Tool Created to Assess Health Impacts of Development Decisions in Ingham County, Michigan

Karen Roof, M.S.
Robert Glandon, Ph.D.

Introduction

This case study highlights Ingham County Health Department (ICHD) in Lansing, Michigan, which teamed up with diverse partners to begin an environmental health assessment, leading to the development of innovative tools such as a Health Impact Planning Matrix. This effort was considered vital after survey data reflected a negative trend in health status in the region. Additionally, through the environmental health assessment process, citizens called for improvements in the environment, growth, traffic, and overall quality of life. The capital area of Lansing and surrounding metro area is a Tri-County region of nearly 500,000 people (Ingham, Clinton, and Eaton counties). In this region, population growth and development has shifted over the past 15 years from the urban centers to the rural farmlands. This major expansion of urbanized areas led to mass changes in land use and corresponding health consequences for urban, suburban, and rural residents.

Background

The northern portion of the region is one of the most sprawling in the U.S. This region has witnessed a dramatic increase in traffic fatalities and injuries, vehicle miles traveled, air pollutants, and health disparities. Other consequences include increased reliance on automobiles, larger distances between homes and destinations, and reduced engagement in physical activity, which increases the risk for obesity, diabetes, and heart disease. A 2003–2004 survey conducted by a firm for ICHD (using Centers for Disease Control and Prevention [CDC] protocols) revealed that about 30% of the population in the northern capital area is physically inactive (Clearwater Research, Inc., 2004). This is far from the Healthy People 2010 goal of 10%. A relatively high incidence of hypertension also exists in the area population. Overall, about 60% of residents are overweight and obese. Obesity exceeds 20%, and diabetes is the seventh leading cause of death. Nationally, 2003–2004 data show that 66% of adults are overweight and obese, and 32% are considered obese (CDC, 2004). With such negative health trends, ICHD wanted to develop a strategy that comprehensively addressed these health issues. Thus, the land use planning and health initiative was formed.

Land Use Planning and Health Initiative

The land use planning and health initiative is based on a successful strategy used in the environmental health assessment process led by ICHD in the Tri-County region. This assessment process was comprehensive, diverse, and community-driven. The land use planning and health initiative was also formed because of strong community concerns that arose at town meetings of the regional growth project (RGP). The RGP was a visioning and implementation project conducted by the regional planning commission through surveys of the Tri-County region. Residents felt very strongly about their built and natural environments. They expressed concern about impacts of growth on the environment, particularly degradation of water quality and air pollution. Community members felt that the current sprawling approach to development was undesirable and wanted to see greater redevelopment in the city of Lansing, rather than developing on larger parcels of land outside the city. Residents also indicated that along with family, work, and recreation, their environment is "very important" (78%, highest category) to them. Another local survey showed that the community felt a strong positive correlation between community health, environmental quality, and social factors such as "trust of others (Clearwater Research, Inc., 2004)."

The Team

ICHD recognized early on that this comprehensive initiative should involve more than just Ingham County. Five years ago, as a first step to increasing the health department's role and kicking off the land use planning and health initiative, ICHD formed a regional land use and health resource team. The three core players and their organizations are executive director of the Tri-County regional planning commission; faculty from the urban planning, resource development, remote sensing, urban affairs, and other departments at Michigan State University (MSU); and three staff from ICHD, including the environmental health director, a health analyst, and the director of community planning and special services. Also, new relationships were formed with non-traditional partners such as the city of Lansing, Meridian Township, developers and builders (including one of the largest development companies in the area), and the Greater Lansing African American Health Institute. The team continually reaches out to others, such as the local Homebuilders Association and the local chapter of Realtors Association. Overall, having a balance between practitio-

Sidewalks and pathways can enhance health outcomes in all age groups.

ners and academics has been particularly advantageous by keeping work and discussions visionary and broad, yet practical.

In the first year of the project, the team researched the literature and local data and tapped experts in the field so they could develop the most appropriate strategy for promoting land use and health concepts. The team focused on education and outreach activities such as holding meetings; developing newsletters; and conducting presentations for the general public as well as the planning, public health, and business communities. The team presented on the local status of air and water quality, walkability, pedestrian injuries, and other health factors related to land use planning and design. The team continued to participate in the regional growth project and identified tools and products that would be useful to the community. One of the team's first priorities was to develop a health impact assessment (HIA) tool. An HIA can be effective in identifying health risks early and spur discussions on the most applicable options for proposed development projects, programs, and policies. This type of tool can also build relationships and improve decision making among elected and appointed officials, planners, developers, and community members about health impacts of proposed developments. The team also collected information about the local health status and incorporated the data into a geographic information system (GIS). Additionally, they developed and pilot-tested a draft Health Impact Planning Matrix which is described below.

About HIA

In the U.S., interest in HIA is nascent and growing but has been practiced in various ways in other countries for years, particularly in Europe. This growing interest in having "healthy public policy" led the World Health Organization to recommend that public policy should be "health promoting." Statements also have been made in the European Union (EU) treaty that its policies should not have adverse health impacts (Mcintyre & Petticrew, 1999). Interest in HIAs will grow further as evidence continues to show that the design of the built environment influences water and air quality, noise, levels of physical activity, injury, health equity, and consequently, the overall physical and mental health of residents (Frumpkin, 2002). Many people still associate "health" with health care systems and medicine, but the reduction in death from infectious diseases in the latter half of the 19th and the 20th century was more about increased prosperity, better nutrition, better housing, and improved sanitation than advancements in medicine. Today, policy interventions that address broader economic and quality of life issues such as housing, transportation, and education will most likely have more of an impact in population health than conventional health policies, particularly those oriented around treatment only (Kemm, Parry, & Palmer, 2004). Within this context, HIA provides a means to coordinate and assess a broad range of policy decisions that may impact public health.

Since the application of HIA in the U.S. is in the early stages, an explicit formal process has not been developed. A few government agencies, such as the San Francisco Health Department and ICHD, have ventured into developing their own flexible version of HIA. Despite its lack of formal structure, the HIA process generally has at least four process steps: project *screening* for possible health hazards and their implications; *scoping* to determine which health concerns, health hazards, and health opportunities should be further examined; *assessing* the health risk associated with each health hazard and identifying which people may be affected; and *evaluating and monitoring* the process and outcomes to identify whether HIA brought about positive change and improvements in health status.

While the above steps suggest some chronological order, experience has shown that a rapid policy decision by the health department is necessary at times. Currently, most local public health agencies (LPHAs) only provide a narrow review of development plans and the attendant health consequences, focusing mainly on water issues. Still, since a majority of environmental public health professionals are already reviewing development plans as part of their job, taking the next step to conduct an HIA is within reach.

Three Components of the HIA Tool: Checklist, Matrix, GIS

The team continues to refine and promote the use of the HIA tool in order to encourage health impact discussions among planners and developers and to improve development projects.

Planners in the region have used a checklist for a number of years. The matrix is an expanded version of the checklist that is designed to help planners and developers understand and assess the health impact concepts addressed in the checklist. The matrix considers several factors from developments, including impacts on water and air quality, noise, physical activity, injury prevention, health equity, and consistency with RGP objectives. The matrix also identifies why these factors are being considered, such as "to enhance health outcomes in all age groups, by removing barriers to provide functional and recreational physical activity." (See photo at left) Other matrix elements relate to groundwater recharge, impacts on traffic volume, compatibility with adjacent uses, nuisance noises, and diversity of housing types and affordability. The third HIA component is a user-friendly GIS encompassing the Tri-County region. New data points such as zoning, radon, and grocery stores that better reflect the land use and health picture of the region are constantly added, so the ability to influence local land use decision making continually improves. To see the matrix go to http://www.cacvoices.org/healthylifestyles/environmental/HIA/matrix.

Testing the HIA Tool

One of the biggest and fastest growing communities in central Michigan is Meridian Township, which piloted the HIA tool in 2004–2005. As a result of this experience, criteria by which proposed projects are reviewed have changed. During the pilot test of the HIA, the township began requiring developers to have a pre-application meeting with planning department staff. In these meetings, planners explain the HIA tool and discuss potential improvements in their plan with the developers. In the past, Meridian Township used an environmental checklist when reviewing development plans, but now the HIA matrix provides a more comprehensive review that also includes specific health considerations. The matrix has been used for a 100,000 sq. ft. community building and a 5,000 sq. ft. restaurant. The concomitant discussions proved to be just as important as the tool itself to improve communication and

relationships. Because of the team approach with this project, planners have been able to answer questions from the developers about why certain health-related questions need to be asked or why requests are being made to include certain items in their plans. Overall, the pilot test of the HIA was successful and well received. Even during the planning meetings, developers started on the spot to rethink their plan, adding green space, trails, or sidewalks to increase physical activity, sometimes in exchange for higher densities. The HIA tool is most effective if the discussions take place in the very early stages of project planning, when changes are least expensive.

In the Tri-County area, developers are also learning that smart growth communities are more profitable and sell better. In the past, developers clear cut trees, but now they save trees or wetlands because doing so yields a premium price for their properties. Developers better understand not only the health connection but the economics that support it. The HIA tool also has been used for specific issues that arise. For example, traffic fatalities were particularly high in an area near the MSU campus. Years before, new student housing was built near the university with no consideration for sidewalks or pathways, and two students were hit by a car as they walked. Two children were hit and killed while walking home on the shoulder of the road. A young mother was also killed at an intersection. In response, four miles of sidewalks were constructed in an effort to reduce fatalities. If an HIA of the new developments had been completed, it is more likely that sidewalks would have been installed earlier and the fatalities could have been prevented. Mark Kieselbach, Senior Planner, Meridian Township, said, "The HIA tool provides a basis for substantive discussions that can influence change."

Benefits of HIA and Community Partnership

The HIA and community partnership:

- increased public awareness of the health connection and regular engagement in the planning process;
- identified areas of common interest among different disciplines;
- led to participation in the planning commission's town meetings and site plan review processes;
- improved decision making by determining possible health consequences; and
- submitted joint proposals, co-authored articles, co-presented at conferences, and participated in trainings.

Results

The land use and health resource team has experienced success not only from building a diverse and comprehensive working group of professionals and community leaders but also from the positive results of the pilot test of the HIA tool. The pilot test demonstrated that the tool does enhance walkability through changes in the design of proposed development plans and will likely increase physical activity in the future. If the team's efforts resulted only in improved physical activity, significant health and financial returns would still accrue to the community, according to the 2003 Governor's Fitness Council Report. The report also deduced that the annual cost of physical inactivity in the central Michigan area is roughly $250 million (ICHD, 2005). Land use changes that improve physical activity could lead to significant returns to the public not only in improved quality of life and longer lives but also in reduced health care costs.

Wisdom from Experience

- One of the early challenges was taking on such a broad issue like land use planning and health. The risk was that it was too comprehensive, encompassing too many issues and disciplines. To help overcome this challenge, the team focused on one specific project at a time, such as building public participation in the regional growth project. The current plan is to maintain the comprehensive vision but to recognize that advances will likely come one project at a time.
- Participation as a team is crucial, particularly because of the distinctly different perspectives; e.g., an environmental health official will focus on air quality, and the planner will focus on traffic congestion.
- Using GIS with the matrix is powerful but using the matrix alone is still extremely useful.
- Reach out to other LPHAs nearby because managing growth and associated health issues go beyond county lines and need a regional approach.
- Broad-based expertise, which usually is not available solely within an LPHA, is needed for this type of endeavor. Obtaining this experience through the team was a significant benefit.

Looking Ahead

The team has been encouraged by the results of the HIA tool and has made changes in the way development projects are reviewed, which hopefully will result in healthier communities. As mentioned before, HIA is mainly used to review development projects, but in the future it may be used for policies and other programs. Affordable housing, location of grocery stores, transportation, and income may get more attention, especially because economic segregation is a concern throughout the state. The HIA tool can address these issues, and the team will focus more on these imminent problems in the future.

The team will continue to monitor health indicators, such as physical activity, obesity, heart health, walkability, and social capital over the next few years to see if detectable changes in these indicators have occurred. ICHD also hopes to have measurable outcomes to better correlate HIA with healthier communities. Additionally, the team will refine and promote the HIA tool, complete the GIS database for the HIA tool, and expand the piloting of the tool in the Tri-County region. The hope is that the HIA will be used widely in the Tri-County region and beyond. To achieve this goal, the health department is organizing mini-conferences and developing and conducting trainings for planners in all 50 jurisdictions in the Tri-County region about the health connection and the health impact planning matrix.

The Tri-County region recognizes that HIAs can provide a means to draw explicit attention to public health that will impact broad or specific development decisions and choices being made on a daily basis. Overall, the region, ICHD, and the team recognize that using the HIA can influence growth, facilitate change in the right direction, and improve public health status.

Acknowledgements: Thanks to Nadejda Mishkovsky from International City/County Management Association (ICMA) and Andrew Dannenberg from Centers for Disease Control and Prevention National Center for Environmental Health (CDC/NCEH) for reviewing this document. Thanks also to Susan Jerles from NEHA for coordinating efforts throughout this process to complete this article.

Corresponding Author: Ingham County Health Department, 5303 S. Cedar St., Lansing, MI 48911. Contact: Janine Sinno, Health Analyst, Ingham County Health Department. E-mail: jsinno@ingham.org.

Karen Roof has a consulting business and is faculty at the University of Colorado Denver. E-mail: Karen.Roof@cudenver.edu.

References on page 38

REFERENCES *continued from page 37*

Centers for Disease Control and Prevention, National Center for Health Statistics. (2004). *Prevalence of overweight and obesity among adults*. Retrieved March 9, 2006, from http://www.cdc.gov/nchs/products/pubs/pubd/hestats/obese/obse99.htm

Clearwater Research, Inc. (2004). *Ingham County Health Department health risk behaviors* (pp. 37–44). Boise, ID: Author.

Frumpkin, H. (2002). Urban sprawl and public health. *Public Health Reports, 117*, 202–217.

Ingham County Health Department. (2005). Our environment, our health. Retrieved February 2006, from http://www.cacvoices.org/healthylifestyles/environmental/PUB/

Kemm, J., Parry, J., & Palmer, S. (Eds.). (2004). *Health impact assessment* (pp. 4–5). New York: Oxford University Press.

McIntyre, L., & Petticrew, M. (1999). *Methods of health impact assessment: A literature review.* Glasgow, UK: Medical Research Council Social and Public Health Sciences Unit.