

Outcomes: This assessment is designed to assist in the development of the HABIS system and will ultimately be evaluated by the number of users, the frequency of use, and the quality of the data that is entered into the system.

Challenges: Close collaboration and buy-in from state and local health departments, environmental protection officials, and private veterinarians is key to gaining access to stakeholder perceptions.

Expertise Needed:

- An investigator familiar with the collection and analysis of qualitative data is essential. In addition, as this is an iterative methodology, expertise in a variety of ethnographic methods would be ideal (i.e., participant observation, focus groups,

pile-sorts, triads testing, and cognitive domain elicitation).

- Close collaboration and buy-in from state and local health departments, environmental protection officials and private veterinarians would be key to gaining access to stakeholder perceptions.

Timeline: The REA approach is intended to be formative in nature and guide the development of the final HABIS product. Therefore, the REA should be conducted over a time period of no greater than one month.

Estimated Cost: Fieldwork expenses, travel, and transcription costs should not exceed \$20,000.

2.3 Developing Epidemiological Methods

Research Need: Develop new, cost effective epidemiological methods appropriate to HAB issues that will enhance capacity to develop primary public health and prevention activities.

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HARRNESS Recommendation: “Develop new, cost-effective epidemiological methods that are appropriate to HAB issues” (HARRNESS, 57).

Traditional epidemiologic methods available to investigate environmental health issues are labor intensive, expensive, and time-consuming. Case definitions for HAB-related illnesses vary from agency to agency or are simply nonexistent. There is typically no way to clinically verify HAB-related exposures or illnesses. Also, there are no resources to conduct the prospective studies needed to fully assess the chronic effects from acute or chronic exposures to HABs and HAB-related toxins. Identifying and applying alternative methods for data collection and analysis will enhance our ability to develop timely and effective public health activities and exposure- and disease-prevention strategies.

disease incidence. It would also help public health agencies target response and prevention activities.

2. *Develop alternative methods to analyze and present environmental data that provide the public with information they can understand, accept, and use to make personal decisions about potential exposures.* There should be some consistent response to HAB-associated events that those responsible for communicating with the public develop and agree to disseminate.

Research Objectives

1. *Investigate or develop alternative strategies for case-reporting, including those that do not require the patient to interact with the medical community.* Additional case-finding would help the public health community identify the individual variations in response to toxins and help assess true

Identifying and applying alternative methods for data collection and analysis will facilitate timely and effective public health activities and exposure- and disease-prevention strategies.

Example Project 1

Use of Alternative Data Sources for HABs-Related Illness Reporting

Description: The objective of this project would be to examine whether HAB-related illness data from alternative (non-medical) sources (e.g., beach volunteer organizations and the hospitality industry) would be valuable in assessing the extent of the effects of HABs on public health. This is currently a source of “anecdotal” data that could provide information about people who get sick from HABs, and complain about it, but do not interact with the local community – making their illness impossible to capture via the medical community.

Methods: Investigators would provide hotels and restaurants or volunteer organizations that monitor beaches with very simple data-collection instruments that they can use and return to local public health authorities.

Outcome: Determine the number of people who have symptoms they believe are associated with HAB-related exposures (e.g., aerosolized Florida red tide toxins) and find out whether they ever engage with any part of the health care system for their illness. This is another component of the effects of HABs on people.

Challenges:

- Members of the hospitality industry are not always willing to bring up issues that may adversely affect their businesses.
- People may feel uncomfortable reporting illnesses to someone at a hotel or restaurant. To overcome this challenge, the survey could be a post-paid card that they could drop in the mail.
- The data could be biased because of the association with the hospitality industry (who want the problem to go away) or beach volunteers (who may have advocacy roles).

Expertise Needed: Investigators would need to collaborate with representatives from the hospitality industry, public outreach, and public education. For the epidemiologic work, investigators would need to collaborate with the medical community (someone who is familiar with the types of illnesses that might be reported), local health agencies, and statisticians.

Timeline: This activity should be done over several seasons to collect data under varying potential exposures.

Estimated Cost: This project should not be too costly. It would be an appropriate and valuable project for a Masters in Public Health (done over 2 years).

Potential Partners:

- Schools of public health (support for study projects)
- Fellowship programs (e.g., an Oak Ridge Institute for Science and Education (ORISE) fellowship at the Centers for Disease Control and Prevention (CDC))

Example Project 2

Alternative Methods to Develop Public Health Messages

Description: This project could use focus groups or other methods to assess what type of environmental data (e.g., *Karenia brevis* cell counts, level of microcystins in recreational lake) people feel comfortable using to make personal decisions about exposures (e.g., to swim or not to swim).

Methods: Small groups of people of different ages and backgrounds, etc., can be asked to examine different types of messages and explain how they develop their responses to the messages. (For discussion of message development, see Section 4, *Risk Communication*).

Outcome: Gain insight into how people process scientific data and use it to make personal decisions.

Challenges: It may be difficult to identify focus group participants because, in many geographic areas, these issues (e.g., red tides in Florida and blooms off the coast of the Northwest US) are contentious.

Expertise: The expertise needed for this project would include a Sociologist or Anthropologist, expert on what types of HAB data are available, specialist in public outreach and education, public health professional or other individual familiar with the HAB-related illnesses, local health agency, and Statistician.

Timeline: One year.

Estimated Cost: Full-time fellowship and part of a statistician’s time for a year.

Funding Sources: This could be a graduate student project in a school of public health or communications department, or be accomplished through a fellowship program (such as ORISE at CDC).