

Background Description and Learning Experience

Delaware's participation in the State-to-State Peer Fellowship Program was based on a desire not only to gain more information and knowledge with regard to EPHT, but to specifically determine how the techniques used could be applied in Delaware. Since January 2010, the Delaware Healthy Homes Initiative (HHI) has been operating within the Delaware Division of Public Health. The purpose of the HHI is to provide education, and in some cases direct intervention, in order to help people improve their indoor air quality. Currently the program operates in a reactive mode, responding to residents who already have problems or concerns. Through the use of EPHT, the HHI hopes to increase ability to target areas with potential problems, such as high asthma rates and ambient air quality problems, before they begin to affect the health of the population.

National Environmental Public Health Tracking Conference – April 2010

Attendance at the National Environmental Public Health Tracking Conference showed the momentum that many states and programs have developed. The diversity of applications of EPHT that were displayed at the conference showed that the application of EPHT is limited only by the needs of the people the network serves, and the imagination of those operating the network.

The trip to the national conference provided a broad spectrum view of environmental public health tracking. Through the presentations and attending the various work group meetings, the information presented was a good introduction to the emerging trends and ongoing work that is being done with the network on the national scale. Attending the national conference also presented the potential future areas where Delaware could be involved in mapping the future direction of issues related to public health tracking.

Through attendance of the various presentations and forums at the national conference, information vital to Delaware's efforts was available. The experience will prove invaluable as Delaware moves to implement an Environmental Public Health Tracking Network (EPHTN) and the contacts made during the conference will also provide resources as Delaware moves forward. The difficulty in attending the conference was the limited time available to attend the various sessions during the conference.

Sitting in with the Standards and Network Development (SND) working group provided good insight into the issues of consistency across the program. The importance of metadata to the individual networks, as well as for inclusion in the national network, is an important but easily overlooked step that will be incorporated into the development of the Delaware EPHTN. The presentations and discussions about cloud computing and the use of social networks showed that the group is already looking at emerging trends and not resting with the establishment of the status quo.

Participation in the Content Working Group (CWG) was a good introduction into the development and consideration of new standards for inclusion in the network. The discussion provided Delaware with information on the considerations for inclusion into the network. Follow-up with individuals after the group discussion helped Delaware understand the steps taken in considering expanding local programs to include new parameters, including some of the criteria used in that determination. This information will prove invaluable as Delaware begins the establishment of an in-state EPHT and starts discussions about the first parameters to be included.

Overall the most important aspect of attendance at the national conference was not the information. In fact with the amount of information presented in such a short time it was easy for a state without an existing program, and only one attendee, to get quickly overwhelmed by the information available and the willingness of others to share it. The most tangible benefit of attending the conference was the networking and connections made with existing programs and other jurisdictions considering creating programs. The task of creating an EPHT from scratch is daunting at best and the willingness of the tracking community to support and encourage programs still in their infancy is not only obvious, but welcomed.

Host State Site–Visit – May 2010

As part of the ASTHO State-to-State Peer Fellowship program, Delaware was partnered with the City of New York Environmental Public Health Tracking Program. The partnership allowed for one-on-one interaction between the two programs, including in-depth discussions of many facets of the New York Program. While the National Conference provided a broad overview of tracking activities, working with the NYC program provided the details that will be necessary as Delaware begins its own program.

Meeting with the technical manager of the NYC tracking program provided insight into the architecture necessary for implementation of EPHT on a level that the national conference could not provide. Seeing the interaction between the technical side of the EPHT and the informational side of the EPHT provided good details on how a network should be constructed in Delaware. The technical structure of the NYC tracking program was shown to be a good model. Based on SQL, the structure allows for greater flexibility by allowing various users to create new queries to better filter and interpret the data. The system allows various segments of the tracking program to work independently as they each pursue the data most relevant to their programs. The first limitation of EPHT in Delaware will be the hurdles that are necessary to clear in working with the information technology staff here. The information provided by the NYC tracking program has provided a different view of the information and given a good foundation of information that can be used in resolving potential issues.

Reviewing the “Rat Portal” and all of the work behind its launch in NYC provided an excellent example of using the tracking network in an innovative way. The rat portal is certainly not something that every tracking program would need to include in its repertoire of information, but in the case of NYC it provides information and resources that are needed by the public the program serves. The information contained in the rat portal, consisting of maps showing geographic and temporal trends in rat populations provides up to date information to citizens on the rat population in NYC.

But the portal, and this is perhaps the value of a tracking system to the public, also provides needed information on what’s being done about the problem. Residents that use the rat portal to research information in their areas are not only met with the scope of the problem. Residents can see what is being done in the area in real numbers, such as numbers of inspections and properties that have been issues notice of violations. The rat portal also provides an outlet for outreach and educational materials.

The rat portal will serve as a good model for the use of EPHT by the Delaware HHI. The HHI intends to use EPHT not only as a way to identify target communities and individuals in need of home health hazard assessments, but also as a way to educate people throughout the state. The structure of the NYC Rat Portal, and the information it provides is what the HHI hopes to model in the future, although with issues specific to Delaware. The website simultaneously provides the identification and degree of the issue, the steps that are being taken by the city and the information that the public needs to appreciate the issues related to the problem. The portal also provides needed outreach materials to the public that will allow them to take the steps necessary to prevent potential problems, and deal with existing ones, in effect educating the people to help themselves.

Conclusion

Delaware will benefit from the implementation of an EPHTN because many of the data sources and other resources are already in place. The beginning of the EPHTN will simply need a change in the application and interpretation of data that is already being collected. Data on asthma hospitalizations, for example, is already reported to and collected by the Division of Public Health. These cases, combined with information from the Department of Natural Resources and Environmental Control such as PM 2.5 monitoring data and Toxic Release Inventory (TRI) information, can provide an overview of the occurrence of asthma throughout the state. Taking current activities one step further by geographically representing the current situation can provide direction for programs that are working to lessen the public health impact of asthma in Delaware. The interpretation of the information will be used by the Office of Healthy Environments within DPH to help target areas and individuals for Healthy Homes Assessments that will help to reduce and eliminate various asthma triggers from the home environment.

Pilot Project

Abstract

The project proposed as part of this tracking fellowship will be to track the incidence of asthma and relate it geographically to environmental concerns related to ambient air quality. The project will seek to use data sources that already exist in Delaware in order to demonstrate the cost-benefit ratio of undertaking a statewide tracking network. The project will center on asthma as this is a common chronic disease in Delaware and because asthma is associated with many triggers that can be reduced or eliminated through simple strategies. The Delaware Healthy Homes Initiative (HHI) will serve as the action side of the tracking network to put the data interpretation to work through targeted outreach campaigns and home health hazard assessments. The end goal of this project is two-fold, to reduce the number of asthma emergency room visits in the targeted area and demonstrate the effectiveness of EPHT.

Introduction

Asthma is a growing concern in Delaware, 2008 data from the CDC Behavioral Risk Factor Surveillance System (BRFSS) lists the prevalence at almost 14% of the state's population. Some of the most common triggers that people with asthma face can be found within their own homes. Mold problems, lack of proper housekeeping and improper chemical use and storage are just a few of the potential asthma triggers tied to indoor air quality. The use of EPHT to reduce the potential for asthma ER visits while making better use of existing resources will serve as a model for other Delaware programs.

Since January 2010, the HHI has been working with residents throughout Delaware to educate them about potential indoor air quality problems and provide advice and support in dealing with the identified issues. The HHI currently has a staff of scientists that perform home health hazard assessments consisting of basic air monitoring (CO, CO₂, O₂, VOCs, temperature and humidity), moisture readings of suspect building components and visual observations. The program provides a report on findings to the residents and provides information on what the identified and potential hazards in the home are. Assistance varies on a case-by-case basis but can range from simple advice to direct intervention including supplying equipment and services to remediate problems that are beyond the capabilities of the homeowner.

Currently the HHI works in a responsive manner, reacting to resident complaints and referrals from other state agencies and public groups. HHI has a strategic objective of changing that focus to move towards pro-active interventions that prevent problems before they occur, rather than dealing with the aftermath. The focus of the EPHT pilot project that is being undertaken would assist the HHI staff in accomplishing this objective by identifying communities that may be at higher risk for asthma and related problems due to industrial development or other factors that can degrade ambient air quality.

The specific goals of the project fall into two categories. The short term goal is the use of existing information and resources relating to asthma and environmental concerns to guide the outreach and education efforts of the Delaware Healthy Homes Initiative. By identifying areas of that state that have higher incidence rates of asthma, if present, and comparing this data using GIS to TRI and other ambient air quality data the tracking program would hope to recognize any potential causes for elevated asthma rates.

Methods and Strategy

The initial phase of the pilot project will be to identify data sources and potential partners for the EPHTN. During the design phase of the project all the data needs were identified and it was confirmed that the needed data is already collected within DPH or Department of Natural Resources and environmental Control (DNREC). Data sharing agreements and MOUs, where needed, are being sought between the two agencies involved, but there is no expected difficulty in the needed data being available for this

project and future tracking efforts. The data sources for the project were chosen based on availability, the project is using existing data to the greatest extent possible, while also identifying data gaps for potential tracking efforts in the future.

Data sources identified include the Division of Public Health's Office of Vital Statistics, TRI data and the Delaware Air Toxics Assessment Study (DATAS). Environmental data including PM 2.5 monitoring will also be used during the project. Modeling and sampling data from the DATAS will be used to supplement the data where possible, but as DATAS is still ongoing the potential uses are uncertain at this point.

After data collection is completed, the next phase of beginning the analysis and interpretation of the data will begin. As much of the asthma and other health outcome data that will potentially be used for this project are analyzed prior to inclusion in the project, it is anticipated that analysis required for this phase of the project will be limited. Environmental data is also analyzed by DNREC as part of normal operations, so it's likely that the project will move swiftly into the interpretation phase.

The interpretation of the health outcome data and environmental data will likely be the most labor intensive segment of this initiative. Issues such as different geo-coding methods and geo-spatial resolution are possible, but the cooperation that has already been established between the various groups and agencies connected to the data should keep problems to a minimum. Once the data can be accurately viewed and interpreted on GIS maps, conclusions regarding potential environmental effects on asthma incidence in Delaware will be developed. Hypotheses will be tested by the HHI as they begin targeting communities for outreach and educational campaigns.

The proposed project will be staffed primarily by HHI staff. Project manager for HHI will serve as coordinator between various groups and data stewards, but will seek additional assistance from the other groups involved in the initiative when necessary.

Expected Outcome

The project is ongoing and is expected to be completed by the end of summer 2010. At that point a summary report will be prepared and provided to groups involved with the project. The report will also be distributed to other groups to demonstrate the effective use of EPHT in Delaware and encourage future use by other groups and for other endpoints.

The expected short-term outcome of this pilot project will be the identification of areas or groups of individuals in need of interventions to improve indoor environmental quality and reduce and eliminate exposure to potential asthma triggers. These outputs will allow for the Delaware Healthy Homes Initiative to take a more proactive approach in certain communities. Rather than wait for problems to arise, the HHI will be able to contact potentially sensitive populations and provide home health hazard assessments, outreach and educational materials and other support to reduce the potential for asthma emergency room visits.

The long-term goal of the project would be the establishment of an EPHTN network in Delaware. Through the pilot project, the potential uses of EPHT in Delaware will be identified and noted for future efforts. The next step in implementing EPHT in Delaware, after completion of the proposed project as a demonstration, will be the development of a draft plan for EPHT in Delaware. Formation of a working group connecting the involved groups and agencies should commence shortly thereafter and the group should work to ensure the full implementation of this proven and effective technique.