50 e-scooter-related injuries over a 5-month period in 2018 (Badeau et al., 2019; Trivedi et al., 2019). Individuals renting e-scooters from at least one prominent e-scooter vendor (Bird) may self-report accidents through their proprietary mobile application. A safety report issued by Bird found that their users' self-reported accidents via their app at a rate of one injury per 27,000 miles ridden on their e-scooters (Bird, 2019). The most comprehensive examination of e-scooter injuries undertaken to date was conducted by the Centers for Disease Control and Prevention (CDC) in collaboration with the Austin, Texas Public Health Department (Austin Public Health, 2019). Examining both Emergency Services (EMS) and ED visits over a three-month period in 2018, this study reported a total of 192 injuries resulting in a clinical visit. Of those injured, two people were non-riders injured by an e-scooter, and nearly half of those injured sustained a head injury (Hawkins, 2019a). Similar to the CDC study, a recent study published in the Journal of American Medical Association (JAMA) found that head injuries were sustained by 40% of those injured in an e-scooter accident (Trivedi et al., 2019). In addition to reports of injuries, a survey conducted in San Antonio, Texas found that respondents had concerns about e-scooter safety (City of San Antonio, 2019).

Although there have been several studies reporting injuries related to e-scooter use, and one white paper produced by the city of San Antonio exploring attitudes of citizens toward scooters, there have been no studies published assessing the public's knowledge, attitudes and perceptions of the health and safety of e-scooter use. In order to ensure health in all policies and pass meaningful policies and regulations which support public health and safety, it is important to identify the public's perception of e-scooter health and safety risks, as well as their knowledge of existing e-scooter laws. This study is the first to report e-scooter rider self-reported incidents of health and safety hazards associated with e-scooter use, knowledge of e-scooter laws, and the public's attitudes

and perceptions of health and safety issues associated with e-scooter usage. The results of this study will help inform health in all policies.

## Methods

A cross-sectional survey of both e-scooter riders and non-riders was conducted in Indianapolis, Indiana during June 2019 to determine attitudes and perceptions of the health and safety of scooter usage among both e-scooter riders and non-riders.

### *Survey Design*

The survey was designed from a review of the available literature and was reviewed for both content and face validity. Feedback was obtained from community members regarding question clarity, word choice, missing items, and overall length. The survey was pretested for content validity with possible survey participants. The survey was designed to measure: 1) self-reported incidences of health and safety hazards associated with e-scooter usage; 2) knowledge of local e-scooter laws; and 3) the attitudes and perceptions of the health and safety issues related to e-scooter usage. The survey prompted participants to self-report information using the responses of yes, no, or unsure. The Indiana University-Purdue University Indianapolis (IUPUI) Institutional Review Board Approved this survey.

### *Survey Sample*

Participants located in the downtown area of Indianapolis, Indiana, who were 18 years of age or older and able to read and write English were included in this study. Participants under 18 years of age were excluded because they are prohibited from renting e-scooters due to minimum age requirements.

### *Survey Administration*

Individuals located in downtown Indianapolis, Indiana during the week of June 10 – 17th 2019, were asked to participate in this survey. The downtown area with heavy foot traffic was selected for survey distribution because e-scooters are primarily available in this location of the city. Potential participants were a convenience sample who were approached by research assistants and asked if they would like to participate in the survey. Study participants were not offered an incentive for participation. Completed surveys were entered and stored in REDCap electronic data capture (Harris et al., 2009).

### *Statistical Analysis*

Descriptive statistical analysis was performed to determine participant self-reported use of scooters, scooter safety, knowledge of laws pertaining to e-scooter use in the city, and attitudes and perceptions of the health and safety of scooter use. Chi-squares were performed to determine differences between persons who identified that they have ever ridden an e-scooter (riders) and persons who identified that they have never ridden an e-scooter (non-riders). All analyses were performed using R statistical software and the RStudio development environment (R Core Team, 2014; RStudio, 2015).

## Results

In total, 561 individuals were asked to participate in the survey, 329 of those approached agreed to participate, and 232 declined participation (59% response rate). Survey participants represented roughly equal numbers of males (n=163, 49%) and females (n=161, 50%) (Table 1). The mean age of survey respondents was 32 years of age (C.I. 13.6). The majority of survey takers were white (n=228, 70%), and 21% (n=68) of survey respondents were current college students. The proportion of scooter riders versus non-riders was equal, with 50% of participants (n=162) self-reporting that they have ridden a scooter (scooter riders). Among

scooter riders, 34% (n= 54) reported only using an e-scooter once, 15% (n=23) reported using an e-scooter once per year, 30% (n=49) reported using an e-scooter once per month, 17% (n=27) reported using an e-scooter once per week, 3% (n=5) reported using an e-scooter once per day, and 2% (n=3) reported using an e-scooter more than once per day. E-scooter riders are younger on average (p<0.001) and more likely to be college students (p=0.008)

**Table 1. Demographics**

| | All Survey Takers n=329 n (%) | Scooter Riders n=163 n (%) | Non-Scooter Riders n=164 n (%) | p-value |
|---|---|---|---|---|
| Age, years (mean, sd) | 32.1 (13.6) | 27.9 (10.5) | 36.1 (15.1) | **< 0.001** |
| Gender | | | | |
| Male | 163 (48.9) | 91 (55.8) | 72 (43.9) | |
| Female | 161 (49.5) | 68 (41.7) | 91 (55.5) | |
| Prefer not to answer | 5 (1.5) | 4 (2.5) | 1 (0.6) | |
| Race | | | | 0.313 |
| White | 228 (69.5) | 99 (63.9) | 122 (74.8) | |
| Black | 42 (12.8) | 22 (14.2) | 20 (12.3) | |
| Other | 48 (14.6) | 30 (18.4) | 18 (11.0) | |
| Prefer not to answer | 10 (3.0) | 7 (4.3) | 3 (1.8) | |
| College Student | 68 (20.9) | 44 (27.3) | 24 (14.7) | **0.008** |
| Undergraduate* | 31 (45.6) | 21 (47.7) | 10 (41.7) | 0.745 |
| Graduate* | 37 (54.4) | 23 (52.3) | 14 (58.3) | |
| College Faculty or Staff | 32 (9.9) | 14 (8.8) | 18 (11.1) | 0.602 |
| Ever used a motorized scooter | 163 (49.8) | --- | --- | |
| Frequency of scooter use | | | | |
| Has only used once | --- | 54 (33.5) | --- | |
| Once per year | --- | 23 (14.8) | --- | |
| Once per month | --- | 49 (30.4) | --- | |
| Once per week | --- | 27 (16.8) | --- | |
| Once per day | --- | 5 (3.1) | --- | |
| More than once per day | --- | 3 (1.9) | --- | |

*Percentages are of IUPUI student respondents

than non-riders.

Among e-scooter riders, 15% (n=24) self-report that they have fallen off or crashed a scooter (Table 2). Of those participants who had fallen off or crashed a scooter, 46% (n=11) report having sustained an injury from the crash, and 36% (n=4) of those who sustained an injury report having sought medical treatment for the injury. Only 2.5% (n=4) of scooter riders self-report that they sometimes or always wear a helmet while riding a scooter, although 38% (n=62) report that they would wear a helmet if it was provided at no cost, and only 19% (n=31) reporting that they knew helmets could be acquired for free through scooter companies.

Additionally, while rentable e-scooters are intended for use by individual riders, 30% (n=47) of scooter riders report that they have ridden with another person on the same scooter, and 65% (n=211) of all survey respondents (both scooter riders and non-riders) report having seen multiple people riding on the same scooter. On issues related to public safety, 28% (n=90) of all respondents report seeing an unattended scooter parked on a handicap ramp and 72% (n=235) report seeing a scooter parked in a way that obstructs pedestrians or traffic. Almost half of all respondents (43%, n=140) reported having seen someone appearing to be intoxicated riding an e-scooter.

**Table 2. Self-reported Scooter Safety**

| | n (%) |
|---|---|
| Fallen off or crashed motorized scooter* | 24 (14.8) |
| Sustained injury from motorized scooter crash** | 11 (45.8) |
| Sought medical treatment for injury (of those injured)** | 4 (36.4) |
| Always or sometimes wears helmet while riding motorized scooter* | 4 (2.5) |
| Would wear helmet if provided at no cost* | 62 (38.3) |
| Knows that helmets are provided for free* | 31 (19.3) |
| Ridden scooter with someone else* | 47 (29.7) |
| Seen multiple people riding one scooter+ | 211 (64.7) |
| Seen scooter parked on handicap ramp+ | 90 (27.5) |
| Seen scooter parked in a way that obstructs pedestrians or traffic+ | 235 (72.1) |
| Seen someone riding scooter while intoxicated+ | 140 (43.1) |

*Of self-reported scooter users
**Of self-reported scooter users who also reported a crash or fall
+Of all respondents

Among all survey respondents, 38% (n=121) did not know or were unsure if it was illegal to ride an e-scooter while intoxicated (35% of riders, n=56 and 40% of non-riders, n=65) (Table 3).

**Table 3. Motorized Scooters and the Law**

| | All Survey Takers n (%) | Scooter Riders n (%) | Non-Scooter Riders n (%) | p-value |
|---|---|---|---|---|
| Illegal to ride scooter while intoxicated | | | | **0.404** |
| Yes | 205 (62.9) | 106 (65.4) | 97 (59.9) | |
| Unsure | 97 (29.8) | 43 (26.5) | 54 (33.3) | |
| No | 24 (7.4) | 13 (8.0) | 11 (6.8) | |
| Illegal to ride scooter on the sidewalk | | | | < 0.001 |
| Yes | 153 (47.4) | 93 (57.8) | 60 (37.5) | |
| Unsure | 108 (33.4) | 36 (22.4) | 70 (43.8) | |
| No | 62 (19.2) | 32 (19.9) | 30 (18.8) | |
| Illegal to ride scooter in the street | | | | 0.003 |
| Yes | 34 (10.5) | 15 (9.3) | 19 (11.9) | |
| Unsure | 100 (31.0) | 37 (22.8) | 61 (38.4) | |
| No | 189 (58.5) | 110 (67.9) | 79 (49.7) | |

Less than half of respondents knew that it was illegal under local law to ride an e-scooter on the sidewalk (42% of riders and 63% of non- riders). Additionally, 42% of all respondents did not know or were unsure whether it was legal to ride an e-scooter in the street (32% of riders and 51% of non-riders).

More than half of respondents either agreed (44%, n=142) or were unsure (14%, n=46) whether motorized scooters pose a threat to the health and safety of the people who ride them (Table 4). There was no statistical difference between scooter riders and non-scooter riders (p=.052). More than half (60%, n=194) of all participants report that e-scooters pose a threat to the health and safety of people walking on the sidewalk, with non-scooter riders being statistically more likely to report e-scooters as a threat on sidewalks (p<0.001). Forty-six percent (n=150) of all participants report that e-scooters pose a threat to the health and safety of people who are driving in their cars. Forty-eight percent (n=158) of participants believe that more people should use scooters to get around the nearby college campus or the city of Indianapolis, with scooter riders being statistically more likely to agree with the statement that more people should use scooters (p<0.001). The majority of participants (68%, n=220) do not think that e-scooter use should be banned from the city or

**Table 4. Attitudes and Perceptions of the health and safety of motorized scooters**

| | All Survey Takers n (%) | Scooter Riders n (%) | Non-Scooter Riders n (%) | p-value |
|---|---|---|---|---|
| Motorized scooters pose a threat to the health and safety of the people who ride them | | | | |
| Yes | 142 (43.7) | 61 (38.1) | 81 (49.7) | |
| No | 137 (42.2) | 78 (48.8) | 58 (35.6) | |
| Unsure | 46 (14.2) | 21 (13.1) | 24 (14.7) | |
| Motorized scooters pose a threat to the health and safety of people walking on the sidewalk | | | | < 0.001 |
| Yes | 194 (59.7) | 75 (46.6) | 118 (72.4) | |
| No | 99 (30.5) | 64 (39.8) | 35 (21.5) | |
| Unsure | 32 (9.8) | 22 (13.7) | 10 (6.1) | |
| Motorized scooters pose a threat to the health and safety of people who are driving in their cars | | | | 0.011 |
| Yes | 150 (46.2) | 62 (38.5) | 87 (53.4) | |
| No | 150 (46.2) | 88 (54.7) | 62 (38.0) | |
| Unsure | 25 (7.7) | 11 (6.8) | 14 (8.6) | |
| Motorized scooters make you look hip or cool | | | | 0.076 |
| Yes | 65 (20.0) | 40 (24.8) | 25 (15.4) | |
| No | 202 (62.2) | 91 (56.5) | 109 (67.3) | |
| Unsure | 58 (17.8) | 30 (18.6) | 28 (17.3) | |
| More people should use motorized scooters to get around IUPUI campus or the City of Indianapolis | | | | < 0.001 |
| Yes | 158 (48.3) | 102 (63.0) | 55 (33.7) | |
| No | 90 (27.5) | 23 (14.2) | 67 (41.1) | |
| Unsure | 79 (24.2) | 37 (22.8) | 41 (25.2) | |
| Motorized scooters should be banned from the IUPUI Campus or from the City of Indianapolis | | | | **< 0.001** |
| Yes | 54 (16.6) | 17 (10.5) | 37 (22.8) | |
| No | 220 (67.5) | 130 (80.2) | 88 (54.3) | |
| Unsure | 52 (16.0) | 15 (9.3) | 37 (22.8) | |

the college campus.

## Discussion

Our findings illustrate that e-scooters may pose a threat to the health and safety of not only those who ride them, but also to persons who are walking on the sidewalk or driving cars. One reason that e-scooters may pose a danger to those who ride them is that riders are not wearing helmets. Only 2.5% of people who ride e-scooters report always or sometimes wearing a helmet. Prior studies have found that head injuries are one of the most prevalent injuries for e-scooter riders (Trivedi et al., 2019). Given the danger of head injury associated with not wearing a helmet and the lack of self-reported helmet use among e-scooter riders, public health interventions are needed to increase helmet usage on e-scooters. One possible public health intervention which is being offered by scooter companies is to provide free helmets to scooter riders (Bird, n.d.a). Although scooter companies offer free helmets to riders, this intervention may merely work to mitigate risk, as only 38% of e-scooter users report that they would not wear a helmet, even though it is recommended by the scooter company and even if it were provided at no cost. Additionally, only 19% of participants knew that free helmets were being offered by the e-scooter manufacturer. Due to the risk of injury associated with not wearing a helmet, public health interventions need to be pursued to increase the use of helmets among e-scooter riders.

The lack of knowledge of the laws pertaining to e-scooter use is another reason why e-scooters may pose a threat to public health and safety. Among e-scooter riders and non-riders alike, almost half of all people do not know that it is illegal to ride an e-scooter while intoxicated, or that it is illegal locally to ride an e-scooter on the sidewalk. Evidence shows that riding e-scooters on the sidewalk can result in pedestrian injury (Sikka et al., 2019). This is concerning, in part because only 47% of e-scooter riders believe that riding an e-scooter on the sidewalk poses a threat to the health and safety of people walking on the sidewalk, whereas the vast majority of non-riders (72%) believe riding e-scooters on the sidewalk poses a threat to pedestrian health and safety. This gap suggests that e-scooter riders do not appreciate the threat to health and safety that their actions pose to those around them. A lack of knowledge or insight into the dangers of riding e-scooters on the sidewalk may lead to more reckless and improper e-scooter use, in part because they do not believe that their behavior threatens pedestrian health and safety. The results of this study suggest that e-scooter riders may be more inclined to ride on the sidewalk because they believe riding e-scooters in the street is dangerous. One way to combat this issue may be to encourage e-scooter riders and align related e-scooter policies, toward using scooters in bike lanes, rather than ride on the sidewalk or in the street. The e-scooter company Bird had recently pledged to pay cities to build bike lanes in order to keep e-scooter riders off of sidewalks (Schmitt, 2018). Both e-scooter rider and pedestrian safety need to be considered when developing laws, ordinances, and infrastructure within cities that allow e-scooter use.

Another issue with fidelity of the law which may pose a threat to the health and safety of e-scooter riders is the lack of knowledge that it is illegal to ride a scooter while intoxicated. Operating While Intoxicated (OWI) laws apply to e-scooters, and riding an e-scooter while intoxicated may result in the same penalties as operating other motor vehicles while intoxicated. Lack of knowledge of the law may result in people riding e-scooters while intoxicated based on a belief that riding an e-scooter offers a "safer" alternative to

driving while intoxicated. Such unawareness is concerning because intoxication while riding e-scooters has been linked to severe injuries in other studies (Trivedi et al., 2019). The lack of knowledge of both the legality and danger of operating an e-scooter while intoxicated suggest that public health education interventions should be developed to inform the public of these risks. Additionally, steps should be taken to enforce the current e-scooter laws in order to protect the safety and health of the public.

This study has several limitations. First, this study was conducted in one city and may not be representative of the attitudes, perceptions and experiences of those in other cities related to e-scooter use. Second, participants represented a convenience sample and were asked to self-report information, such as the number of times they have ridden an e-scooter, which may introduce bias in the responses. Third, this study sought to measure the attitudes and perceptions of participants at one point in time. It is possible that the responses given by participants may change over time as Indianapolis' approach to e-scooter regulation evolves. Lastly, it is possible that the questions about personal safety and e-scooter use could have influenced answers to the subsequent section on e-scooter laws. Although further studies are needed to gain a more in-depth understanding of the health and safety hazards associated with e-scooter use, this study is the first to explore rider and non-rider perceptions of the risks posed by e-scooters.

## Conclusion

This study finds e-scooters may pose a threat to the health and safety of the people who ride them, to people on the sidewalk, and people in their cars. When considering health in setting policies, the results of this study indicate three things: 1) That riders are engaging in unsafe behaviors and are being harmed on e-scooters; 2) That despite the risks posed by e-scooters, riders are willing to accept them; and 3) That knowledge of e-scooter laws and safe scooter practices is lacking and needs attention.
These findings are concerning from a public health perspective as a significant share of riders engage in risky behaviors when riding e-scooters, such as riding without wearing a helmet, riding with multiple people on one scooter, and riding e-scooters while intoxicated. These risky behaviors have been found to result in severe injury, such as head injuries in other studies. In our study, 15% of scooter riders report falling off or crashing their scooter, with 36% of injury-causing crashes requiring medical attention. These findings are of additional concern because Indianapolis has recently approved two more e-scooter vendors, Lyft and Jump, to bring more rentable e-scooters into the city, although the timelines for e-scooter deployment has not yet been decided.
To reduce the risk to public health and safety, we recommend increasing public health interventions to educate e-scooter riders about safe and defensive e-scooter use, potential health and safety risks (to riders and non-riders) associated with e-scooter use, as well as the specifics of local laws and policies. Additionally, stakeholders such as city and state law makers need to consider the threat to public health as well as the safety of e-scooter riders, non-riders using local sidewalks, and drivers when passing relevant laws.

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**CORRESPONDING AUTHOR**
Amber Comer, PhD, JD
Assistant Professor of Health Sciences
Indiana University
1050 Wishard Blvd. RG, 3034
(317) 278-1026
comer@iu.edu

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# METHODS TO CONDUCT A HEALTH IMPACT ASSESSMENT LEARNING COLLABORATIVE

*Cynthia Stone, DrPH, RN; Alison Redenz, MURP, AICP; Andrea Bochenek, MPH; Ellie Hansotte, MPH*

**Abstract**

**Background:** Indiana University Richard M. Fairbanks School of Public Health (IU FSPH) and the Health and Hospital Corporation of Marion County, through the Marion County Public Health Department (MCPHD), created a Health Impact Assessment (HIA) Learning Collaborative. The purpose of the HIA Learning Collaborative was to strengthen the capacity of both the academic and community partners to carry out HIAs. Entities recognize the value of creating a collaborative team to assure personnel are trained and available to provide time and expertise for plan reviews, formal feedback, data reports, literature summaries, and input in potential health/social impacts related to projects, which can ensure these impacts are considered in development work. In addition, the MCPHD and IU FSHP intend to increase HIA capacity in Indiana and remain committed to including health impact data into non-health sector decision making.

**Methods:** The group planned to meet monthly over the year with the following learning objectives. A survey was created in Survey Monkey in order to evaluate the overall HIA Learning Collaborative experience and to assess whether or not the learning objectives were met. The survey consisted of 11 questions: nine were multiple choice and two were open-ended.

**Results:** The majority of the objectives were met.

**Conclusion:** There is interest in conducting HIAs in the future and several ideas were generated.

## Introduction/Background

Indiana University Richard M. Fairbanks School of Public Health (IU FSPH) and the Health and Hospital Corporation of Marion County, through the Marion County Public Health Department (MCPHD), created a Health Impact Assessment (HIA) Learning Collaborative to be conducted over one year. The collaborative was formed with a small funding opportunity from the Indiana University Center for Translational Science, Community Health Engagement Program. MCPHD wanted to increase staff that were familiar with the steps of a HIA and were able to apply the HIA process with community-based projects. The U.S. Department of Health and Human Services recommends HIA as one important resource for implementing many of the Healthy People 2020 Objectives, particularly those that focus on the social determinants of health (Healthy People 2020 Advisor Committee, 2010). The purpose of the HIA Learning Collaborative was to strengthen the capacity of both the academic and community partners to carry out HIAs. Entities recognize the value of creating a collaborative team to assure personnel are trained and available to provide time and expertise for plan reviews, formal feedback, data reports, literature summaries, and input in potential health/social impacts related to projects, which can ensure these impacts are considered in development work. In addition, the MCPHD and IU FSPH intend to increase HIA capacity in Indiana and remain committed to including health impact data into non-health sector decision making.

Additional partner organizations were invited to participate in the HIA Learning Collaborative, including the Top 10 Coalition, the YMCA of Greater Indianapolis, and the Indiana State Department of Health. A total of eight individuals from the various organizations routinely participated during the year- long collaborative sessions.

The learning collaborative members wanted to discuss the concept of Health in All Policies. This led to a video conference with a staff person at the National Association of City and County Health Organizations (NACCHO). NACCHO has been providing technical assistance to several local health departments about putting health into all policy discussions and evaluating the impact of this change. HIAs are one tool that can be employed to put health into the policies and programs of non-health sectors, which is the intent of Health in All Policies (American Public Health Association (APHA), 2012).

## Method for conducting HIA Learning Collaborative

The group planned to meet monthly over the year with the following learning objectives:

1. Describe the purpose, benefits, and challenges of a Health Impact Assessment.
2. Develop an in-depth knowledge of the process and analytic methods used in the assessment step.
3. Demonstrate the ability to think critically and analyze how the findings related to policy decisions.
4. Conduct an HIA on a local project/ process/ or policy.

A Canvas web-based course site was created from the learning management system at Indiana University to store materials and allow for sharing of information. Access to the course was generated by completing a guest account request. Several of the participants had previously used Canvas.

The textbook Health Impact Assessment in the United States by Ross, et al. (2014) was used for the background sessions of the HIA process. During the first five months, different steps of the HIA process were studied. Each session

lasted for 90 minutes and covered the readings and discussion of application using the cases in the book (Ross et al. ,2014). The session following the book discussion included a case presentation with each participant reviewing and analyzing a different HIA case from the PEW Charitable Trusts website (PEW Health Impact Project, 2020). The group also discussed potential HIA topics that could be conducted in Marion County.

The second half of the year was used to meet the objective to conduct a HIA on a local project or policy. To accomplish this objective, the learning collaborative worked with the graduate Health Impact Assessment course at IU FSPH. The HIA Learning Collaborative generated a problem statement for the City of Indianapolis-Marion County, stating a need for more access to parks and green space. According to the Trust for Public Land, Park Score Index (2019), only 35% of Indianapolis residents have access to a park within a 10-minute walk, compared to the national average of 54%. The 10-Minute Walk Campaign, a partnership between the National Recreation and Park Association (NRPA) and the Trust for Public Land, uses the 10-minute walk as a benchmark. The project calls on cities across the U.S. to "Make the 100% Promise to make sure that everyone in your city has safe, easy access to a quality park within a 10-minute walk of home by 2050" (NRPA, 2019, para 1). Two topics were chosen by the HIA collaborative that could address the statement of need for more parks and greenspace access within the City-County's current funding limitations. This includes, 1) opening access or allowing shared use agreements to school grounds and 2) green schoolyards in Indianapolis schools to increase greenspace access. Two HIA Learning Collaborative members presented an overview on the benefits to communities of having open access to school grounds and the health benefits of green schoolyards for healthy communities and suggested assessment tools that could be used to explore these topics. The students conducted windshield surveys to begin to learn about two neighborhoods that could be used for the HIA topics. The students conducted interviews of school personnel using the assessment tools that were recommended. An additional HIA that updated a previous HIA performed to support building a grocery store in a food desert was conducted by a third group of students, and two other HIA Learning Collaborative members assisted them with demographic data to use as part of the assessment of their area.

The final HIA Learning Collaborative meeting included power point presentations by a student representative of each of the HIA projects. A good question and answer discussion occurred after each presentation.

## Method of Evaluation

Two members of the collaborative created a survey in Survey Monkey in order to gather data to evaluate the overall HIA Learning Collaborative experience and to assess whether or not the learning objectives were met. The survey consisted of 11 questions: nine were multiple choice and two were open-ended. The survey link was disseminated to all HIA Learning Collaborative members through email. Of the eight members who regularly participated, seven group members completed the survey. Once responses from all members were collected, the results were exported into Microsoft Excel for analysis. Frequencies were calculated and graphs were generated using Microsoft Excel. A copy of the actual survey can be found in Appendix A.

## Results of Survey

The nine multiple choice questions were answered by all seven respondents. The results are displayed in the section below.

**Table 1:** Number and percentage of respondents who felt that the HIA Learning Collaborative objectives were met

| HIA Learning Collaborative Objective | N | Percent |
|---|---|---|
| Describe the purpose, benefits, and challenges of a Health Impact Assessment | 7 | 100.00% |
| Develop an in-depth knowledge of the process and analytic methods used in the assessment step | 6 | 85.71% |
| Demonstrate the ability to think critically and analyze how the findings related to policy decisions | 6 | 85.71% |
| Conduct an HIA on a local project/ process/ or policy | 3 | 42.86% |

One hundred percent (7/7) of HIA Learning Collaborative members who completed the survey reported that they believed Objective 1, "describe the purpose, benefits, and challenges of a Health Impact Assessment," was met during the allotted time. Nearly 86% (6/7) of HIA Learning Collaborative members who completed the survey reported that the believed Objectives 2 and 3, "develop an in-depth knowledge of the process and analytic methods used in the assessment step" and "demonstrate the ability to think critically and analyze how the findings related to policy decisions," respectively, were met. Nearly 43% (3/7) of HIA Learning Collaborative members who completed the survey reported that they believed Objective 4, "conduct an HIA on a local project/ process/ or policy," was met.

Overall, participants responded that using in person sessions with a zoom option was accommodating (Pre COVID-19 restrictions). The majority reported that using the Canvas site for resources and minutes was useful. The majority reported the book was helpful to access the baseline content. An adequate number of meetings were held with 10 total meetings over the calendar year. The majority of participants reported they have adequate personnel to conduct an HIA and feel confident to lead an HIA in the future.

## Future/ Next Steps

Several ideas were generated from the survey for potential HIAs in Marion County. This includes the following:

- Determining the health impact of the future proposed transit lines
- Identifying the health impacts of zoning land use changes
- Examining the health impacts of the proposed I-70-I-65 freeway improvement project

There is also interest in continuing the HIA Learning Collaborative by expanding the membership and using the collaborative to provide technical assistance when participant organizations are ready to begin a HIA. There is need to seek out additional funding to further expand HIA efforts. The group is also interested in better collaboration between the county health department and the City of Indianapolis to expand on the Health in All Policies work that has begun.

## References

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## Appendix A

### Health Impact Learning Assessment Learning Collaborative

1. Please select which of the following objectives you felt were reached during the learning collaborative (choose all that apply):
   - ❒ Describe the purpose, benefits, and challenges of a Health Impact Assessment
   - ❒ Develop an in-depth knowledge of the process and analytic methods used in the assessment step
   - ❒ Demonstrate the ability to think critically and analyze how the findings related to policy decisions
   - ❒ Conduct an HIA on a local project/ process/ or policy

2. Did you feel that the setup of the learning collaborative (meeting in person or via zoom) was accommodating?
   - ❒ Very accommodating
   - ❒ Accommodating
   - ❒ Neutral
   - ❒ Not very accommodating
   - ❒ Not accommodating at all

3. How helpful was it to use Canvas for sharing articles and PowerPoint presentations?
   - ❒ Very helpful
   - ❒ Helpful
   - ❒ Neutral
   - ❒ Not very helpful
   - ❒ Not at all helpful
   - ❒ N/A, I did not have access to Canvas

4. How useful was the book (Health Impact Assessment in the United States) in learning about HIAs and meeting the learning collaborative objectives (listed in question 1)?
   - ❒ Very useful
   - ❒ Useful
   - ❒ Neutral
   - ❒ Not very useful
   - ❒ Not useful at all

5. How do you feel about the number of meetings for the HIA LC?
   - ❒ Too many meetings
   - ❒ Adequate number of meetings
   - ❒ Not enough meetings

6. Do you believe that your organization has the capacity to complete a HIA?
   - ❒ Yes
   - ❒ No
   - ❒ Undecided

7. After participating in the HIA Learning Collaborative, how confident would you feel leading a HIA?
   - ❒ Very confident
   - ❒ Confident
   - ❒ Neutral
   - ❒ Not very confident
   - ❒ Not confident at all

8. After participating in the HIA Learning Collaborative, how confident would you feel being a part of a HIA?
   - ❒ Very confident
   - ❒ Confident
   - ❒ Neutral
   - ❒ Not very confident
   - ❒ Not confident at all

9. Do you think Health Notes would be a useful tool in the future? https://www.pewtrusts.org/en/research-and-analysis/fact- sheets/2017/11/pilot-program-to-help-states-and-localities-consider-health-in- policymaking
   - ❒ Very confident
   - ❒ Confident
   - ❒ Neutral
   - ❒ Not very confident
   - ❒ Not confident at all

10. What do you think is needed to conduct a HIA in the future?

11. Please list ideas for potential HIAs in the space below.

**CORRESPONDING AUTHOR**
Cynthia Stone, DrPH, MSN, RN
Department of Health Policy and Management
Indiana University-Purdue University Indianapolis
1050 Wishard Blvd. RG 5128
Indianapolis, IN 46202
cylstone@iu.edu



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# BOOK REVIEW: BRIDGING SILOS: COLLABORATING FOR ENVIRONMENTAL HEALTH AND JUSTICE IN URBAN COMMUNITIES

*Katrina Smith Korfmacher, PhD*

Title: Bridging Silos: Collaborating for Environmental Health and Justice in Urban Communities
Publishing: 2019 copyright Massachusetts Institute of Technology, Westchester Publishing Services U.S. isbn: 978-0-262-53756-8

**Reviewed by: Alison Redenz, MURP, AICP**

## Introduction

Environmental health practitioners dedicated to creating healthy places are often looking for replicable policies, processes, and programs to bring to their communities. This can include model policy language or an implementation toolkit to easily be able to execute systems-level change. However, as this book outlines, there is rarely a one size fits all. This book outlines three case studies, including 1.) a community coalition-based lead poisoning prevention effort in Rochester, New York; 2.) a wide range of efforts to create an equitable and healthy built environment in Duluth, Minnesota; and 3.) comprehensive environmental justice efforts near the port freight corridors in Los Angeles and Long Beach, California. From these cases, the book extracts concepts, processes, and lessons learned that all communities can utilize.

The author (Korfmacher) mentions that this book was sparked by a late night conversation after a National Institute of Environmental Health Science Core Centers meeting, where she and three other scholars at the forefront of urban environmental health, reflected on their local collaborative systems-level work in communities across the country. The group realized that their diverse work had several common elements and key lessons learned that any community could apply to their own issues. Out of that conversation, came this book, which breaks down how and why local environmental health collaborations can successfully impact systems change.

## Bridging Silos as a Guide for Health Impact Practitioners and Beyond

The title "Bridging Silos," gets to core content of this book, as a wide variety of academics, government professionals, advocates, and others understand that often the barrier to successful collaboration is established management silos. This book will probably be most valuable to an interdisciplinary professional who is trying to move the needle on a new idea in their community, and wanting to utilize best practices from other communities. Often a professional from one discipline or an advocate will recognize an issue, but then realize the complexity of accomplishing any change within that issue due to silos, complex regulatory barriers, or lack of communication between disciplines. This book outlines step-by-step how these three communities were able to form successful community-based partnerships, and how progress can be measured many different ways.

Health Impact Assessment practitioners will find this book useful for: best practices in engaging coalitions of community members, public health professionals, planners, researchers, and other key stakeholders to provide critical ideas and data, expand the definition of public health, and find key intervention points to mitigate any health disparities that are shown as part of the health impact assessment. Health Impact Assessments (HIAs) were used in two of the three cases studies to impact decision making.

## Coalition Building for Critical Ideas and Data

In Duluth, three health impact assessments were used to assess the health impacts in the non-health decisions of potential neighborhood redevelopment. These three health impact assessments "allowed local stakeholders to develop greater familiarity with HIA, use health data to analyze how built environment decisions affect health disparities, and gather community input on improving health equity" (Korfmacher, 2019, p. 144). As Korfmacher mentions, each of the three HIAs performed in Duluth built "collaboration, capacity, and systems to improve health equity in Duluth's built environment" (2019, p. 144). The core successes from the health impact assessments were the exchange of ideas between city and county health officials, and the community's exposure to the idea of health impact assessment. The HIAs were scoped to influence plans for the City, not direct decision-making, but they set the City up for success by creating plans with health impact at the core.

## Expanding the Definition of Public Health Impacts through HIA in Los Angeles

The Impact Project was an academic-community partnership aimed at increase the consideration of health in decisions related to transportation around the Ports of Los Angeles and Long Beach. The partnership interacted extensively with the planning process to redevelop a major highway to the ports, the I-710. As part of this process, THE Impact Project pushed for the environmental review process to include both a health risk assessment (HRA) and a health impact assessment (HIA). The HIA assessed a broader range of health impacts than the HRA including the "effects of air quality, jobs, noise, access to neighborhood resources, and mobility issues such as safety, travel time, physical activity, and stress involved in commuting for work (Human Impact Partners 2013)" (Korfmacher, 2019, p. 212). According to one of the key partners from East Yard Communities for Environmental Justice, "The HIA made people who were making recommendations to Caltrans realize that public health is much broader…Building a freeway is not just about happens on that freeway, it is about what happens in the community"

(Korfmacher, 2019, p. 213). This is a replicable example of how HIA can show the multiple pathways of health impacts of projects. Even if the final decision is not impacted by the HIA, the process was successful in broadening the definition of health impacts to include the social determinants of health.

## Finding key intervention points: "HIA-like" analysis in Rochester, NY

Although the final case study in Bridging Silos did not include a formal health impact assessment, its process mirrored HIA's use of public health data and community engagement to inform targeted intervention points and create action steps. The Coalition to Prevent Lead Poisoning in Rochester, New York was able to provide diverse health impact data and knowledge to inform the key intervention: a new local lead law. From health care providers summarizing medical literature, to health department staff providing elevated blood lead data, to lead professionals contributing knowledge from lead risk assessments, a wide variety of data-informed the Coalition's initial step of communicating the problem to the community. These analyses helped the Coalition justify their recommendations from a cost-saving and health benefits perspective. Providing the cost of "not preventing the lead poisoning," parallels the HIA process as it helps to show the health benefits of the lead law. By leveraging the types of resources and data in traditional health impact assessments, the Coalition in Rochester was able to show intervention points, and the costs of not implementing them.

## Evaluating the Impact of the Initiatives

Korfmacher outlines the different types of impacts of the three case studies' initiatives, as including outputs (products), social outcomes (capacity and relationships), and impacts of policies, systems, and environments (PSE). Korfmacher focuses on "upstream," "systems-level" work which we know has the most long-lasting effort in creating change in communities. All three of the initiatives' outputs were aimed at creating the conditions for change in systems in environmental health, whether that was conducting an assessment, or providing a training workshop on a topic. Social outcomes were another type of output of the initiatives, as when a coalition came together and built social capacity, trust, or relationships. Both types of outputs are the building blocks of policy, systems, and environmental changes and provide their own worth for creating awareness and creating the human capital to deliver the improvements. All three cases revealed ways in which the coalitions changed processes by which decisions were made. Other direct impacts of policy, systems, and environmental changes are more concrete such as the change in Rochester's lead law, and the changes in processes by county health and human services departments.

## Summary

Bridging Silos provides an excellent outline of the policy, systems, and environmental change impacts and nuanced ways of measuring success for three distinct environmental health efforts across the United States. Health impact assessment professionals will find ways to enhance their own work through the diverse range of case studies described. This book provides a great framework for a wide range of professionals looking to understand modern environmental health issues, how three communities addressed them, and how to learn from and apply their success to create healthier places in their own communities.

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