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Testing three health impact assessment tools in planning: A process evaluation

Carissa Schively Slotterback^{a,*}, Ann Forsyth^b, Kevin J. Krizek^c, Amanda Johnson^d, Aly Pennucci^e^a University of Minnesota, Humphrey Institute of Public Affairs, 130 HHH Center, 301 19th Ave. S., Minneapolis, MN 55455, United States^b Cornell University, United States^c University of Colorado, United States^d University of Pennsylvania, United States^e City of Minneapolis, United States

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ABSTRACT

There is increasing interest in Health Impact Assessment in planning. This paper describes the results of different approaches to health impact assessment (HIA) conducted in 10 municipalities and one county in Minnesota. The paper outlines the HIA processes, outputs, and short-term outcomes concluding that it is important to engage a diverse group of stakeholders. Overall, HIA is potentially an important new tool in the planning toolkit. Strategic use of HIA to evaluate draft plans and inform plan updates and project redesigns can help raise awareness about health issues and focus planning on important human problems.

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1.

1.1. Key questions and relevance to planning

Urban planners have become increasingly interested in how they can help improve human health. Health Impact Assessment (HIA) is an umbrella term for a wide variety of assessment techniques; these include simple checklists, participatory workshops, and highly technical studies (Dannenbergh et al., 2006; 2008). While there is increasing interest in such tools and a number of them have been developed, few such tools been evaluated for their process and effects (Forsyth et al., in press; Quigley and Taylor, 2003; Parry and Stevens, 2001). This paper describes the results of different approaches to HIA conducted in 10 municipalities and one county in Minnesota. The Design for Health project developed specific tools and it created (or modified) three different HIA tools for use in comprehensive planning (Forsyth et al., 2010). While evaluating the effects of a specific set of tools in a complicated planning process is a difficult task, it is apparent that the HIAs provided key advocates with an additional tool for assessing health effects of planning and raising awareness about health issues.

This paper has three aims, to:

- Describe the *processes* that were used in applying the HIAs and the degree to which they matched a process envisioned by the HIA developers.

- Examine the quantity and quality of health content that was incorporated into the plans (the *outputs*) that the HIAs aimed to support. This assessment uses an evidence-based healthy planning checklist that could be valuable in planning practice as well as research.
- Outline short-term *outcomes* experienced by planners and other practitioners who used the tools or participated in the HIA processes, including increased knowledge about health. It generally compares the plans produced by the eleven local governments that used HIAs with eight that participated in training about health but did not conduct an HIA.

The suite of tools evaluated in this paper is one of the first developed specifically for planners rather than professionals from public health or other fields. Tool development is described in more detail elsewhere (Forsyth et al., 2010). The three tools are:

- A preliminary checklist is used as a screening and scoping tool by both individual planners and groups. This two-page 16-question evaluation helps assess whether a project or plan is significant enough in size and scope (e.g., does project/plan affect vulnerable groups such as children, does project/plan substantially change predominant land use) and has enough potential health effects (e.g., is project/plan developed on a site with existing water and sewer infrastructure, is there regularly scheduled transit service within three-quarter miles of all residential and employment areas) to warrant more analysis. (DFH, 2007a).
- A rapid assessment workshop is used as a participatory approach involving a stakeholder workshop with extensive preparation and reporting modeled on European examples. This tool outlines a process within which stakeholders can engage in the identification

* Corresponding author. Tel.: +1 612 626 3193; fax: +1 612 625 3513.

E-mail addresses: cschively@umn.edu (C.S. Slotterback), Forsyth@cornell.edu (A. Forsyth), krizek@colorado.edu (K.J. Krizek), gama@design.upenn.edu (A. Johnson), aly.pennucci@ci.minneapolis.mn.us (A. Pennucci).

and analysis of health impacts, but there remains extensive flexibility in selecting the health issues to focus on and the depth of the analysis (DFH, 2007b).

- A threshold analysis, used as a more data-intensive health impact assessment, was based on a review of research on connections between the built environment and public health and uses GIS-based analyses of key health indicators. The threshold analysis requires the submission of evidence of the performance of a project or plan relative to 16 evidence-based thresholds and associations (e.g. presence of supermarkets or fruit and vegetable stores located within 1600 m of all residential areas, providing views of green spaces, with canopy trees, from all buildings) (DFH, 2007c).

The tools described can be further understood and framed in the context of environmental impact assessment (EIA). Many early HIA efforts were modeled on EIA and clear connections exist between the two practices (Davies and Sadler, 1997; Mindell and Joffe, 2003; Bhatia and Wernham, 2008). However, while EIA is conducted within a well established and highly structured policy framework (e.g., National Environmental Policy Act in the U.S.), HIA functions more as a set of varied and flexible procedures ranging from the more technical to highly participatory (see Forsyth et al., in press; WHO, 1999). As detailed in Forsyth et al. (2010), none of the HIA tools described here rise to the level of detail of an EIA. Rather, the preliminary checklist is a tool similar to one which might be used in EIA scoping to quickly screen potential environmental impacts. The rapid assessment is a participatory tool that might be integrated into a stakeholder participation exercise, and the threshold analysis is a more detailed data-based assessment of impacts but is not formalized in procedure or process to the extent that an EIA is (see Bass et al., 2001; Jain et al., 2001). In the U.S. HIAs are best suited for policy and planning contexts where environmental assessments are already in place. Specifically, the tools were deliberately designed and refined with flexible features so they would not seem too burdensome and could be easily incorporated in other environmental and policy assessment processes (Forsyth et al., 2010).

1.2. Evaluating planning processes, outputs, and outcomes

In examining the implications of using HIAs in planning practice, it is helpful to distinguish planning outputs (such as plans) from planning outcomes (such as social capital and institutional change) (Mandarano, 2008, 457). Embedded within both of these is an understanding of the underlying process involved. While describing the process, outputs, and outcomes may be a fairly straightforward activity, identifying the extent to which they are directly attributable to the HIA process as opposed to other parts of the planning process is far more difficult.

Processes used to develop plans and other planning outcomes have received substantial attention in previous literature. With the recent consideration paid to communicative approaches to planning processes and a growing view that planners should be active participants in such processes (Forester, 1989; Healey, 1997; Innes, 1996; Ozawa and Seltzer, 1999), there has been an increased emphasis on assessing how to improve decision-making and enhance stakeholder involvement. A subset of the existing literature examines the process itself in terms of the planning tools used and the organization of the planning process. One aspect of organization is who is involved in the planning process, with previous process evaluations from the United States emphasizing the importance of increased numbers and diversity of participants (Beatley and Brower, 1994; Brody, 2003; Burby, 2003; Petts, 2001). The manner of involvement is also important. For example, more collaborative participation efforts are seen as enhancing the planning process (Godschalk et al., 2003; Innes, 1992; Margerum, 2002).

A second dimension evaluates planning outputs, such as plans or other documents, with the intent of highlighting the tangible results of planning efforts. Mandarano's (2008) study of a collaborative estuary

planning process is one example. Based on a review of documents, interviews, and meeting observation, she evaluated the quality of outputs, such as planning documents and scientifically-sound information (Mandarano, 2008). In another example of output evaluation, Burby (2003) reviewed 60 comprehensive plans and interviewed planners about the associated planning processes finding increased plan quality and implementation success in association with engaging a diverse set of stakeholders in the planning process. Other evaluations of plan quality have measured plans against objective standards of good planning practice such as sustainability and smart growth (Berke and Conroy, 2000; Edwards and Haines, 2007) or in terms of compliance with planning mandates (Deyle and Smith, 1998; Dixon et al., 1997; Norton, 2005).

Finally, in terms of evaluating planning outcomes (such as changes in social conditions, relationships, perceptions), an emerging literature focuses largely on the composition in participants. For example, Helling (1998) evaluated a regional visioning process in Atlanta through a survey and interviews with participants finding that the planning process was successful in building interpersonal relationships. Based on her qualitative analysis, Mandarano (2008) found improved social, intellectual, and political capital as outcomes of a collaborative habitat planning process. Employing quantitative analysis of data from before and after surveys of individuals involved in planning processes, two recent studies found changes in perceptions of planning solutions and other participants (Deyle and Slotterback, 2009; Schively, 2007). Margerum's (2002) evaluation of collaborative regional planning processes in Australia used interviews, reviews of planning documents, process evaluations written by participants to find "shared understanding of information and data" (184) and greater "awareness of regional concerns" (185).

Previous work shows how evaluations of planning efforts can inform both the conduct of planning processes and its results (outputs and outcomes). Further, such work highlights the importance of using multiple approaches to fully document the implications of planning efforts.

1.3. Health impact assessment processes

The bulk of the existing HIA literature in the U.S. has been descriptive in nature, explaining the purpose or context of a given initiative. Few attempts have evaluated the outcomes of these HIA processes, though there is a small subset of literature that considers criteria useful for such evaluations. Quigley and Taylor (2004) suggest focusing on three areas:

- *Process evaluation*: How HIA tools were applied, resources made available, evidence used, and recommendations formulated and delivered to decision-makers. Efforts to address inequality are of key concern.
- *Impact evaluation*: Evaluating how recommendations were used, partnerships promoted, health concerns made visible, community expectations addressed, and HIA objectives achieved.
- *Outcome evaluation*: Evaluating whether health outcomes improved and whether health impact predictions were accurate.

The above three areas of evaluation loosely align with the typical issues addressed in planning process evaluations discussed earlier, particularly relative to questions about how the process was conducted and impacts that were seen. Kemm (2000, 432) elaborates by identifying potential contributions that HIA can make and can thus be assessed, including:

- Identifying health effects beyond issues typically examined
- More precisely quantifying the magnitude of health effects
- Clarifying health trade-offs
- Providing for better mitigation or enhancement of health effects (depending on their direction)

- Enhancing the transparency and openness of decision-making, and
- Changing the culture of policy makers to consider health.

This list broadens the evaluation framework proposed by Quigley and Taylor (2004) by acknowledging planning outcomes related to the experience of participants and changes in their perceptions (also Parry and Kemm, 2005).

2.

2.1. Data and methods

This evaluation of the effects of HIA on planning efforts employs multiple approaches; these include interviews, surveys, observation, and an evidence-based plan review checklist to systematically assess health content of the plan outputs. The Design for Health HIA tools drew on existing models to simplify and refine them for planning applications. Their development has been described elsewhere (Forsyth et al., 2010). During 2007–2008 the DFH tools were piloted in 11 jurisdictions in Minnesota concurrent with preparing comprehensive plans for a 2008 legislative deadline.

Jurisdictions were selected for participation in the pilot program based on a competitive application process that offered grants funded by a health care foundation. There were several rounds of funding. The selection group varied in composition between rounds but included representatives of the funder, one member of the technical assistance team, and other independent consultants. Total amounts awarded ranged from \$US13,000 to \$US75,000 with an average of just over \$US50,000).

In addition to these direct grants, the foundation provided separately funded technical assistance in the form of expertise and support related to integrating health issues into local comprehensive and transportation plans and completing HIAs. Design for Health, the technical assistance provider, developed and facilitated extensive training and written documentation related to using the HIA tools for the funded communities. Participating cities and counties also were given information and training on other means of incorporating health into planning such as profiling health topics in participatory processes, incorporating it in other technical analyses, refining plan language, and creating implementation tools.

Due to funder wishes about contracts, completing an HIA was not required for most of the communities, though a small number were committed to using at least one of the tools due to a contract provision. Grantees and the technical assistance provider both reported to the funder so the technical assistance provider could only try to persuade, rather than require, grantees to use tools. The funder's practices favored a high level of flexibility in how tools were used, which gave the communities a powerful voice on determining which health areas and mechanisms to employ.

Communities were thus able to choose how to incorporate HIAs into the planning process. The technical assistance team had at least one formal meeting with each community in which they suggested opportunities for using specific tools in that community's particular planning process. Training events and information materials also suggested ways to incorporate both desktop and participatory approaches. However, grantees were given discretion in how they experimented with these relatively new tools. One hope was that the communities would find imaginative ways to refine the tools either in the present or in the future.

The tools were used in diverse ways though perhaps not as extensively or broadly as the team had imagined. Some HIAs were used for internal assessment; other communities used HIAs to focus issues among widely disparate public groups. The HIAs themselves were completed by consulting firms hired to do more general planning work and by in-house representatives from the city or county. None of the HIAs were performed by groups who could be considered to be HIA

experts, and they did not have significant experience in applying health principles to plans and policies. However, key members from the public agencies and consulting firms were provided training in the form of half-day and day-long workshops on health issues and on HIA, along with technical assistance (Forsyth et al., 2010). In addition, the technical assistance provider helped compensate for limited experience by reviewing and offering recommendations for plans and policies, as described below.

The planning process created both qualitative and quantitative data including:

- Information collected from online and paper surveys and interviews with planners and others administering the HIAs in their communities, over approximately 1 year between June 2007 and June 2008. Each community received at least one Internet survey, two more formal check-in phone calls (using an interview guide), and participated in a meeting with the core HIA development team twice in this period.
- A review of HIA documents prepared by the municipalities and observation of meetings was also completed, as appropriate to the individual HIA tool.
- In addition to evaluating the HIAs, the plans produced by each of the communities were evaluated to assess the extent to which the HIA might have informed the content. In completing the plan evaluation, the researchers used a plan evaluation checklist also developed as part of the technical assistance program for use by communities in evaluating the health content in draft plan elements. It is informed by a review of the literature about relationships between health and the built environment and includes a series of questions informed by research evidence. For example, relative to the land use element, the checklist asks "Are all residential areas, schools, day care facilities, playgrounds and sports fields required to be more than at least 200 m (656 ft) from a major road (AADT > 40,000)?" (DFH, 2007d). This threshold is based on previous research related to air pollution (e.g. Finkelstein et al., 2005; Lin et al., 2002; Van Vliet et al., 1997).

These data can be used in evaluating the HIA processes, the planning outputs and outcomes of using HIA.

A separate evaluation was conducted by the funding body. None of the case study communities conducted a self evaluation of their own use of the tools and they certainly did not conduct the kind of full and participatory evaluations proposed in parts of the literature (e.g., Quigley and Taylor, 2004, 547).

For the 11 jurisdictions in the study, each completed only one of the HIA tools. The tools were used in association with a variety of different planning efforts. Table 1 provides a list of the communities (all from Minnesota) and summary information for the HIA tool application. As stated earlier, while the technical team encouraged agencies to use the HIA tools the organization conducting the HIA chose the specific tool, whether to apply it to the overall plan or a specific area or project, and then conducted the HIA.

2.2. HIA processes

Examining the process of the HIA considers several issues including describing the:

- Specific tools that were used
- Manner in which the tools were applied in evaluating projects, plans, policies, or programs (e.g., were they modified, were they used prospectively or retrospectively), and
- Players involved in completing the HIA (e.g., planners, public health staff, elected officials, public).

As shown in the previous Table 1, the selection of HIA tools varied by community, with seven communities completing the preliminary checklist, three completing the participatory rapid assessment, and

Table 1
HIAs completed by communities.

Community	HIA tool selected	HIA purpose	Planning process
Carver County	Preliminary checklist	Evaluate proposed rail-based transloading facility	Comprehensive plan update
Eden Prairie	Preliminary checklist	Evaluate proposed town center redevelopment project and senior housing project	Comprehensive plan update
Excelsior	Preliminary checklist	Inform comprehensive plan update	Comprehensive plan update
Rochester	Preliminary checklist	Inform complete streets ordinance	
Shoreview	Preliminary checklist	Inform comprehensive plan update	Comprehensive plan update
St. Louis Park	Preliminary checklist	Inform sidewalks and trails plan	Sidewalks and trails plan
Victoria	Preliminary checklist	Evaluate proposed downtown expansion project	Comprehensive plan update
Apple Valley	Rapid assessment	Inform comprehensive plan update	Comprehensive plan update
Bloomington	Rapid assessment	Evaluate proposed trail corridor	Alternative transportation plan
Columbia Heights	Rapid assessment	Inform bicycle and pedestrian mobility plan and comprehensive plan	Bicycle and pedestrian mobility plan and comprehensive plan
Ramsey	Threshold analysis	Inform comprehensive plan update	Comprehensive plan update

one completing the lengthier threshold analysis. All but one community used the HIA tools prospectively. The supporting materials for each tool provide general guidance for their use, but there is substantial opportunity for users to tailor the application to local conditions and concerns. The wide variation is described below and in Table 2.

2.2.1. Preliminary checklist

The most frequently used of the three HIA tools was the preliminary checklist, partly because it was the least onerous to employ. The preliminary checklist is a worksheet for quickly assessing potential health impacts of policies, plans, projects, or programs. It also helps determine whether an additional and more detailed HIA is needed. The tool can be used as a desktop evaluation or in a participatory setting. As

illustrated in Table 2, the preliminary checklist was applied prospectively by planning staff.

In one community, the HIA was led by public health staff in coordination with planning. Even though the project being considered was within the traditional domain of local planners, public health staff members were keen advocates of HIA and worked with planners to incorporate health among other impacts addressed in response to a proposed rail facility. The public health staff was also central in modifying the preliminary checklist HIA for use in evaluating the proposed facility in response to a petition from a local citizens group for an environmental impact analysis. Changes were proposed for use in this process and for possible consideration in future applications of the HIA. They included designating some questions for housing and

Table 2
Summary of HIA processes.
Source: Adapted and modified from Forsyth et al. (2010): 45.

Community	Purpose	Lead department	Stakeholder involvement	Timing	Modifications to HIA for local conditions
<i>Preliminary checklist HIA</i>					
Carver County	Evaluate citizen petition for environmental impact assessment for proposed rail-based transloading facility	Staff – public health lead, support from planning	None	Prospective	Designated some existing questions for housing and residential projects only; added air quality questions related to presence of demolition activities, emissions from mobile and stationary sources; added social capital questions related to promoting interaction between neighbors/property owners, and harmony of design with existing community
Eden Prairie	Proposed town center redevelopment; senior housing project	Staff – planning	City council	Prospective	Used as an evaluation during an onsite tour for elected officials
Excelsior	Senior housing project	Staff – planning	None	Prospective	
Rochester	Comprehensive plan update	Staff – planning	None	Prospective	
Shoreview	Complete streets ordinance	Staff – planning	None	Prospective	
St. Louis Park	Comprehensive plan update	Staff – planning	None	Prospective	
Victoria	Sidewalks and trails plan	Staff – planning	None	Prospective	
	Proposed downtown expansion project	Staff – planning	None	Prospective	
<i>Rapid assessment HIA</i>					
Apple Valley	Comprehensive plan update	Staff – planning	None	Prospective	Integrated abbreviated HIA into open house for comprehensive plan update
Bloomington	Proposed trail corridor identified in alternative transportation plan	Staff – public health lead, support from planning and parks and recreation	Staff – public works, police, traffic engineering; school district; traffic and parks commission representatives; cycling advocate	Prospective	
Columbia Heights	Bicycle and pedestrian mobility plan, comprehensive plan update	Staff – public works lead, support form planning	Staff – parks and recreation; county highway department, parks department, and transportation management organization; school district	Prospective	Used HIA to explore opportunities to connect health to traditional comprehensive plan content and provide linkages to mobility plan
<i>Threshold analysis HIA</i>					
Ramsey	Comprehensive plan update	Staff – planning	None	Retrospective	Used to evaluate existing comprehensive plan with intent to inform plan update

residential projects only; adding air quality questions related to the presence of demolition activities, emissions from mobile and stationary sources; and incorporating social capital questions related to promoting interaction between neighbors/property owners and harmony of design with the existing community.

As technical assistance providers, the authors had varying responses to the additional questions; in general responses emphasized the importance of including only those questions for which there was an established evidence base. Only one community used the preliminary checklist as part of a more public process, using it as an educational tool during a tour for elected officials of a proposed town center redevelopment plan. Planning staff conducted a two-part tour for elected officials allowing them to use the preliminary checklist to provide an initial assessment of the city's existing town center area. A follow up tour was then conducted at a subsequent meeting, with the preliminary checklist being used by local officials a second time to evaluate the health impacts of a proposed plan for the area that included a more pedestrian friendly, mixed use environment.

The end result of using the checklist was one of three recommendations: conduct an HIA, suggest that an HIA is potentially needed, or recommend no HIA except perhaps on a targeted area or problem. Of the seven communities that used the preliminary checklist, each determined that no additional analysis of health impacts was needed. Users also noted the value of having a tool that was quick and easy to use; furthermore, it was helpful as they made decisions about how and when to move forward in the planning process and which health issues might be most relevant. In terms of disadvantages of the preliminary checklist, a concern is related to inter-rater reliability. No community had independent raters complete the same checklist (apart from the elected officials above). The project team managed to achieve high reliability in informal tests, but the reliability of how the questions were responded to by different people, beyond the development team, was not verified. Another challenge noted by at least one community related to the use of the preliminary checklist for a plan as opposed to a project, as some of the questions can be more clearly answered relative to a smaller scale or discrete proposal, rather than a general area.

2.2.2. Rapid assessment

Three of the 11 jurisdictions in the study used the rapid assessment HIA tool. This HIA is a participatory tool based on models extensively used in Europe and is intended to gather feedback from stakeholders related to potential health impacts (Forsyth et al., *in press*; Scott-Samuel et al., 2001; Ison, 2002). It also deals with methods to address impacts. The rapid assessment was used for different purposes in the three communities, for a comprehensive plan update, to assess a trail corridor proposed in an alternative transportation plan, and to evaluate proposed comprehensive plan content to more fully address health and provide linkages to a concurrent bicycle and pedestrian mobility planning process. In each case the rapid assessment was used prospectively, to gather input.

Those involved in leading the HIA varied to some extent in accordance with the type of plan being evaluated. The rapid assessment completed for a trail corridor proposed as part of an alternative transportation plan was the most collaborative in terms of staff involvement. Though facilitated by public health staff, planning and parks and recreation staff played central roles in providing information for the HIA and participating in the HIA rapid assessment workshop completed during an approximately 2.5 h meeting. Additional staff from the public works, traffic engineering, and police departments also participated, along with representatives of local commissions, the school district, and a bicycling advocate. In applying the rapid assessment to a comprehensive plan update in the third community, a modified version of the HIA was completed rather than the full-blown workshop completed by the other two communities. A brief discussion about health issues was integrated into a public open house already planned as part of the comprehensive plan update process—the

community considered it to be a rapid HIA but this is open to alternative interpretations.

Observing the rapid assessment processes and comments from users suggest that it was sometimes a bit difficult to initiate discussion among participants, but ultimately the processes were successful in building awareness around health issues. The primary challenges faced in carrying out the rapid assessment processes were related to organizing and facilitating the workshops. Effective workshops require that participants receive and review relevant materials (e.g., plans, health data, background materials on HIA) in advance. Few or no materials were sent prior to the workshops—perhaps because other meetings about projects do not provide such information in advance—thus requiring time to be spent on these topics during the meetings. The nature of facilitation varied in the workshops held in the three communities, with more productive discussion achieved when sufficient staff was available and information gathering exercises were well explained and appropriate to the audience.

2.2.3. Threshold analysis

One community among the eleven analyzed completed the threshold analysis HIA as part of a comprehensive plan update process. The community used the tool to evaluate its existing comprehensive plan and assess its performance relative to the various health measures included in the HIA tool, such as transit service, distance to supermarkets and food stores, proximity of residential and uses occupied by children to major roadways, and access to play areas, parks, and trails. The information produced was intended to identify issues to be addressed in the comprehensive plan update. In this community, the HIA effort was led by planning staff with little involvement by those in other departments and no involvement by the public.

Based on feedback from the community that used the Threshold Analysis, the process was productive, resulting in effective collaboration between the planning staff and the comprehensive plan consultant to complete the extensive GIS analysis and summarize the findings. Most importantly, it provided a comprehensive account for the community's existing strengths and weaknesses in terms of the built environment and health. Key challenges in completing the HIA included confusion regarding how to measure certain distances inherent in the health measures such as access to parks.

2.3. Planning outputs of HIA processes

HIAs were meant to provide information for planning and, when used as part of a larger planning process, have the potential to influence planning outputs such as plans and policies. The processes used for HIAs documented in the previous section resulted in a number of planning outputs, including information and analysis that were useful in making decisions about projects and informing plan content. Further, plans developed in association with the HIAs can be evaluated to assess the potential impact of the HIA effort. Table 3 summarizes the planning outputs generated by the HIA efforts and highlights the health content in planning documents produced by communities that completed HIAs.

In addition to the 11 communities that employed HIAs, several other partner communities participated in the program but did not conduct HIAs. We also reviewed their plans in terms of overall health content. Both groups of plans—those where HIAs had been conducted and those where they had not—varied substantially in how much health had been integrated into the plans. In general, those communities with substantial health content often also did HIAs; conversely the community that incorporated health in the most minimal way (barely mentioning the term) did not. However, as we conclude later, this difference in plan health content could well be due to differences in underlying interest in health with those more interested conducting HIAs and also including more health content.

Table 3
Summary of planning outputs of HIAs.

Case	DfH health issues identified in HIA	Information produced	Distribution of findings	Planning document(s) produced
<i>Preliminary checklist HIA</i>				
Carver County	Internal use only – information not publicly-available	No additional HIA needed, targeted analysis of health impacts for use in evaluating citizen petition for environmental review	Internal use only	Comprehensive plan update <ul style="list-style-type: none"> • Includes typical plan elements, policy details limited due to county-wide scale • Integrated health throughout the plan, particularly related to land use and parks, open space, and trails elements • Key focus on accessibility and physical activity • Developed health element, but not included in final plan document due to political issues (may be published as a supplemental document)
Eden Prairie	Pedestrian accessibility noted as a concern	No additional HIA needed, multi-stakeholder evaluations of existing and planned conditions in town center	Findings discussed in meeting with elected officials in a workshop setting	Comprehensive plan update <ul style="list-style-type: none"> • Included active community planning chapter—4 pages long out of 202 page plan • Topics included air quality, water quality, pathways, open space, destinations and mixed use, physical safety and mobility • Also developed a 2007 active community planning: site planning guide Comprehensive plan update not available as of October 2009
Excelsior	Internal use only – information not publicly-available	No additional HIA needed	Internal use only	Comprehensive plan update not available as of October 2009
Rochester	Accessibility relative to density and mix of uses identified as problem	No additional HIA needed, informed strategies to promote active living for consideration by steering committee	Findings reported at public meeting	Complete streets ordinance
Shoreview	Internal use only – information not publicly-available	No additional HIA needed, informed redevelopment projects	Internal use only	Comprehensive plan update <ul style="list-style-type: none"> • Includes typical plan elements
St. Louis Park	Internal use only – information not publicly-available	No additional HIA needed	Internal use only	Comprehensive plan update <ul style="list-style-type: none"> • Includes typical plan elements • As part of section under heading of “environmental stewardship – resources” but most of the text addresses environmental hazards (e.g., air and food-borne, air) or other illnesses that may result (e.g., lead paint) • Good attention in the bicycle and pedestrian section to issues of context and neighborhood planning issues • Separate section on public health (but loose connection to DfH topics)
Victoria	Internal use only – information not publicly-available	No additional HIA needed	Internal use only	Comprehensive plan update <ul style="list-style-type: none"> • Includes typical plan elements • Community-wide goals include “community health” category with three goals focused on a range of health issues including physical activity, safety, accessibility, air quality, water quality, and food access • Land use element addresses these issues, but densities remain at suburban levels and attention to transit is very limited • Parks and open space element includes section on public health and makes explicit connection to physical activity, mental health, social capital, food, safety, and a healthy natural environment
<i>Rapid assessment HIA</i>				
Apple Valley	Internal use only – information not publicly-available		Served as basis for discussion in a public meeting	Comprehensive plan update <ul style="list-style-type: none"> • Includes typical plan elements • Active living is a primary focus, with most discussion in parks and active living element, though discussion is limited to broad statements about promoting active living with little detail about how it would be accomplished
Bloomington	Mostly focused on physical activity, safety, accessibility	Two-page summary of outcomes of HIA, including list of potential health impacts and potential enhancements to address health	Findings summarized in publicly-available plan document	Alternative transportation plan <ul style="list-style-type: none"> • Describes planning context of HIA rapid assessment • Includes one page detailed summary of the event • Provides a very detailed description of future facilities and good attention to implementation and operations
Columbia Heights	Mostly focused on physical activity, safety, accessibility; pedestrian and bicycle accessibility was a key concern	Prioritized projects and policies	Findings reported in publicly-available plan document, spreadsheet summary provided to workshop participants	Pedestrian and bicycle mobility plan <ul style="list-style-type: none"> • As part of description of the development of the plan, it describes the process and results of HIA rapid assessment • Articulates detailed improvement on a multi-year time schedule

Table 3 (continued)

Case	DfH health issues identified in HIA	Information produced	Distribution of findings	Planning document(s) produced
<i>Threshold analysis HIA</i>				
Ramsey	Key issues to focus on in plan update included food, physical activity, water quality, and mental health	Detailed analysis of performance of existing plan relative to evidence-based measures of healthy community planning	Findings available in HIA report	Comprehensive plan update: <ul style="list-style-type: none"> • Plan has 2 pages of goals relating to health but these are not clearly linked to plan content • Extensive parks and trails sections

2.3.1. Preliminary checklist

Across the seven communities that completed the preliminary checklist, a key planning output was to identify health issues to be addressed in the plan document or project being considered in the HIA. For example, one community identified the need for better pedestrian accessibility. In most cases, staff used the preliminary checklist internally without sharing the results with the public or decision-makers. However, in two communities findings were reported in public settings and as noted previously, one community had elected officials complete the checklist, producing multiple stakeholder evaluations of health impacts in a redevelopment area.

A key strength of the preliminary checklist is its ability to quickly consider a broad range of potential health impacts, serving as a quick evaluation tool and helping to establish priorities to be addressed in future planning efforts. Depending on when the preliminary checklist is completed, it may be challenging to implement the findings of the checklist, especially if the HIA is used to evaluate a draft plan. This feedback came out in interviews completed near the end of the planning process in one community. Using it to evaluate existing conditions at the beginning of the process may be more helpful in strategizing about opportunities to address health. Several communities used the checklist early in the comprehensive planning process. In one case, the checklist was used to evaluate a proposed development project in an exurban downtown. Certainly, any plan content is the product of a variety of factors—including politics—but it is not inconceivable that the findings possibly influenced the content of the comprehensive plan that was concurrently being prepared because densities considerably increased. As described earlier, the checklist includes a range of questions about various health topics that might lead a community to identify multiple health issues that may be relevant to a planning effort.

2.3.2. Rapid assessment

While three communities completed versions of the rapid assessment, only two completed a formal participatory workshop. The results of both workshops were summarized in the plan documents that they were intended to inform. One community provided a two-page summary in the Alternative Transportation Plan and the other provided a four-page overview of the process and outcomes in its Pedestrian and Bicycle Mobility Plan. The latter also provided a spreadsheet summary to participants in the workshop. Because of the focus in both communities on alternative transportation issues, the health issues raised were somewhat limited including physical activity, transit accessibility, and safety. Participants selected for the workshops also had expertise in these areas. In the community that used the rapid assessment for a trail corridor proposed in its plan, the HIA process was framed as an effort to build support for the broader plan rather than as a detailed evaluation of the proposed corridor (City of Bloomington, 2008). In the other community, the results of the rapid assessment were somewhat generalized, but included a list of key health initiatives that were used to inform a prioritized set of policies, programs, and projects (City of Columbia Heights, 2008).

2.3.3. Threshold analysis

The planning outcomes of the one threshold analysis are more straightforward to identify because of the detailed reporting that must

be completed in using the tool. A 31-page final summary report related to the threshold analysis was completed, providing information about the performance of the community's existing comprehensive plan relative to the health measures in the threshold analysis. The report describes each of the health measures, the city's current performance relative to that measure (including a map), the city's goals relative to that measure, and policy directions to be addressed in the comprehensive plan update (City of Ramsey, 2008). The document also includes a summary table that provides a brief overview of the threshold analysis outcomes. Within the context of mental health, for example, the following summary is provided:

- *HIA measure:* Provide views of green space with canopy trees from all buildings.
- *Current achievement:* 39% of streets have canopy cover. A majority of housing has views to green space.
- *Goal:* Provide views to green space from new development and establish tree canopy on 50% of street centerlines.
- *Policy directions:* (1) Use park dedication to increase views to green space; (2) continued to plan developments with views to open/green space; and (3) require tree canopy on new streets. (City of Ramsey, 2008, 18).

While the summary document explicitly outlines potential plan content, the document remained internal and the focus on health in the comprehensive plan update document is limited to a page and a half of goals related to community health and wellness. That planning process was also piloting an intensive participatory process that focused on issues apart from health.

2.4. Planning outcomes of HIA processes

In addition to the more tangible outputs of the HIA processes discussed in the previous section, a number of additional outcomes can be identified for those who participated in the HIA efforts. These social outcomes reflect changes in perceptions and learning among the planners that occurred as a result of engaging in the HIA process. The outcomes generally fall into two categories, including perceived relevance of health issues to planning and institutional changes.

2.4.1. Perceived importance of health issues to planning

Among all of the communities, a few anecdotes suggest that some of the planners involved in the health and planning projects altered their perceptions about the importance and relevance of health issues. For example, one community's initial focus on physical activity and active living broadened to include a number of other issues including accessibility and safety. Food access became an area of particular interest and just recently, a grocery store opened in the small downtown of this exurban community, after much effort and negotiation by the local government. Many of the communities that the authors worked with in these projects were initially most interested in physical activity, accessibility, and safety, but their interests broadened—as demonstrated by discussions at meetings, content discussed in the plans, and so on—to include related issues such as social capital, mental health, and air quality. This expansion of topics dealt with happened when it became clear that efforts to plan for increased physical activity and access could also be modified slightly to have other positive health benefits.

However, it is not clear that the HIA process was the main reason that these health issues were included in the plans as the technical assistance program included a number of other types of educational events and materials. The technical team also provided detailed comments on draft plans, typically drawing attention to additional links between health and planning that many communities incorporated into their final plans. In some cases, these detailed plan reviews may have been more influential than the HIAs.

Changes in perceptions relative to the role and utility of HIA also occurred. For example, one participant, faced with a controversial project where claims were made about likely health problems, felt the checklist was useful to help clarify what was and was not a real health concern. Others felt that while one HIA process was helpful, in the future, they could use different kinds of approaches for different purposes, for example using the checklist for more standard proposals and rapid assessment in a public involvement processes.

2.4.2. Institutional changes

Among the communities engaged in this process, the one that has most embraced the integration of health and planning has been Carver County. Typical of most counties, they have both planning and public health staff and in this case both were involved in the planning efforts. Out of this engagement and collaboration, they have seized two key institutional change opportunities. First, the county is currently considering requiring that HIA be completed for all projects subject to environmental review under the current Minnesota Environmental Policy Act. Even more significant, the county is now in the process of merging its public health and land and water services divisions into a single unit, creating the opportunity for ongoing collaboration among planners and health staff. Carver County also developed a public health element in its comprehensive plan, which was strongly linked to other sections of the plan. However, recent political concerns resulted in this chapter being removed from the final approved plan. Since the health element was not required by the regional governing body, there were debates about whether the county would be held to implementing the optional element, as they would be for the required elements. Staff suggests that the health element may be published as a supplement to the approved comprehensive plan. Another community prepared an Active Community Planning: Site Planning Guide to assist developers and planning staff in reviewing site plans relative to health issues such as physical safety and mobility, pathways and accessibility, air quality, and water quality (City of Eden Prairie, 2007).

3. Lessons learned and reflections

There have been a number of calls to evaluate HIAs including issues such as HIA design, decision-making, enforcement, and the question of who pays for HIA (Forsyth et al., in press; Krieger et al., 2003). Evaluating processes, outputs, and outcomes is a challenging issue particularly untangling the effects of specific tools such as HIAs when they are applied in complex planning processes (Bekker et al., 2005). As Bekker et al. (2005) point out, HIAs are one source of information used by decision-makers and may be used for political goals.

We reviewed the final plans of the 11 communities as well as 8 others that had been involved in other parts of the program (e.g., receiving technical assistance and attending educational events about health). It is difficult to disentangle the specific effect of the HIA relative to other input; those few that integrated health in a substantial way likely did so more because of key proponents rather than the HIA. However in terms of process, outputs, and outcomes we offer the following summaries:

- *Process:* Most communities employed the simplest tool, the preliminary checklist and did so “in-house.” Doing so required only a modest effort and provided a simple starting point for screening projects. This

is an attractive HIA option for planners because it uses information about a project that is likely to be readily available. The example of Eden Prairie that used the tool twice, once with council and once internally, demonstrates a slightly more elaborate use of the tool that included public education and participation dimensions.

- *Outputs:* The communities did not typically report the preliminary checklist results. This does not seem unusual. In our work providing training on HIA in general we have found relatively few examples of published, completed screening and scoping tools, although some do exist. In contrast, rapid assessments were briefly reported in plan documents. This too is typical as there are many reports of rapid assessments available on such web site as the HIA Gateway (Association of Public Health Observatories, 2010). Moreover, some findings from HIAs were incorporated into the plans. The most elaborate report was for the threshold analysis (City of Ramsey, 2008).
- *Outcomes:* HIAs provided a way to better organize attention to focus on health issues, and, for some communities, the tools will be part of their ongoing planning processes. The breadth and depth of health content that was evident in the completed plans may be seen as a proxy for measures of the importance of health in funded communities and is reported for the 11 jurisdictions in Table 3. The vast majority of those communities using the HIA had some strong mention of health in their plans—either goals or policies. Only some of those that did not use HIAs incorporated health into their plans in any significant way. While we did not review the prior plans, those completed 10 years earlier, given comments made by the planning teams during the process it is unlikely that any of them had much mention of health. No one brought to our attention earlier examples of extensive mention of health beyond traditional concerns such as clean water. We can conclude HIA provides a useful tool for proponents of healthy planning.

Building on this assessment we offer several additional conclusions about benefits of HIA, barriers, and suggestions for making the most of HIA processes.

HIA has several *benefits*:

- Participating in a health impact assessment process can help build knowledge about health among those involved as it forces them to look at health issues systematically. This is an advantage over more general educational materials and events.
- Varied tools provide opportunities to fit HIA in to different timeframes, plan types, and staff capacities. Strategic efforts to partner with other departments and targeted engagement with elected officials through HIA can help build capacity and awareness of health and planning connections.
- HIA can be effectively integrated into participatory processes already underway and build relationships with new stakeholders. The health lens can be particularly helpful in providing a new way to approach community conflicts.
- The tools provide a systematic approach to incorporating health into planning and can lend legitimacy to efforts by a local champion to interject health into community plans and policies.

There are a number of *barriers* to HIA use:

- Innovative planning needs a champion who can assemble constituencies and the tools. The champion needs to be able to tap into both political support (so the results can be implemented) and technical expertise (so the health input reflects current best knowledge). There is an extensive literature on organizational development that grapples with such issues as “leading change” (Kotter, 1996). Typically it demonstrates that such change is a complex process that happens over time.
- A process can be sidetracked by other aims (e.g. a desire to try a different innovative approach that takes over the planning), by political or staff changes, or by legal concerns.

- Even communities paid to do innovative planning—with money for plan making and with technical assistance—will not necessarily do it, seeing the funding as a way to plug a gap in general funds. In an innovative process, it is possible to blame external circumstances for a lack of performance.

Given a champion and interested constituencies, a number of strategies can be used to *improve HIA practice*:

- The timing of HIA can be important in the selection of a tool. The cases suggest that prospective use to evaluate a draft plan or proposed project is effective. Using an HIA to evaluate the current plan or existing project area can also be informative if the results are used to inform a plan update or project redesign. Using an HIA to evaluate an existing plan can be more fruitful than evaluating a draft plan that already has supporters.
- The grant selection process used in this program had many competing priorities and aimed to involve a diverse set of communities. An alternative selection process might be focused on finding communities with partnerships already in place that could support champions, demonstrating both political backing and technical knowledge.
- Engaging a diverse set of stakeholders can help identify a wider range of health impacts relevant to the project, plan, policy or project.
- Skilled facilitation and meeting organization skills are essential when using rapid HIAs in a public process.

This evaluation has a number of limitations. Ideally one would compare the 11 communities using HIAs with the eight that did not and matched communities that were not part of the program that were similar in all dimensions except for participation. Locating such control communities is difficult, particularly since health issues have been widely discussed in planning. Finding uncontaminated comparisons would be difficult. Further, even if such comparison communities could be located and differences found, it would be challenging to conclude whether this was due to underlying interests or the effects of training and the experience of using an HIA. Comprehensive planning is also a long-term endeavor and studies in the future could examine the long-term effects of such tools. Overall, however, HIA is potentially an important new tool in the planning toolkit, helping raise awareness about health issues and focus planning on important human problems.

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Carissa Schively Slotterback, University of Minnesota Carissa Schively Slotterback is an Assistant Professor of Urban and Regional Planning in the Humphrey Institute of Public Affairs at the University of Minnesota. Her research is focused on public involvement in environmental and land use planning processes, environmental impact analysis, and sustainable development. She is a Resident Fellow in the University of Minnesota's Institute on the Environment and has experience as a planner in the public and private sectors.

Ann Forsyth, Cornell University Ann Forsyth is Professor of City and Regional Planning at Cornell University. Trained in planning and architecture, she is an expert in physical planning and urban design. Her particular expertise is in sustainable and healthy city design focusing on challenging issues: suburban design and planned communities, walkability, affordable housing, social diversity, and green space. She has also developed new tools for doing this work including: measuring design features of urban environments, assessing plan impacts, and helping the public participate in urban design and planning.

Kevin J. Krizek, University of Colorado Kevin Krizek is Associate Professor of Planning, Design, and Civil Engineering at the University of Colorado. He serves as Director of the PhD Program in Design and Planning and heads the Active Communities/Transportation (ACT) Research Group. His research focuses on travel behavior (specializing in cycling), neighborhood accessibility, health and planning, and sustainable development. Krizek is a founding editor of the *Journal of Transport and Land Use*, serves as Chair of the Transportation Research Board Committee on Telecommunications and Travel, and is on the editorial board of the *Journal of the American Planning Association*.

Amanda Johnson, University of Pennsylvania Amanda Johnson is a doctoral candidate in city and regional planning at the School of Design, University of Pennsylvania. Her interests center on the ways that cities use arts and culture as an economic development and growth strategy. Before studying at Penn, she was a research fellow at the Metropolitan Design Center for the Design for Health project.

Aly Pennucci, City of Minneapolis Aly Pennucci is a City Planner in the Department of Community Planning and Economic Development for the City of Minneapolis. Before starting work as a City Planner she completed a masters degree in urban and regional planning at the University of Minnesota and was a project coordinator for the Design for Health project.