

## **Protocol for Assessing Community Excellence in Environmental Health**

### **(PACE-EH): From Theory to Practice, the Delaware City/County Health**

#### **Department Experience.**

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#### **Abstract**

*Environmental Health Divisions (EHD) face intense challenges due to the way the nation currently addresses environmental concerns. The Protocol for Assessing Community Excellence in Environmental Health (PACE-EH), is a pilot program designed to serve as a tool to assess local environmental health issues. PACE-EH is a highly participatory process requiring intense community involvement. Delaware County, is one of 10 sites in the US field testing this pilot experience. Currently, Delaware has finished the first phase of PACE-EH with the identification of the top 20 environmental concerns in the County. Reported here are the methodology, challenges, strengths, weaknesses and some of the results of the protocol as tested by the Delaware community. Although PACE-EH requires considerable investment, it is an effective process to involve stake-holders in the discussion and proposal of solutions to environmental health issues. We suggest that other communities may also benefit from the PACE-EH methodology to assess and resolve their environmental health problems*

Environmental health has been traditionally a subject filled with ironies. Among

other things it is an area about which nearly everyone agrees government must intervene, but there is no consensus as to the methodology of such intervention, and it is an area ideal for prevention, yet most often crisis management and reactive approaches have prevailed (1). The past two decades have seen a dramatic change in management of environmental health. Increased citizen awareness and demands, increased complexity of environmental issues, reduction or dispersion of funding, and the separation of traditional environmental health programs and services from public health agencies led to a higher level of stress on Environmental Health Divisions (EHD) within health departments, and have made it difficult for them to deal with the crescent number of environmental challenges (2). For smaller counties, with less resources, environmental health management can be a daunting task.

Delaware is a county in central Ohio with an estimated population of over 90,000 people. The county is a mix of suburban, agricultural and urban lifestyles. It is the fastest growing county in Ohio and one of the eighth fastest growing counties in the US.

Delaware County faces the challenge of a growing and ever more demanding population, fast environmental changes brought about by development and the limitations of existing community infrastructure to effectively manage this growth. For the Delaware City-County Health Department (DCCHD) the potential health problems associated with the rapid demographic and environmental changes occurring in the county are of great concern.

PACE-EH is a pioneer process developed in the last three years by the National

Association of County and City Health Officials (NACCHO) and the Green Mountain Institute (GMI), an environmental consulting group from Boulder, CO, with support from the CDC and the US-EPA (3). The protocol is designed to assess environmental health needs in a community using the Comparative Risk Method (4,5,6). PACE-EH evolved from the need to include environmental health issues as part of an existing Assessment Protocol for Excellence in Public Health (APEX-PH) also developed by NACCHO (7). The Delaware City-County Health Department has been chosen as one of only ten sites in the US to pilot this process. The Delaware PACE-EH committee's objectives are to collect environmental health data, assess and evaluate local environmental conditions, identify populations at higher risk, and prioritize local environmental health programs and policies (8). In Delaware County, PACE-EH is part of a larger community project called "Healthy Delaware," also managed by the DCCHD. The "Healthy Delaware" advisory committee directs and coordinates the actions of the PACE-EH and APEX-PH committees.

## **Methodology**

### **1. Data Collection**

In Delaware County, PACE-EH was started in January, 1998 with the organization of a committee with 26 community volunteers composed of city officials, business representatives, and private citizens. The committee initiated its activities by discussing the eleven steps to the draft PACE-EH process (figure 1). These general guiding steps are proposed to facilitate the community environmental health assessment (CEHA) process (3). The month of March was used to define the objectives, mission and

vision of the process, and to plan the public outreach and survey methodology to be used for gathering the community's perspectives on environmental health issues (8).

The collection of environmental health issues from the Delaware community followed the methods suggested by NACCHO and NCEH (3), with some modifications to meet local needs. The methods call for organization of focus groups, person-on-the-street interviews, community randomized telephone surveys, facilitated discussion groups, and the use of key community professionals as informants.

The county was divided in five geographic regions representative of the demographic diversity of the area (figure 2), and the gathering of public input was conducted in all five regions. The areas in the northwest and northeast are more rural/agricultural, while the areas in the southeast and southwest are suburban in nature and considered to be "urban sprawl" from Franklin County (population one million), which shares a northern border with Delaware County. The central area is dominated by Delaware city and its vicinity.

Five focus groups were convened with the help of a professional consulting firm, following procedures described by Krueger (9). The focus groups involved a total 65 participants, and were conducted between May and June of 1998 (10). The focus groups participants were randomly chosen from each region to represent the county's demographics. Simultaneously with the focus groups, twenty-four facilitated discussions were conducted throughout the different geographic regions of the county, with hundreds of individuals representative of every township and several community organizations.

The focus groups and the facilitated discussions were designed to collect public input about the main perceived environmental problems in the county. Like the focus groups, the facilitated discussion groups were also selected in a manner to guarantee that all segments of the county's population were evenly represented. In both the focus groups and the facilitated discussions, the Nominal Group Process methodology was followed. Paper dots representing votes were used to make it easier for the participants to express their degree of concern with any given issue, or set of issues. After the group listed their issues with the aid of a facilitator, each person was given a number of paper dots and then asked to place those on the issues he/she considered more Important. When all the dots were counted for each issue, more dots meant a higher level of concern for that particular issue, less dots meant a lower concern for that issue or set of issues.

In addition to the focus groups and facilitated discussions, the 26 members of the PACE-EH committee were also asked to present their environmental concerns. Finally, in August, twenty-six key informants with environmentally related professions in the county volunteered for a telephone interview. This survey followed procedures described by Dillman (11), with some adaptations. Open ended questionnaires, regarding what they perceived as being the main environmental health problems in the county, and how to address them, were sent in advance to each one of the key professionals, and interviews were conducted according to a set schedule. To aid in the efficacy of this survey, the informants were also given the option to mail or fax in their answers. The originally proposed “person-on-the-street” issue identification survey is being developed as a DCCHD Newsletter newspaper ranking survey in which people will be asked to answer a

short survey about what are their top 5 environmental concerns out of a list of 20. A similar ranking survey using computer programs was used in the DCCHD booth at the Delaware County fair in September.

July and August were spent compiling the information from the focus groups, the facilitated discussions, the PACE-H committee, the professional interviews, and organizing the issues list. Overall 465 statements of concern were gathered from the community. These concerns ranged from global warming and uncontrolled population growth to water quality and problems with trash disposal/recycling in the villages

## **2. Data Management**

Through the application several organization and selection criteria the original list of 465 concerns was gradually and consistently aggregated. First the concerns were divided in 13 classic environmental health categories (12,13); subsequently, 6 additional categories were developed by the committee, bringing the total of 19 (figure 3). Then, the Issues Analysis Sub-Committee and the DCCHD Health Commissioner requested a frequency analysis of the issues to determine which issues were mentioned most often during discussions with the community. As a result, frequency criteria (table 1) were applied to the issues list. This analysis allowed for a further organization of the list and facilitated the grouping of some issues. Following, the issues were reviewed for similarities and redundancies; next, issues related to personal health were separated and sent to the APEX-PH committee who deals specially with such matters; finally, overarching issues and those unrelated to environment were isolated and removed from the list.

The grouping of issues and elimination of redundancies reduced the list from 465 to 66 issues. Finally, four respective sets of criteria for further refinement, based on experiences from the State of Ohio Environmental Protection Agency (14), the Green Mountain Institute, the city of Columbus Health Department (15) and the Seattle PACE process (4), were presented. It was decided that the criteria used by the city of Columbus, with some modifications, would be more adequate to the Delaware PACE-EH process. These criteria were to be used in combination with the frequency analysis previously performed, and excluding all the issues from the "Parking Lot" category (issues not directly related to environmental health), and all overarching issues (table 2). In August, the Issues Analysis Sub-Committee met to apply the accepted criteria to the remaining 66 issues, and determine which were the top 20 environmental concerns for the county to be addressed in the coming years (figure 4). All issues in the list were approved by consensus, and together they represent over 90% of the environmental concerns gathered from the Delaware community. The identification of the top 20 issues concluded Phase I of the PACE-EH Project

In Delaware County, the final environmental issues list was defined based on the specific perceived needs of the community, which will bring the participants closer to ownership of the process and its outcomes. The PACE committee will then identify a locally appropriate set of indicators to measure the current status of the issues. The committee will also set community based standards for each issue to track progress of interventions. To provide a strongly scientific basis for the issues to be addressed, the DCCHD, together with the PACE-EH committee and other groups, is collecting

epidemiological and environmental data from several agencies in and out of the county in order to compare perceived risks with actual health hazards. In the next step, data analysis and ranking of the issues, a more traditional Comparative Risk Analysis will be used and the issues will be compared based on their impact on human health, ecosystems, and quality of life. The Comparative Risk Analysis will produce a prioritized issues list. Strategies and action plans will be developed and implemented by the community for each of the prioritized environmental issues. Some of the issues listed originally by the focus groups and facilitated discussions have already been addressed by the DCCHD and the concerned groups received their answers promptly.

### **Discussion**

Health Departments are operating increasingly under substantial political, social and economic pressures (16). As the resources for health services become more limited, programs will be judged based on the effectiveness of their outcomes in improving the population's health (16). This requires that EHD within Health Departments be prepared to act and be knowledgeable of the main environmental problems affecting their communities, in order to better deliver the community's desired outcomes.

Comparative Risk process, which is incorporated into the PACE-EH protocol, refers to the public process by which environmental problems are identified and compared against each other with the objective of setting priorities to reduce risk (3, 14, 17, 18). Comparative Risk has the added advantage of gathering information to help the stake-holders understand the seriousness of environmental issues, and to help them develop their own intervention strategies (4,5). Such projects started in the 1980's when

the US-EPA observed that there was a mismatch between what were the agency's priorities and the actual or perceived environmental problems faced by communities. The idea then was to help local agencies to develop priorities based on the increase and severity of their environmental problems. This was latter refined through pilots until it formed the basic structure of Comparative Risk (4,14,18).

Although PACE-EH itself is new, the use of Comparative Risk methodology to evaluate environmental problems, as discussed previously, has been around for some time. The PACE-EH work in Delaware has been built on the experience of other counties and cities, and the state of Ohio's own Comparative Risk/Risk Assessment projects (5,14).

In Delaware County, the final twenty environmental issues selected show many similarities, as well as some differences with the main environmental concerns of previous Comparative Risk projects such as those of neighboring Columbus (19), the State of Ohio (20), and the concerns observed in other states (4). This shows that the PACE-EH process can indeed identify both common environmental concerns, such as water and air pollution, across regions or political boundaries; as well as issues more specific to a geographic region, such as the need for better control of wild animal populations, and the perceived dangers of unsafe and abandoned properties, identified in Delaware County.

The major constraints of environmental risk assessments, including PACE-EH, are the need for allocation of considerable time, financial and human resources, and technical support from the Health Departments and all parties involved. Health

Departments who embrace PACE-EH need to consider their capacity and expertise in the areas of strategic planning, coalition building, technical support, public relations/marketing, survey methodology, epidemiology, qualitative data management/computer programming support, comparative risk methods, group process and funding sources. Nevertheless, it is necessary to reiterate the importance of completing environmental risk assessments, among other things, for their commitment to the development of greater understanding of local environmental health issues, and the increased community involvement and planning to address unmet environmental needs (4).

Another important challenge also felt in the Delaware PACE-EH process is the lack of a system to collect and manage specific data on important environmental health indicators. As in the case of the state of Washington (7), and others, in Delaware County there are no environmental health data bases readily available to identify trends or to establish baselines that would assist in setting objectives or community standards. One of the current objectives of the DCCHD is to begin such a data base. However, a more thorough environmental reporting system; as well as the identification of core environmental health indicators, state and country wide, is still needed.

Two other critical considerations for PACE-EH are the need for public involvement throughout the process, and the need for an active media and public relations efforts. Consistent contact with the public might be difficult because the media's ability to allocate time, and the agency's relationships with the media, will vary greatly in each community. Nevertheless, public involvement must be at the forefront of

the PACE-EH process. Permanent contact with the media and the public, using a variety of outreach methods might be a strong tool to attract interest and further public participation. The DCCHD uses regular “Healthy Delaware” newsletters to inform it’s constituents about the process. Coalition building skills must be used to maintain the interest and active support of the PACE-EH committee.

The PACE-EH guidance document developed by NACCHO (3), has provided valuable insight to the community environmental health assessment (CEHA) process. Based upon the experiences of the ten pilot sites, there will undoubtedly be upcoming discussions about the need for modification of the document while producing it’s final version. The PACE-EH protocol needs to refer to the Comparative Risk techniques that are used to refine community generated issues lists to a manageable number. As mentioned earlier, the suggested protocol was designed to address classic environmental health issues, and Comparative Risk methods were incorporated into the protocol to be applied to the prioritization and ranking steps. Consideration should be given to the scope of the CEHA process for Health Departments that involve the community in the identification of environmental (health) needs, using a variety of public outreach methods. Invariably, quality of life and ecosystem issues will be identified along with classic environmental health issues if the objectives of local projects include a broad definition of "environmental health." The Delaware County PACE-EH committee’s mission and project scope set it's definition of environmental health to include quality of life, ecosystem and human health issues. As a result, The Delaware County PACE-EH project was challenged, for example, with comparing the risk of lead poisoning to the

risks associated with lack of green/open space or "urban sprawl." The use of consultants from the Ohio EPA Comparative Risk Project, the Columbus Priorities '95 Comparative Risk Project, and the GMI, further influenced our broad approach to the assessment process. Comparative Risk methods incorporate ranking tools to address disparate indicators, which are not all related to human health risks. There needs to be additional consideration given to the blending of Comparative Risk Methodology traditionally used by environmental agencies with PACE-EH protocols proposed to be marketed to local EHD prior to drafting the final version of the PACE-EH protocol.

Finally, the PACE-EH draft document describes the difficulties experienced by the NACCHO workgroup in deciding the relative order of/and philosophy behind the steps in the process (figure 1). The Delaware County PACE-EH pilot project held true to the values of listening to the community-at-large to determine the environmental issues of concern. The relative importance of this approach far outweighed the challenge of managing reams of qualitative data. The PACE-EH process was designed to be a community driven and not a data driven process. There was a temptation to present data to the PACE-EH committee to aid in the development of locally appropriate indicators, which would undermine this basic philosophy. As a result, data collection was done by staff concurrently with indicator development, and independently of the PACE-EH committee's dialogue on indicators. The impact of this modification of the suggested protocol is to be determined by continued evaluation of the process.

## **Conclusions**

All over the world environmental management is becoming an important tool to improve the way humans interact with and affect their surrounding ecosystems (5). In particular, there is pressing need for environmental management programs such as PACE-EH, that incorporate a strong community-based approach. In Delaware County, PACE-EH has involved hundreds of people from all socio-economic status, ages, sexes, and ethnic backgrounds. Although the process has the benefit of being highly participatory, as discussed previously, it has the drawback of requiring significant amounts of time, financial and personnel commitment to work properly and succeed in achieving its goals.

Nevertheless, even with the limited time and resources available, the PACE-EH process has been very beneficial for Delaware county and everyone involved. It is helping to create environmental awareness in the community; to built strong coalitions among the participants; and also between the community and the institutions involved; and it is also helping to target the main environmental needs of the county.

The strong positive community involvement is giving the stake-holders a sense of projects' ownership, which indicates that the identified issues will be followed-up and the desired outcomes will be attained, independently of the guidance from the Health Department. Furthermore, the objective ranking of the twenty final issues will allow the community to maximize its resources and invest wisely in future environmental health efforts.

The Delaware County experience also shows that development of powerful communication strategies is fundamental to maintain public involvement in the PACE-EH process. The organization of brochures, or booklets such as the "Citizen Guide to Reducing Environmental Risk" and, the "Facts and Figures About Ohio's Environment" (20, 21); newsletters, such as the ones developed by the DCCHD specifically for the "Healthy Delaware" project, and frequent press releases are of utmost importance for the democratization and maintenance of the process.

Public opinion polls indicate that, in general, the public is very concerned with the possible impacts of environmental hazards on human health (16). Considering the increasing importance of environmental health programs and services in Health Departments, it is likely that soon all Health Departments will need to conduct their environmental health assessments and organize comprehensive reporting systems in order to be accountable to their communities. Simultaneously, it is widely acknowledged that in an increasingly competitive health care/health promotion system, successful organizations will be those who can listen to the concerns of their clients, design products and provide services that meet or exceed their needs, and work to continuously improve processes to guarantee customer satisfaction (22). With the clear picture of what are the most pressing environmental concerns of their communities provided by the PACE-EH process, EHD will be better equipped to do that, and thus keep their competitive edge.

## **Acknowledgments**

To the Delaware City-County Health Department, the Delaware County Board of Health and the Ohio State University Department of Anthropology for the support of H.P. Silva, during the summer of 1998, to NACCHO for their support of the Delaware PACE-EH process, to Frances Veverka, Delaware City-County Health Commissioner, Jan Smeltzer and Susan Sutherland for their technical support, and to the anonymous reviewers of previous versions of this article.

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### **Points to Remember**

- ! To survive and be effective in their role, Environmental Health Divisions need to enlist strong support from the communities they serve.
- ! The Protocol for Assessing Community Excellence in Environmental Health (PACE-EH), is a tool to assess and understand local environmental health issues.
- ! In PACE-EH local communities influence all the steps, from issues identification and prioritization to development of strategies for action.
- ! Delaware County, OH, is one of only 10 sites in the US chosen to test pilot the PACE-EH process.
- ! Delaware finished the first stage of PACE-EH with the identification of the top 20 environmental concerns in the county.
- ! Reported here are the methodology, challenges, strengths and weaknesses of the protocol as applied to Delaware County.
- ! PACE-EH requires a considerable amount of time, financial and personnel investment from the organizations involved.
- ! PACE-EH has been an effective process to involve stake-holders in the discussion and proposal of solutions to environmental issues in Delaware.
- ! Other areas may also benefit from the PACE-EH community-based methodology to assess and resolve their environmental health problems.

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**September, 1998**