

Using the PACE EH Model to Mobilize Communities to Address Local Environmental Health Issues—A Case Study in Island County, Washington

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Abstract

The Island County Environmental Health Initiative (ICEHI) is a demonstration project in the use of the Protocol for Assessing Community Excellence in Environmental Health (PACE EH) to build capacity in the 10 essential services of environmental health. The PACE EH methodology systematically applies the 10 essential services of environmental health through the completion of 13 tasks derived from a community-based environmental health assessment process. The ICEHI has successfully engaged community members, identified environmental health issues important to the community, and led to the implementation of action plans aimed at reducing environmental health risks through use of community resources. This paper describes the methodology utilized by the ICEHI to address locally important environmental health issues so that other local and state environmental health agencies may replicate the process in their communities.

Introduction

Island County, a small rural county in Washington State, used the Protocol for Assessing Community Excellence in Environmental Health (PACE EH) model to build capacity in the 10 essential services of environmental health and to initiate a community norm for widespread, broad-based citizen participation in environmental health policy development. PACE EH is a community-based process that engages citizens in local environmental health issues, and Island County is one of several communities nationwide that have suc-

cessfully implemented PACE EH (National Association of County and City Health Officials [NACCHO], 2002).

Island County comprises seven islands located in Puget Sound approximately 30 miles north of Seattle and 50 miles from the Canadian border. While the population of nearly 80,000 residents is faced with some unique environmental issues such as two federally designated sole-source aquifers, a large naval air base, and 250 miles of shoreline, the environmental health programs have in the past followed traditional methods of regulation, inspection, and enforcement.

The Island County Health Department (ICHD) developed the Island County Environmental Health Initiative (ICEHI) to embrace the philosophy and methodology of PACE EH by engaging communities in identifying issues of local importance. By utilizing and enhancing the knowledge, independent resources, and skills of community members as part of the ICEHI project, health department staff have been able to expand on existing resources to collect environmental health data, analyze issues, set priorities, develop action plans, and implement activities identified in those plans.

Implementing PACE EH in Island County

PACE EH is an iterative process that involves the completion of 13 tasks (NACCHO, 2000). Further reading on the process used to develop PACE EH can be found in a paper by McDonald, Treser, and Hatlen (1994). Island County strengthened capacities related to PACE EH by emphasizing specific tasks that involved characterizing the community (tasks 1–4), identifying environmental health issues (tasks 5–10), and developing action plans (tasks 11–13). Table 1 identifies ICEHI project activities associated with PACE EH tasks and shows how those tasks correspond to the 10 essential services of environmental health (Baker et al., 1994).

TABLE 1**The Relationship Between the 10 Essential Services of Environmental Health and the PACE EH Process**

Essential Environmental Health Service	PACE EH Task Numbers	Activities Associated with PACE EH Tasks
1. Monitor health status to identify community environmental health problems	4–9	Assess the environmental health needs of the community
		Assess the environmental health determinants in the community
2. Diagnose and investigate environmental health problems and health hazards in the community	5–9	Investigate the occurrence of environmentally related events
3. Enforce laws and regulations that protect health and ensure safety	11–13	Protect residents from exposure to contaminants and hazardous surroundings
4. Link people to needed environmental health services and assure the provision of environmental health services when otherwise unavailable	12	Implement an environmental health program
		Manage resources and develop sound organizational structures
5. Assure a competent environmental health workforce	1	Assess skills and capacities of environmental health workforce
		Provide appropriate training to build capacities in coalition building, data collection and analysis, and so forth
6. Evaluate effectiveness, accessibility, and quality of personal and population-based environmental health services	13	Evaluate programs and develop quality assurance mechanisms
7. Develop policies and plans that support individual and community environmental health efforts	10–11	Set priorities for environmental health action
		Develop plans and strategies to address environmental health priorities
8. Mobilize community partnerships to identify and solve environmental health problems	1–3	Advocate for environmental health improvement, build constituencies, and identify community resources
9. Inform, educate, and empower people about environmental health issues	1–13	Inform and educate the public about environmental health issues
10. Research for new insights and innovative solutions to environmental health problems and issues	12–13	Select intervention and prevention activities for identified environmental health issues
		Conduct process and outcomes evaluations of selected activities

Community Characterization

The development of the PACE EH process benefited significantly from the existence of Island County's Community Health Advisory Board (CHAB). CHAB was formed in 1993 as a citizen advisory committee to advise the local board of health on matters of public health policy. Recognizing that an environmental health assessment would require significant additional community representation and resources, CHAB identified PACE EH as a priority for addressing local environmental health issues.

As part of the PACE EH process, ICHD's first task was to develop an asset map for Island County (see www.islandcounty.net/health/EHAT/toolkit.htm). The purpose of the asset map was to identify existing institutions, social structures, and organizations that contribute to the social network that binds the community together. The map was developed through community networking and investigation of phone books, social organization literature, and documentation from other public agencies. The map identified 114 local institutions and 57 citizen organizations comprising businesses, parks, health care agencies, the le-

gal system, media, libraries, schools, transportation, social services, colleges, service organizations, charitable agencies, interest clubs, and faith-based communities.

On the basis of the mapping exercise, ICHD incorporated economics, social organization, and environment into a definition of the community of Island County (Task 2) and developed the Environmental Health Assessment Team (EHAT) matrix, which was used to identify stakeholder interests unique to Island County (i.e., social, political, and organizational) that should be represented by members on the assessment team (accessible via www.islandcounty.net/health/EHAT/toolkit.htm).

Working from the EHAT matrix and a compiled list of desired participants, ICHD staff solicited community interest in completing an application to join EHAT (Task 3). The purpose of the application was to communicate the applicant's environmental health expertise, community interests, and stakeholder representation. ICHD staff used a number of methods to solicit interest, including advertisements in the local media and a

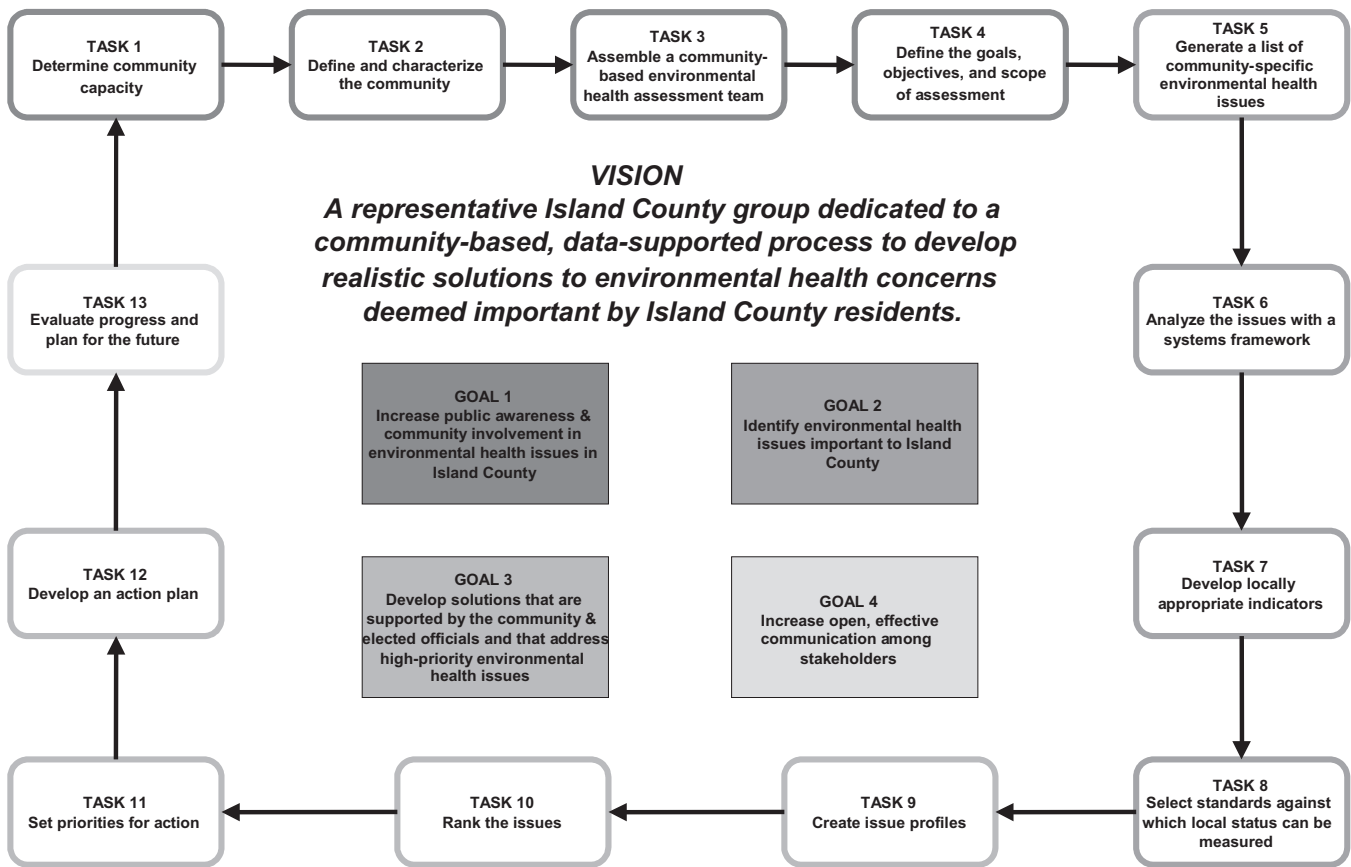
significant number of presentations at social organization events, both aimed at communicating the concept of the community-based environmental health assessment process.

The outreach to the community elicited nearly 50 applications from community members desiring to participate in the PACE EH process. The project coordinator, a member of CHAB, and a representative from the local board of health interviewed applicants and selected team members on the basis of their expertise, their willingness to contribute time and energy to the project, and the stakeholders' interests they represented relative to those represented by other applicants. The selection process yielded an assessment team composed of 26 members representing a broad spectrum of the community. The Island County Board of Health appointed each of the team members.

The first task of EHAT was to develop goals, objectives, and a vision statement (Task 4). As shown in Figure 1, the goals and objectives focused on initiating positive changes in the community, addressing locally appropriate environmental health issues, using commu-

FIGURE 1

EHAT's Vision, Goals, and Tasks



nity resources, and receiving both community and political support. Underlying the goals and objectives was a desire to increase public awareness of environmental health and increase communication among existing programs, elected officials, and the public.

Environmental Health Issue Identification

In order to begin the dialogue concerning locally appropriate environmental health issues, EHAT developed a list of over 150 potential issues (Task 5). The list was derived from a variety of sources, including a baseline EHAT knowledge assessment, interviews with ICHD staff, *The Health of Washington State* (Washington State Department of Health, 2002), Island County's *Special Report on the Health of Island County* (1996), *Environmental Health and Global Health Survey* (University of Washington, 2002), and the Pew Charitable Trust's *Public Opinion Research on Public Health, Environmental Health and the Country's Public Health Capacity to Adequately Address Environmental Health*

Problems (1999). EHAT decided to limit the issue list to four environmental factors in order to focus its finite resources on select activities and then to prioritize the items on the list by applying specific criteria within an analytical framework (Task 6). These criteria focused on the relationship between the environmental risk and human health, the local population potentially affected by the environmental influence, the presence of the environmental risk factor in Island County, and the ability of the community to effect change in the relationship between the risk factor and public health given limited resources. The latter proved to be a significant factor in the evaluation.

The four environmental health issues that received priority for further consideration were West Nile virus, arsenic in drinking water, illegal dumping and littering, and the walkability of Island County as it relates to opportunities for physical activity. The PACE EH toolkit (available at www.islandcounty.net/health/EHAT/toolkit.htm) illustrates the sample framework

for all four issues. To obtain insight into how each risk factor or agent could be reduced in Island County, EHAT developed issue profiles for each of its priority issues (Task 9). The profiles identified the contributing factors, environmental agents, exposure factors, affected populations, public health protection factors, and environmental health status for each environmental health issue. Indicators and standards were then identified by EHAT for use to evaluate the effectiveness of future intervention strategies (tasks 7 and 8). For its top priority of illegal dumping and littering, EHAT set a standard of no illegal dumping and littering in Island County; the community-specific indicator is the amount of illegal dumping and littering in Island County. EHAT measured a walkable Island County according to two separate standards: 1) Community destinations can be reached by pathways, and 2) connective areas by which pedestrians, or people using assistive mobility devices, can safely travel. As indicators of walkability, EHAT selected the number of miles of connected path-

ways between major community destinations and the percentage of “passing” walking audits, showing that connective pathways are safe and pleasant to walk along.

To further focus community resources, EHAT narrowed the four issues down to two priority issues using 22 ranking criteria that were selected on the basis of local data, including morbidity and mortality, the ability of alternative public or private resources to address the issue, and the likelihood that community intervention would elicit change in the risk factor or the affected population (Task 10). The scorecards for ranking and prioritization are available at www.islandcounty.net/health/EHAT/toolkit.htm. According to application of the criteria and a weighted vote by EHAT members, illegal dumping and littering ranked as the highest-priority issue, while walkability ranked second.

Action Plan Development

To fully understand the magnitude of two top-priority issues, EHAT brought together local experts, public officials, and affected populations at community forums to identify gaps and barriers and to brainstorm solutions for addressing both illegal dumping and littering and the walkability of Island County (Task 11).

Illegal Waste Dumping and Littering

EHAT's two dumping forums were attended by EHAT representatives, elected officials, solid waste handlers, resource management agencies, educators, and environmental health professionals. The outcome of the two forums was the identification of three intervention strategies for each of the areas of education, enforcement, and economics. EHAT developed its action plan on the basis of nine intervention strategies identified in the forums, with particular emphasis on use of community-based resources (Task 12).

Walkability

EHAT developed its walkability action plan independent of the forum process and geared the plan toward fostering partnerships and public education and encouraging local planning support for the development of opportunities for walking and physical activity. As one of its project activities, EHAT sponsored a forum to identify the gaps and barriers that needed to be addressed for community members to be more active and to incorporate walking into their daily lives. Forum participants included EHAT members, elected officials, park and recreation managers, community walking groups, schools, transpor-

tation planners, and physical-activity coordinators. There is significant community support for a follow-up forum focused on recommending intervention strategies to increase opportunities for walking and physical activity, reducing the barriers that impede community members from walking, and educating the local community on the availability of walking opportunities and the benefits of physical activity (Task 12). In the meantime, EHAT and ICHD staff are evaluating the progress of the ICEHI project and continuing project activities (Task 13).

Conclusion

Island County has enjoyed significant success with its use of the PACE EH process to develop a community-based environmental health assessment and implement locally appropriate action plans. ICHD staff attribute the success of the PACE EH process to 1) the assembly of an active, dedicated, community team; 2) the focus of the assessment on relevant community-identified environmental health issues; and 3) the development of action plans with realistic goals and solutions derived from the application of community resources. ICHD staff have detailed their process, outcomes, and lessons learned in a PACE EH toolkit for use by other local health agencies.

A significant investment of time, energy, and resources was required to mobilize the community to effect change in the environmental health of Island County. The EHAT members were purposely chosen to represent the demographic and stakeholder interests of the community and did not serve on the group as token representatives of existing environmental health programs or agencies. EHAT included representation from 21 of the 22 community interests identified in the EHAT matrix. Each member was dedicated to the project goals and made a commitment of time and energy for a minimum of three years following his or her appointment.

Early in the process of developing the governing and decision-making structure and ground rules for EHAT, it was discovered that the successes of the assessment team depended largely upon the support of elected officials for the assessment process and intervention strategies that followed the issue identification. For that reason, two EHAT members were chosen as board of health liaisons to interact with the board by providing updates on a quarterly basis and seeking input from the board during key decision-making steps in the assessment process. Board members were also invited to all of EHAT's

meetings and to the forums held to address illegal dumping and littering and walkability. This interaction proved to be successful and has resulted in significant political support for most of EHAT's activities.

Since the PACE EH process relies on the development of community-based intervention strategies, the selection of appropriate priority issues determines the likelihood of success with any intervention strategy. The process used to select and prioritize environmental health issues in Island County was not without controversy and proved to be one of the more difficult tasks for EHAT. Community members bring with them to the assessment process preconceived notions about environmental health problems. When such notions, or biases, are present, objective evaluations of environmental health issues using a localized systems approach can allow for a meaningful prioritization process.

The ability of EHAT to prioritize local environmental issues depended less on the list of issues with which the task began than on the process used to reduce the list to a manageable size. Through many discussions, selection criteria were developed that removed the ability of community members to apply their own biases and focused the process upon local data and scientific certainty. The issue profiles that were developed for the top four issues further clarified the roles of science and local relevance in the selection process. Although issues such as global warming and sea-level rise were considered within the realm of possible environmental health issues, when the ranking process required participants to determine if community-based intervention strategies could lessen the severity of the issue, they were forced to focus on those local priorities.

Island County has benefited greatly from the application of PACE EH to identify and solve local environmental health issues. Today, our community members are much more cognizant of environmental health issues and support intervention strategies to address those issues. Other state and local health departments that wish to successfully implement PACE EH need to recognize that the community process is slow and requires an investment of staff resources and time. It is also imperative to understand that PACE EH successes depend on support for the process from health department staff, the community, and political institutions. With such support, the benefits of the PACE EH process far outweigh the investment. 🌿

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REFERENCES

- Baker, E.L., Melton, R.J., Stange, P.V., Fields, M.L., Koplan, J.P., Guerra, F.A., & Satcher, D. (1994). Health reform and the health of the public: Forging community health partnerships. *Journal of the American Medical Association*, 272(16), 1276–1282.
- Island County. (1996). *Special report on the health of Island County*. Retrieved November 9, 2006, from <http://www.islandcounty.net/health/CHAB/Special.htm>.
- McDonald, T.L., Treser, C.D., & Hatlen, J.B. (1994). Development of an environmental health addendum to the assessment protocol for excellence in public health. *Journal of Public Health Policy*, 15(2), 203-217.
- National Association of County and City Health Officials. (2000). *PACE EH protocol for assessing community excellence in environmental health: A guidebook for local health officials*. Washington, DC: Author.
- National Association of County and City Health Officials. (2002). *PACE EH in practice: A compendium of ten pilot communities*. Washington, DC: Author.
- Pew Charitable Trust. (1999). *Public opinion research on public health, environmental health and the country's public health capacity to adequately address environmental health problems*. Baltimore, MD: Johns Hopkins, School of Hygiene and Public Health.
- University of Washington. (2002). *Environmental health and global health survey*. Seattle, WA: University of Washington, School of Public Health and Community Medicine.
- Washington State Department of Health. (2002). *The health of Washington state*. Retrieved November 9, 2006, from <http://www.doh.wa.gov/HWS/>.