

## HEALTH IMPACT ASSESSMENT: AN INFORMATION NEEDS ANALYSIS OF HIA PRACTITIONERS ACROSS SECTORS

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### *Abstract:*

**Background:** Information contained in health impact assessments (HIAs) provides valuable guidance for professionals in many fields and industries, also known as sectors. However, a growing body of evidence suggests that HIA practitioners across sectors have unmet information needs and face challenges accessing health related data, including findings available in HIAs.

**Methods:** The research team conducted a series of focus groups to explore the information needs of practitioners across sectors and to identify challenges they face accessing this information. Participants were stratified by geographic location, sector affiliation, and HIA expertise.

**Results:** Findings suggest that practitioners from all sectors can benefit from the integration of health-related information, and the information contained in HIAs, into their work. Reported information needs include baseline data, geocoded socio-demographic information, granular local data, peer reviewed literature on the impacts of social determinants and other factors with health outcomes, and technical assistance and best practices. Participants indicated that they obtain information from their professional network, universities sponsoring research, and online resources. Information challenges include lack of data that match the size and the scope of the target area of interest, proprietary or pay-for-access sources, varying terminology for the same concepts across sectors, inadequate resources and HIA expertise for searching, and limited information on the impact of findings of completed HIAs.

**Discussion:** Identifying and understanding the information needs of practitioners is essential to maximizing the use of existing and future HIAs. An interactive and comprehensive web-based repository system for HIAs may provide value and assist practitioners in meeting these needs.



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## Introduction

Health impact assessment (HIA) is a process that determines the potential health effects of a proposed plan, project, or policy before it is created or executed. HIA brings public health impacts and considerations to the forefront of the decision-making process in fields that typically fall outside traditional public health arenas. It emphasizes strategies to enhance health benefits while reducing negative effects, and it weighs the strengths and weaknesses of different options (Centers for Disease Control and Prevention [CDC], 2018; Pew Charitable Trusts, 2018a).

The Health Impact Project, a collaboration of the Robert Wood Johnson Foundation and The Pew Charitable Trusts, contracted with RTI International to conduct a qualitative study of new and current HIA practitioners to explore their information needs, how they seek out that information, and challenges they face with accessing the information included in HIAs. Study participants included a range of professionals, from those who had limited exposure to HIAs, to those who routinely conducted HIAs. These professionals used HIAs for various reasons, such as to locate research and data, complete projects, inform policies, and influence decision makers.

This article outlines the findings from the study and describes the information needs and challenges identified by focus group participants. The article also describes the information that HIA practitioners require to meaningfully incorporate population health and health equity considerations into their work. The research team assessed how often practitioners use HIAs to influence policy, programs, practice, planning, and decision-making. Participants provided recommendations for maximizing access to information included in HIAs, including summaries of findings in peer-reviewed literature, outcome and impact assessments, and more comprehensive web solutions.

## Background

Since the first HIA was conducted in the United States in 1999 (Bhatia & Katz, 2001), the adoption of HIAs has steadily increased. In 2008, 27 HIAs were completed (Dannenberg et al., 2008), and more than 400 HIAs are completed or in progress today (Pew Charitable Trusts, 2018b). The Health Impact Project contributed to the growth of HIAs and has supported the field by funding HIA demonstration projects, trainings, and evaluations, and by “serving as a convener for the field” (Morley, Lindberg, Rogerson, Bever, & Pollack, 2016).

HIAs have gained popularity as a means for public health professionals to demonstrate to colleagues in sectors that traditionally do not focus on health, the impact of decisions made in other sectors on population and community health (Dannenberg, 2016a). They also help professionals in positions and sectors outside of the health arena make informed decisions that affect public health (Morley et al., 2016) and advocate for health-related policy changes such as active transformation promotion (Waheed et al., 2018), emission reduction (Likhvar et al., 2015), and green space infrastructure (Fischer et al., 2018). In non-health sectors, professionals must consider several factors when planning their work, such as available resources, stakeholder support, access to relevant data, and others (Bourcier, Charbonneau, Cahill, & Dannenberg, 2015). HIAs have been shown to assist decision makers in quantifying the impact of population and community health issues, which they can then communicate to other stakeholders (National Research Council, 2011).

Despite these advances in the field of HIAs, there is evidence that practitioners still face challenges in acquiring and using information necessary for completing assessments. Practitioners routinely face challenges when seeking relevant data with which to quantify health impacts. In particular, they have difficulty locating specific data at the local level for

their community (Bourcier et al., 2015; Dannenberg, 2016b; Hubbell, Fann, & Levy, 2009), accessing existing data sets (Chart-asa & Gibson, 2015), and finding current evidence to use in predicting health outcomes (National Research Council, 2011). With these considerations in mind, stakeholders may have a need for more readily accessible sector-specific information on HIAs, including tools, lessons learned, and evidence of translation into policy (Morley et al., 2016).

## Methods

### Research Approach

Between June and November 2016, the research team conducted a series of focus groups to explore the information needs of HIA practitioners across sectors<sup>1</sup> and identify challenges they face accessing this information, with the following research questions:

1. What information do HIA practitioners need to ensure that their work adequately considers health?
2. What challenges do HIA practitioners face when attempting to acquire and use this information?

The study included practitioners representing all sectors, with a specific focus on built environment, transportation, disaster/emergency preparedness, and planning. The research team chose these sectors because they each had a history of conducting HIAs to inform their decision making (Pew Charitable Trusts, 2018b), and they can all benefit from the incorporation of health considerations. In this context, the authors define health in the broadest sense, including not just physical and mental health outcomes, but also environmental, political, social, community, and commercial factors. Prior work shows that a narrow definition of health or factors that influence health can limit the scope, application, and value of the

assessment (Human Impact Partners, 2011; National Research Council, 2011).

The research team designed the focus groups to understand when and how HIA practitioners' incorporate health into their decision-making processes, their familiarity with HIAs, the tools and websites they use to accomplish these tasks, and the limitations of these tools and websites. When appropriate, the research team prompted participants to describe the features and functionality of an ideal website that could theoretically be designed to meet their needs. For practitioners with a greater level of experience, we inquired into their background in using HIAs to inform stakeholders or to prompt policy makers to incorporate health into their decision-making processes. Each focus group was facilitated by a moderator, who followed a semi-structured interview script. A notetaker/co-moderator also attended each session.

The research team conducted two focus groups in person, while holding four sessions using ThinkTank, a virtual platform. ThinkTank is designed to increase collaboration among geographically dispersed meeting attendees, engage and stimulate participants, and aggregate group feedback in real time. During the focus groups, participants verbally responded to questions from the moderator, while simultaneously typing their feedback into the ThinkTank platform. This approach ensured that all participants could respond to each question in the time allotted. It also allowed participants to respond to questions and comments from other attendees, thereby creating a more in-depth conversation around each question. See Figure 1 for a screenshot of an example ThinkTank session. This screenshot contains mock data and is only included to illustrate the functionality of ThinkTank.

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<sup>1</sup>For a full list of sectors, please visit <http://www.pewtrusts.org/en/research-and-analysis/data-visualizations/2015/hia-map>.

Figure 1. Screenshot of an Example ThinkTank Session

The screenshot displays the ThinkTank interface for a session titled "2280: HIA Clearinghouse Focus Group (Copy)" with the topic "Incorporating Health Discussion". The interface is organized into three main columns: QUESTIONS, RESPONSES, and COMMENTS.

**QUESTIONS:**

- 2. What kinds of information are you interested in learning about when incorporating health into your work? (15 responses)
  - 1.1 i. Can you describe or provide examples of how you factor health in your decisions about your projects, plans or policies? (3 responses)
- 2. When incorporating health in your work, what kinds of information do you need? (13 responses)
  - 2.1 Challenges (4 responses)
  - 2.2 Where do you get this information and what challenges do you experience trying to find the information? (16 responses)
  - 2.3 What kind of information are you interested in getting? (23 responses)
- 3. Are there gaps or limitations in the online information or tools that you've noticed? (14 responses)
  - 3.1 What are some things about these tools or websites that make them difficult to use? (19 responses)
  - 3.2 How have you been able to fill these gaps? (8 responses)

**RESPONSES:**

- 1 We use HIAs to help support our decisions to promote healthy and sustainable communities. (1 response)
- 2 Understanding how transportation decisions impact health is really important. (0 responses)

**COMMENTS:**

- 1 We haven't used HIA's yet, but we are getting increasing pressure to show how we are incorporating health. (1 response)

The interface also includes a navigation sidebar on the left with steps 2 through 7, and a top toolbar with various icons.

## Outreach and Recruitment

Focus group participants were identified through various communication methods, including newsletter announcements to members or grantees of the organizations such as the Society of Practitioners of Health Impact Assessment (SOPHIA), the National Network of Public Health Institutes (NNPHI), Human Impact Partners, the Association of State and Territorial Health Officials (ASTHO), and the Health Impact Project. The research team members also asked their professional network of HIA colleagues to suggest experts representing sectors of interest. The team sought to include HIA practitioners from all sectors and with all levels of experience.

## Participant Stratification

To ensure that a group with a broad background was assembled, the research team classified participants by geographic location, sector affiliation, and level of expertise with HIAs. Classifying information was self-

reported by participants and confirmed by the research team when possible.

For geographic location, the research team sought professionals based out of every region of the United States. Regions were assigned based on the U.S. Census Bureau's definition (U.S. Census Bureau, n.d.). Recruitment efforts did lead to the inclusion of a few international representatives, who participated as scheduling would allow.

Participants were primarily affiliated with sectors that incorporated health into their work and had a history of conducting HIAs to inform their decision making. However, to include as many opinions and perspectives as possible, the research team recruited practitioners from all sectors. Participants were asked to choose their affiliation from one of the sectors listed on the Health Impact Project's map of HIAs in the United States (Pew Charitable Trusts, 2018b); however, some provided responses that did not

correspond to these categories, such as “planning” or “disaster/emergency preparedness and response.” In addition, some participants initially reported multiple sector affiliations. In these instances, the research team asked participants to identify the sector where they most recently conducted work pertaining to HIAs. Final sector affiliation was categorized by responses received from participants, with the research team clarifying as needed.

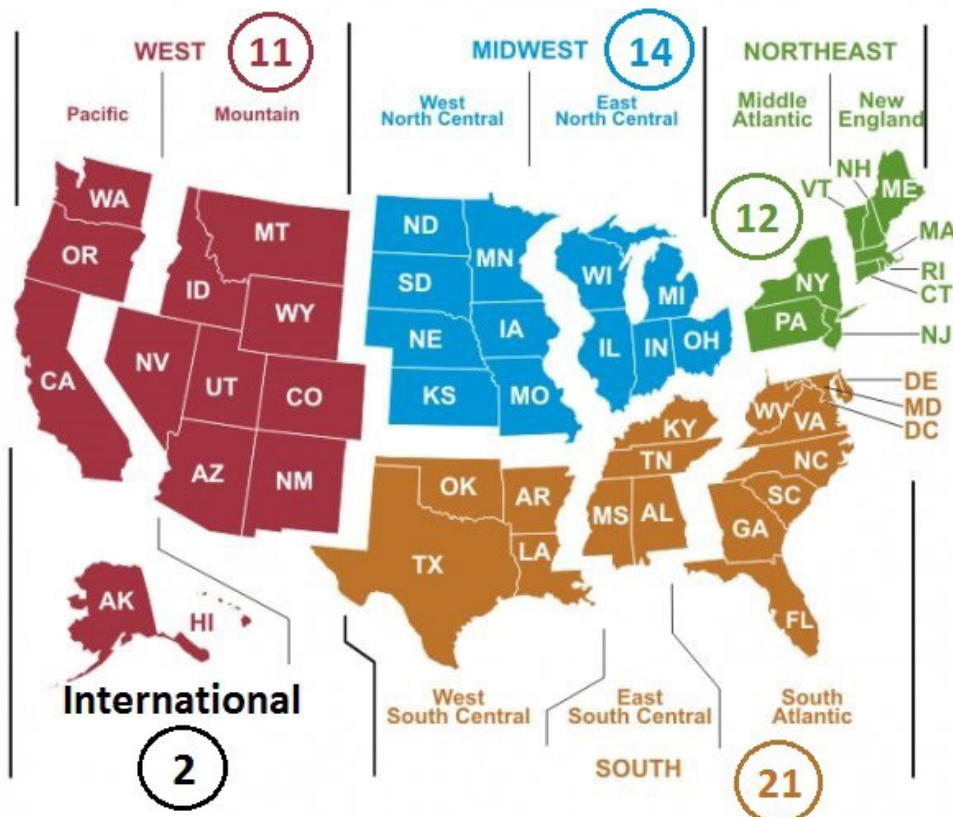
The research team attempted to recruit participants of all levels of HIA expertise but was constrained by scheduling availability, the low response rate of people with limited levels of HIA expertise, and prioritizing recruitment based on sector affiliation. Previous HIA expertise was divided into three categories:

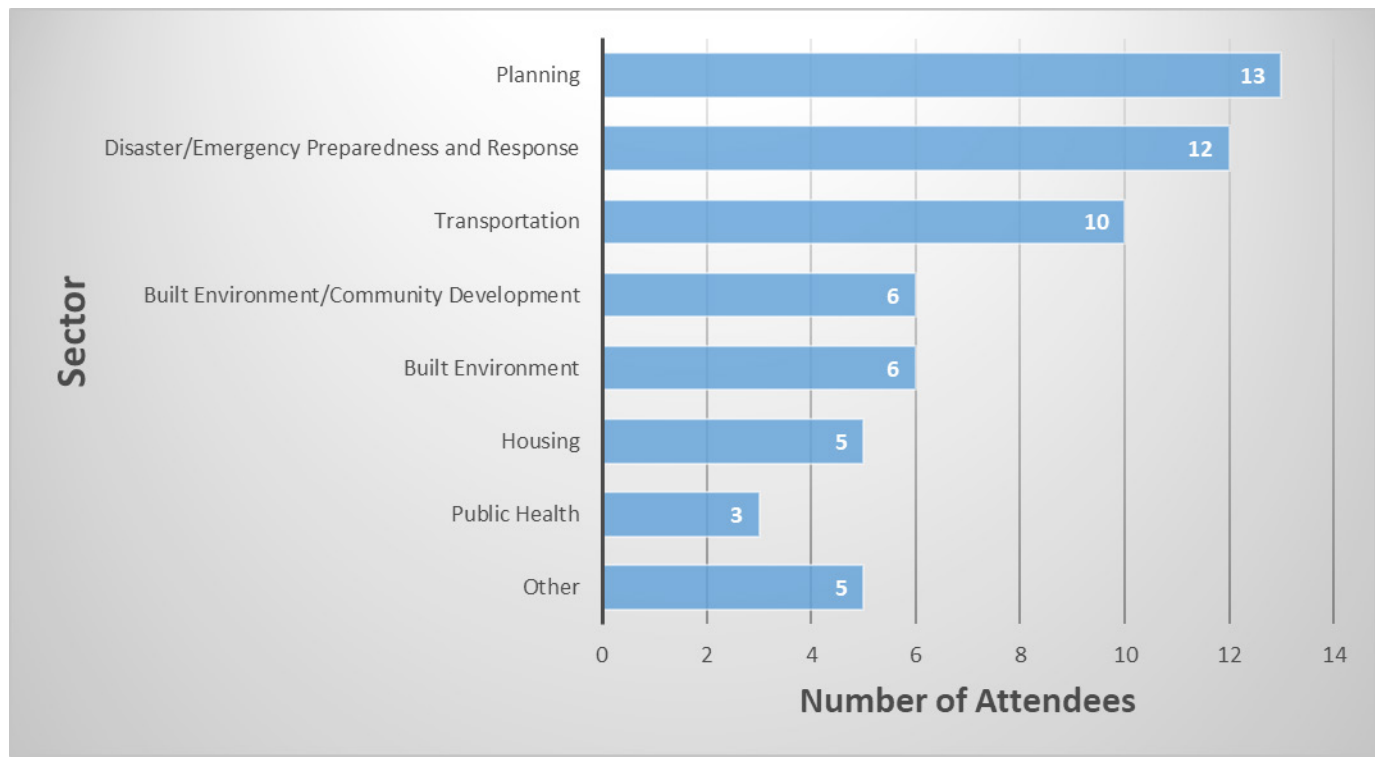
- High: Those who had conducted at least one HIA
- Medium: Those who had not worked on an HIA but considered health in other sectors
- Low: Those who had not yet worked on an HIA or considered health in other sectors

**Focus Groups**

The research team held six focus groups, with 10 to 15 participants attending each group. Sixty total individuals participated. Participants had varying occupations, professional affiliations, and familiarity with HIAs. Every effort was made to evenly recruit participants across the different U.S. regions. Figure 2 provides a full breakdown of participants by region.

**Figure 2. Geographic Representation of Focus Group Attendees, by Sector**



**Figure 3. Sector Representation of Focus Group Attendees**

Participants mainly comprised people from the planning, disaster/emergency preparedness and response, built environment, and transportation sectors. However, people from other sectors, such as housing, public health, and community development, also attended. See Figure 3 for a breakdown of participant sector affiliation.

Most participants classified themselves as having a “medium” (28 individuals) or “high” (24 individuals) level of HIA expertise. Only six of the focus group participants considered themselves as having a “low” level of experience, and two people did not provide any information on their experience level.

## Results

Each group expressed diverse information needs, and each indicated different challenges and barriers they face when accessing information. Findings suggest

that HIA practitioners from all sectors can benefit by integrating into their work health-related information and the information contained in HIAs.

## Information Needs

Focus group participants described their prior experience incorporating health considerations into their work and noted their information needs. Key information needs are as follows.

### Type of Information Needed

Focus group participants expressed a need for several different types of information when incorporating health into their programs, policies, projects, and plans. Many sought baseline data related to a broad range of determinants of health. These data are often used to assess and demonstrate the effect of a completed intervention or to track changes in indicator status over time, which may establish the need to initiate an

intervention. Participants also expressed a need for more granular local population data, including census tract and block-level information. Some mentioned the importance of geocoded socio-demographic information to test for associations with variables of interest. Participants also sought access to reputable peer-reviewed sources that provide evidence-based information about the impact of social determinants and other factors with health outcomes. Last, specific information on technical assistance and best practices was frequently of interest to focus group participants.

### Sources of Information

When focus group participants were asked how they accessed the information they needed to incorporate health into their work, a few themes emerged. Many of the focus group participants rely on their professional network of colleagues for suggestions or help when information is needed. Participants also sought information from universities, which are often working on research projects, have data, and are interested in collaborating with people in the field.

Participants also noted online resources as one way they access information to incorporate health into their work. Although they did not come to a consensus on which specific online sources were most often used, some participants noted that publicly available sites, such as the U.S. Census Bureau's data page or the CDC Behavioral Risk Factor Surveillance System, are useful. Other participants felt that the current tools available to search for and within existing HIAs were not sufficient to meet their information needs. They indicated that a public online resource containing the following information from or about HIAs would be useful:

- Target population
- Determinants of health addressed
- Community type
- Keywords
- Methods
- Data sources

- Evaluation of outcomes

Conversely, participants sometimes accessed privately available or proprietary information. In these situations, access to these resources is usually restricted to those who requested data, posing barriers to others who might have an interest in that same information.

### **Challenges to Acquisition and Use of Information**

Focus group participants indicated several challenges that they encounter when trying to obtain useful information for incorporating health into their work, including using and accessing HIAs. Key challenges are as follows.

#### Lack of Data at Desired Level of Granularity

As focus group participants seek to incorporate health impacts into HIA and their work, they often cannot find data that match the size and scope of their target area of interest. For larger communities, data are usually available by ZIP code or census tract; however, they might not be aggregated by school districts, neighborhoods, or subdivisions. Participants indicated that applying data from another comparable area was an ineffective solution, because HIA practitioners from that area often faced the same challenges when attempting to acquire data. As a result, seeking information from comparable areas seldom led to any meaningful data acquisition. Last, participants mentioned that when they could find data to assess a health impact, the data quality was often a concern. This was because data collection methods were often not adequately described, or analytical approaches had too many limitations.

#### Inaccessible Information

Participants noted that, although scientific journals and literature reviews can be especially useful for incorporating health into decision making, many are not available without a paid subscription, which not all organizations can afford. Even if cost is not a problem, some information sources are proprietary.

Institutions that own data, such as certain federal and state agencies, provider associations, third-party payers, private businesses, and so on, may be unwilling to share their data with external parties. Further, these institutions may keep their data records private, meaning that HIA practitioners might never be fully aware of all possible information sources.

#### Variations in Technology

Many participants noted that the terminology used in the data sources they find can be difficult to comprehend and to translate to their colleagues. In particular, they indicated that health data can be a challenge to fully understand and to explain to colleagues in other sectors. Also, focus group participants encountered difficulties when the same term was used in multiple sectors but had different meanings.

#### Limited Resources and HIA Expertise

A common issue among participants was having limited resources, such as staff availability or organizational funding, to devote to seeking out HIA-related information. The HIA process implicitly requires a level of expertise and a time frame that organizations do not always have, so the thought of searching for this information may deter some groups from even conducting an HIA. Focus group participants also felt that they did not always have enough time to collect data that are most relevant to stakeholders, which can lead to lack of buy-in from key leaders and decision makers. Likewise, if they could obtain the desired data, they often could not fully understand the data or effectively translate their impact to another sector.

#### Limited Information Regarding HIA Evaluation and Impacts

Although outcome evaluations have been conducted at a national level to broadly assess the impact of HIAs on decision making (Bourcier et al., 2015), focus group participants also sought information on the evaluation of individual HIAs. Participants confirmed that results and recommendations from completed HIAs were useful, but they also wanted to know

whether and how these findings were used. For example, has a particular HIA been used to sway a stakeholder or inform a policy? Information showing the impact of previous HIAs could help HIA champions in an organization make the case to their leadership for conducting subsequent HIAs. Participants also felt that HIA recommendations that have produced positive impacts in comparable communities or other sectors could be leveraged by those currently conducting an HIA. This impact information could also demonstrate the role of HIAs in shaping determinants of health and associated health outcomes. Feedback indicated that there currently is no location where practitioners can go to find outcomes related to specific HIAs and that such an online resource would be useful.

#### **Limitations**

This study had several limitations. First, insights were gathered through a small convenience sample using focus groups. Participation across sectors was uneven and included few participants with limited HIA expertise. As a result, it is likely that not all sectors have not been adequately represented in this process, and the findings of this study may not reflect the views of entire sectors. Future research can further investigate challenges identified in this study by engaging HIA practitioners from a wide range of sectors and a variety of experience levels. Furthermore, future studies should also focus on potential users of HIAs, including decision makers, policy makers, stakeholders, and others. Getting a clearer understanding of health-related information needs of these groups can inform the structure and design of HIAs.

In addition, the authors categorized focus group participants by their sector. However, the authors could not always conclusively identify the sector of every focus group participant. Some participants were unsure about their primary sector or felt that their work spanned multiple sectors. Similar analysis in the future should establish firmer definitions of each sector, especially if identifying sector-specific findings.



Finally, the list of challenges included in this article is not meant to be exhaustive or complete, but merely to contain the challenges identified by the focus group participants. Focus group questions were open ended, and participants noted a variety of information needs, but did not discuss their experiences performing primary data collection (i.e., surveys and interviews with potentially affected populations). Success or barriers with gathering this type of data could be further investigated in future studies. Additional information about potential challenges experienced by HIA practitioners while conducting HIAs can be found in the HIA Handbook for Practitioners (Lin, Houchen, Hartsig, & Smith, 2017).

## Discussion

The study was an assessment of the information needs of new and current HIA practitioners. Through focus group discussions, the authors sought to learn how these practitioners obtain relevant information, and how information included in HIAs can be more accessible to people across sectors. Identifying and understanding these needs is essential to maximizing the use of existing and future HIAs. Furthermore, improving access to this information can enable stakeholders to more effectively incorporate health considerations in their decisions.

Feedback from the focus groups identified the information needs of HIA practitioners and challenges accessing this information from a variety of sources, including HIAs themselves. Challenges include limited data about the effectiveness of findings and recommendations included in HIAs, lack of access to some data sets used in HIAs because of their proprietary nature, and others. Focus group participants expressed difficulty accessing information included in HIAs because of the limited search capabilities of the existing HIA data sources. Addressing these challenges will require a multi-pronged approach including HIA trainings and open access policies at universities.

Another potential strategy for overcoming these challenges would be the development of a web-based repository system for the more than 400 HIAs that have been completed as of October 2018. Such a repository could provide resources to help future HIA contributors develop their content and avoid common challenges, while enabling experienced HIA practitioners to determine unmet needs and assess the impact of prior work. Access to this information could help address some of the issues associated with a lack of free access to scientific journals. A web-based repository could also help HIA practitioners understand sector-specific terminology and expedite searching for health-related information.

Prior research supports this recommendation. A study by Dannenberg (2016a) argued that the community would benefit from pilot tests of existing methods and tools, with the findings of the impacts of projects and policies uploaded to a database for others to learn from. In addition, those conducting or using HIAs are inherently tasked with justifying the time and funds spent on the HIA and expressing their health impact findings in the form of monetary value. This monetary value helps stakeholders (decision makers, HIA practitioners, and policy makers) to understand the potential health impacts in the proper context for a given sector (National Research Council, 2011). Consolidating this information in an easily accessible and comprehensive format online could help inform and educate stakeholders. Furthermore, a repository would be an excellent location to house various resources and educational materials. As the Committee on Health Impact Assessment noted, "A key barrier to the use of HIA is the availability of resources for communities and groups interested in undertaking it. Resources are also essential for continued education and training of professionals in the field, and the lack of resources affects the quality of HIA. Furthermore, resources are needed for monitoring and conducting evaluations" (National Research Council, 2011).

As more sectors recognize the need to address social

determinants more systemically or consider health impacts in decision making, this tool would play an increasingly important role in connecting HIA practitioners to the information of interest. We hope that this study will serve as a catalyst for developing this resource.

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## References

- Bhatia, R., & Katz, M. (2001). Estimation of health benefits from a local living wage ordinance. *American Journal of Public Health*, 91(9), 1398–1402. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1446793/>
- Bourcier, E., Charbonneau, D., Cahill, C., & Dannenberg, A. L. (2015). An evaluation of health impact assessments in the United States, 2011 - 2014. *Preventing Chronic Disease*, 12, 140376. <https://dx.doi.org/10.5888/pcd12.140376>
- Centers for Disease Control and Prevention (CDC). (2018). Health impact assessment [Web page]. Retrieved June 15, 2018, from <https://www.cdc.gov/healthyplaces/hia.htm>
- Chart-asa, C., & Gibson, J. M. (2015). Health impact assessment of traffic-related air pollution at the urban project scale: Influence of variability and uncertainty. *Science of the Total Environment*, 506–507, 409–421. <https://dx.doi.org/10.1016/j.scitotenv.2014.11.020>
- Dannenberg, A. L. (2016a). A brief history of health impact assessment in the United States. *Chronicles of Health Impact Assessment*, 1(1), 1–8. <https://dx.doi.org/10.18060/21348>
- Dannenberg, A. L. (2016b). Effectiveness of health impact assessments: A synthesis of data from five impact evaluation reports. *Preventing Chronic Disease*, 13, 150559. <https://dx.doi.org/10.5888/pcd13.150559>
- Dannenberg, A. L., Bhatia, R., Cole, B. L., Heaton, S. K., Feldman, J. D., & Rutt, C. D. (2008). Use of health impact assessment in the U.S: 27 case studies, 1999–2007. *American Journal of Preventive Medicine*, 34(3), 241–256. <https://dx.doi.org/10.1016/j.amepre.2007.11.015>
- Fischer, T. B., Jha-Thakur, U., Fawcett, P., Clement, S., Hayes, S., & Nowacki, J. (2018). Consideration of urban green space in impact assessments for health. *Impact Assessment and Project Appraisal*, 36(1), 32–44. <https://dx.doi.org/10.1080/14615517.2017.1364021>
- Hubbell, B., Fann, N., & Levy, J. I. (2009). Methodological considerations in developing local-scale health impact assessments: Balancing national, regional, and local data. *Air Quality, Atmosphere & Health*, 2(2), 99–110. <https://dx.doi.org/10.1007/s11869-009-0037-z>
- Human Impact Partners. (2011, February). A health impact assessment toolkit: A handbook to conducting HIA (3rd ed.). Oakland, CA: Author. Retrieved from [http://www.humanimpact.org/wp-content/uploads/A-HIA-Toolkit\\_February-2011\\_Rev.pdf](http://www.humanimpact.org/wp-content/uploads/A-HIA-Toolkit_February-2011_Rev.pdf)
- Likhvar, V. N., Pascal, M., Markakis, K., Colette, A., Hauglustaine, D., Valari, M., ... Kinney, P. (2015). A multi-scale health impact assessment of air pollution over the 21st century. *Science of the Total Environment*, 514, 439–449. <https://dx.doi.org/10.1016/j.scitotenv.2015.02.002>
- Lin, T., Houchen, C., Hartsig, S., & Smith, S. (2017). Optimizing your health impact assessment (HIA) experience: HIA handbook for practitioners. Topeka, KS: Kansas Health Institute. Retrieved from [https://www.khi.org/assets/uploads/news/14753/hiahandbook\\_final\\_web.pdf](https://www.khi.org/assets/uploads/news/14753/hiahandbook_final_web.pdf)
- Morley, R. M., Lindberg, R., Rogerson, B. M., Bever, E., & Pollack, K. M. (2016). Seven years in the field of health impact assessment: Taking stock and future directions. *Chronicles of Health Impact Assessment*, 1(1), 22–31. <https://dx.doi.org/10.18060/21352>
- National Research Council. (2011). Improving health in the United States: The role of health impact assessment. Washington, DC: National Academies Press. Retrieved from <https://www.ncbi.nlm.nih.gov/books/NBK83546/>
- Pew Charitable Trusts. (2018a). Health Impact Project [Web page]. Retrieved June 15, 2018, from <http://www.pewtrusts.org/en/projects/health-impact-project>
-

- Pew Charitable Trusts. (2018b). Health Impact Project: Health impact assessments in the United States [Data visualization]. Retrieved from <http://www.pewtrusts.org/en/multimedia/data-visualizations/2015/hia-map>
- U.S. Census Bureau. (n.d.). Census regions and divisions of the United States [Map]. Retrieved July 10, 2018, from [https://www2.census.gov/geo/pdfs/maps-data/maps/reference/us\\_regdiv.pdf](https://www2.census.gov/geo/pdfs/maps-data/maps/reference/us_regdiv.pdf)
- Waheed, F., Ferguson, G. M., Ollson, C. A., MacLellan, J. I., McCallum, L. C., & Cole, D. C. (2018). Health impact assessment of transportation projects, plans and policies: A scoping review. *Environmental Impact Assessment Review*, 71, 17–25. <https://dx.doi.org/10.1016/j.eiar.2017.12.002>

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