WORKING FOR CHANGE IN THE ENVIRONMENTAL HEALTH SPHERE: UNIQUE CHALLENGES AND THE BEST PRACTICES TO ADDRESS THOSE CHALLENGES

by

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ABSTRACT

Individuals working for change in environmental health face some challenges that best practices can help navigate. Environmental health is becoming a much more important area of focus as expanding knowledge increasingly links everyday environmental exposures with a higher risk of disease. These exposures can be from a variety of substances including common everyday chemicals, pollution, heavy metals, and other substances.

The focus of this project is to identify through an interdisciplinary lens some of the unique challenges and best practices in Environmental Health using conversational interviews, observations, and all forms of published information from geographically diverse individuals and organizations. The challenges discussed underscore the difficulty that many characteristics of environmental health are not necessarily visible and tangible to many people and individuals must rely on changing belief, perceptions, and behavior in order to effect change. This is as challenging as trying to get someone to quit smoking or exercise more. Those working in environmental health find their work to be more difficult due to public disputes over health effects, as well as the validity of the scientific findings.

Overall, individuals working in the area of environmental health can benefit from understanding the basics of health-related models and communication, as well as the way people process information and make decisions. Some crucial best practices identified focus on the areas of credibility, education, communication, and involvement.
INTRODUCTION

This master’s project investigates the unique challenges individuals and nonprofits face in the environmental health sphere. The focus of this project is to identify through an interdisciplinary lens some of the unique challenges and best practices in environmental health by using conversational interviews, observations, and all forms of published information from geographically diverse individuals and organizations.

In looking for best practices, this project also investigates what practices individuals or nonprofits have used that have contributed to successes or might have had an impact on success in addressing environmental health issues. This includes individuals who work in a nonprofit, who are activists, or those who work independently in the area of environmental health. Individuals or nonprofits may be working in any area that deals with environmental health issues, such as education, research, or policy change.

For the purpose of this project Environmental Health is defined as environmental health issues and environmental justice issues that can contribute to disease, neurological problems, or any other health issue arising from exposures to pollution, chemicals in our environment, radiation, hazardous waste, everyday consumer and business products, as well as any other sources of exposures that can harm health.

Environmental health is becoming a much more important area of focus as expanding knowledge increasingly links everyday environmental exposures with a higher risk of disease. These exposures can be from a variety of substances including common everyday chemicals, pollution, heavy metals, and other substances. This is not a new area of concern, as there has been a history of documented incidences of environmental health problems due to environmental exposures. Many concerns did not gain much attention until Rachel Carson’s pivotal book Silent
Spring came out in 1962. Eventually government regulations came into existence in an attempt to deal with the problems, this included trying to regulate chemicals. One of the main pieces of legislation, The Toxic Substances Control Act of 1976 (TSCA) is seen as leaving too many gaps and putting the burden on the EPA to prove a chemical is harmful.\textsuperscript{1} Many individuals and groups have voiced concern and criticism over the perceived lack of public protection from harmful substances and the lack of updating and reform of TSCA. In April 2010, Senator Frank Lautenberg introduced the Safe Chemicals Act in an attempt to reform TSCA.\textsuperscript{2}

The perceived lack of regulation, the known health problems, and the mounting evidence of potential problems, not previously recognized, has left a gap that many individuals and nonprofits have attempted to fill. Some individuals or organizations work not only to influence policy, but also to get information out to the public. Many times those in positions to decide policy may not be familiar with all aspects of an issue and rely on outside information to inform their decisions. Getting credible and correct information to decision makers and the public is important, because they are receiving many confusing and conflicting messages from various sources.

Individuals working in the environmental health area face many challenges including the fact that many characteristics of environmental health are not necessarily visible and tangible to many people. Individuals also face a major challenge due to public disputes over health effects and the validity of the scientific findings. Another challenge is that in order to effect change, individuals working in the environmental health field may have to rely on changing people’s beliefs, attitudes, perceptions, and behavior. This is as challenging, if not more so, as trying to get someone to quit smoking or exercise more. Due to this, many individuals could benefit from

\textsuperscript{1} http://lautenberg.senate.gov/newsroom/record.cfm?id=323863
\textsuperscript{2} http://lautenberg.senate.gov/newsroom/record.cfm?id=323863&&
understanding the basics of health communication, intervention strategies, and health-related models, like the health belief model, as well as from a basic understanding of human behavior, belief, and cognition. The challenges require some thought in order to help overcome them, and one way to help is to use best practices. Some crucial best practices identified focus on the areas of credibility, education, communication, and involvement.
BACKGROUND

As society has technologically progressed, so have the associated societal problems. One of these problems has been the increasing environmental issues facing the world. The earliest recognition of a problem in the United States was the destructive practices used in acquiring natural resources that led to preservation and conservation organizations. As industrialization progressed, the environmental issues widened in scope. While technology has led to many advances in all fields including health, there have also been many health problems caused by either the by-products of production or resource extraction for production processes and new products. The realization of the associated health problems did not come until later.

Historically, pollution problems such as air pollution and water pollution are visible. These problems have left their mark on history with documented cases such as that of Donora, Pennsylvania, where industrial pollution trapped in an inversion killed 20 people in a few days with 50 more dying over the next month. This industrial pollution exposure also left many individuals with permanent health problems and shortened lives. Problems still exist today: many people suffer health problems from present-day pollution, but with a less visible effect and impact than the Donora Smog. According to the American Lung Association, for example, air pollution today is responsible for “shorter lives, heart disease, lung cancer, asthma attacks, and serious interference with the growth and work of the lungs” with over 53 million people at risk on a daily basis.

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Compounding the health problems from the more broad environmental issues such as air pollution and water pollution is the advance of the chemical industry. The increasing complexity of manufactured chemical compounds has allowed the creation of hundreds of thousands of diverse products for industrial, commercial, and consumer use. These chemicals have altered the course of society and allowed many unique products to be developed; however, the majority of chemicals have not been thoroughly tested for human safety. Some early concerns about these problems went largely unheard until the publication in 1962 of *Silent Spring* by marine biologist Rachel Carson. *Silent Spring* explained how DDT entered the environment and affected living organisms as well as documenting the negative effects of pesticides on the environment. Carson went further and “challenged the practices of agricultural scientists and the government, and called for a change in the way humankind viewed the natural world.”

Rachel Carson wrote *Silent Spring* while fighting breast cancer. The book sounded an alarm over pesticide use that caused a lot of controversy, not unlike what is still ongoing today surrounding the use of various chemical compounds and other substances. Carson began more thoroughly investigating the secondary effects of pesticides after receiving a letter from a friend telling her about finding dead songbirds in the yard after the spraying of DDT. In her book, Carson focused on the need to understand the “complexity of the environment and of our relationship to it.” Shortly after the first installment of her book came out, the media began reporting on severe birth defects from the use of Thalidomide, a drug used for morning sickness in pregnant women, that caused many people to start thinking there might be a legitimate

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concern over new chemicals.\textsuperscript{8} The increased public debate and her testimony was an influential part of the creation of the Environmental Protection Agency.

In 1963, President Kennedy’s Science Advisory Committee supported Carson’s position on the overuse of pesticides, and her investigation had so much weight that it led to policies beyond pesticide use, moving into the areas of air and water pollution.\textsuperscript{9} Even with Carson’s warning and government policies, the creation and use of new chemicals increased. A few years later, the story of Love Canal started to enter the media, bringing the issue of chemical dangers back into people’s purview.

Unbeknownst to residents of Love Canal, the subdivision sat on an old chemical waste dump. An elementary school opened in 1955 in the same area. After years of complaints about strange odors and substances in the area, the first tests at Love Canal occurred in 1976. The results showed toxic chemical residues as well as toxic waste in the area, but government officials did not take any substantial action to mitigate any health concerns. The story is a long and complicated saga, and the complete evacuation of all the families did not occur until 1980.\textsuperscript{10} After the seriousness of the contamination at Love Canal was clear, the government created a program, the Superfund, to clean up sites like Love Canal.\textsuperscript{11} For those who lived at Love Canal, the issues continued for many years. The controversy has never really gone away and there are individuals living in the area once more.\textsuperscript{12}

Around the same time the first tests happened at Love Canal, the government put a regulatory framework in place for the Environmental Protection Agency (EPA) to deal with

\textsuperscript{9} http://www.epa.gov/aboutepa/history/topics/perspect/carson.html
\textsuperscript{10} http://www.bu.edu/lovecanal/canal/
\textsuperscript{11} http://www.epa.gov/superfund/about.htm
\textsuperscript{12} http://www.bu.edu/lovecanal/canal/date.html
chemicals: The Toxic Substances Control Act of 1976 (TSCA). This act gave the EPA the authority “to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures;” however, several substances do not fall under this framework, including food, drugs, cosmetics and pesticides.\(^\text{13}\)

Although TSCA put some focus on chemicals, many individuals found it was inadequate as one provision only allowed the EPA to “call for safety testing after evidence surfaces demonstrating a chemical is dangerous. As a result, EPA has been able to require testing for just 200 of the more than 80,000 chemicals currently registered in the United States and has been able to ban only five dangerous substances.”\(^\text{14}\) Due to the increasing amounts of chemicals and products on the market there have been calls over the years for further reform, as evidence is increasing that chemical exposures are contributing to not only environmental problems, but both human health problems and neurological problems. The growing evidence of human health problems due to environmental exposures have caused many individuals and organizations to call for reform, and recently many individuals and organizations have been supporting and promoting Senator Lautenberg’s introduction of the Safe Chemicals Act of 2011. This Act would reform TSCA for the first time since 1976. Some individuals believe the Act is a good first step, but would like to see a more stringent principle, called “The Precautionary Principle,” to become part of the reform.

The Precautionary Principle\(^\text{15}\) came about in 1998 from a conference at the Johnson Foundation Wingspread Conference Center in Racine, Wisconsin.\(^\text{16}\) The Precautionary Principle states,

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\(^{13}\) [http://www.epa.gov/lawsregs/laws/tsca.html](http://www.epa.gov/lawsregs/laws/tsca.html)

\(^{14}\) [http://lautenberg.senate.gov/newsroom/record.cfm?id=323863](http://lautenberg.senate.gov/newsroom/record.cfm?id=323863)

\(^{15}\) The entire Wingspread Consensus Statement is at the Science & Environmental Health Network’s web site
When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically.

The United States has, so far, not officially adopted the Precautionary Principle, but many other nations and organizations have. The European Union, for example, formally incorporated the Precautionary Principle into the Amsterdam Treaty of the European Union under Article 174, formerly Article 130r. The increasing evidence of the connection between environmental exposures and health and neurological problems has convinced many people that the Precautionary Principle is a necessity and should be universal.

People’s daily exposures to chemicals may have unknown consequences since many chemicals have never been thoroughly tested for human health concerns. Exposure to these chemicals comes not only from exposure to consumer products, but also through exposure to water, air, dust, and soil. The chemicals get into our bodies through inhalation, and ingestion, and in some cases can be absorbed through the skin. New technologies and chemicals enter the market every year without any full understanding of the potential impacts to human health.

The Centers for Disease Control and Prevention (CDC) in their Fourth National Report on Human Exposure to Environmental Chemicals found over 212 different chemicals in their sample of the population, which includes children as young as one, and the majority of the chemicals are manmade. Some of the chemicals found are known to potentially contribute to health problems, while the potential of other chemicals is unknown. These chemicals came from both consumer products and pollution. Another study by the Environmental Working Group

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(EWG) looked the umbilical cord blood of ten babies born across the United States and “found an average of 200 industrial chemicals and pollutants” in the blood.\textsuperscript{19} These two studies highlight how pervasive chemical exposure is and how complicated the issue is. When there are so many different chemicals present, it becomes incredibly difficult if not nearly impossible to determine what effect a specific chemical might have had on an individual.

The discovery of risks from some substances, including chemicals, is recent, while certain substances such as lead have well-known, specific health and neurological consequences from exposure. There is a lot of scientific uncertainty due to the lack of testing or difficulty of testing chemicals, as well as the lack of full understanding about chemicals and how they act in people’s bodies. This is particularly true with the increasing understanding of epigenetic modifications.

“Epigenetics is typically defined as the study of heritable changes in gene expression that are not due to changes in DNA sequence.”\textsuperscript{20} Research in this area has broadened the recognition that environmental factors play a large part in changing our genes in ways that can lead to disease and damage. In some cases, epigenetic changes are reversible; however, there is also evidence that shows some environmental epigenetic changes may also be heritable.\textsuperscript{21} This means children could be born with genetic changes that have unknown consequences.

Complicating the situation is that it could take years for a problem to develop from environmental exposures. Typically, it is also next to impossible to trace any environmental exposure that might be responsible for a health problem that surfaces 30 to 50 years later. This is

a primary reason many individuals strongly advocate for the formal incorporation of the Precautionary Principle into policy and regulatory decisions.

Many health and environmental health issues are seen in the media, but over time much of the information comes across as conflicting, leaving the general public not sure what to believe. This confusion comes from many sources. It is in part due to the nature of scientific studies, in some cases disagreement within the scientific community, and in some cases information from parties with competing interests. To add to the confusion, there are seemingly contradictory standards between government agencies. For example, it is well-known that lead causes neurological damage in children. The standard set by the CDC is that when a child’s blood lead level is greater than or equal to 10 micrograms per deciliter, it is considered elevated. This is the level at which the CDC “recommends public health actions be initiated.”\(^{22}\) This standard for intervention is set with the knowledge that there is no safe level of lead exposure for children and they can suffer permanent harm at much lower levels of exposure. In fact, another government agency, the Agency for Toxic Substances & Disease Registry, specifically states, “blood lead levels once considered safe are now considered hazardous, with no known threshold” and further state that “lead poisoning is a wholly preventable disease.”\(^{23}\) These conflicting messages can make people question who to believe and what to do in order to avoid harm.

This complex background has set the stage for many individuals and organizations to become involved with environmental issues due to the lack of perceived government regulation and action. These individuals and organizations have a broad range of concerns. The list of Superfund sites has grown considerably since Love Canal, and they are taking decades to clean.

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Industrial pollution is still an issue and in many cases disproportionately affects low income and minority communities, becoming an Environmental Justice issue. Banned chemicals still find their way into animals’ and peoples’ bodies at detectable levels. All of this combined with the mounting environmental health concerns over the connection between environmental exposures and health and neurological problems has propelled many individuals and groups to focus more specifically on the environmental health sphere. This involvement ranges from activists working in communities who work on specific issues, to activist who organize groups, to nonprofits of all sizes that work in many different areas including education, policy issues, legal issues, scientific research, and organizing grassroots activism. These individuals and nonprofits working in this area face many unique challenges.

These challenges are on top of the normal and societal challenges that all nonprofits in general face. Many nonprofits are presently struggling from the economic issues that have left some with major funding shortfalls, and other issues have arisen as the country has become more polarized and politicized. Nonprofits are also facing increased demands from donors to show what impact they are having and what results they are getting. Nonprofits that in the past may not have faced controversy are now becoming a target as many cultural debates are heating up across the country.

The polarization over social and cultural issues, along with the potential for the spread of misinformation, is affecting all nonprofits and those working for change, including nonprofits many people would typically not consider controversial. One example of this situation can be seen with an organization many people would not consider controversial, the Girl Scouts. The Girl Scouts recently had to deal with an unexpected controversy and expend a great deal of time

attempting to counter Internet rumors and misinformation. Maureen West interviewed several individuals for an article on this problem, and a point made by Mr. Oliphant of the Pittsburgh Foundation highlights the changes occurring in the country. He said, “It’s an ‘extremely dangerous time when nonprofits are being attacked on political grounds, not on their work or missions.’”26 This is a concern for all nonprofits, but particularly for those individuals or nonprofits already facing challenges due to the focus of their mission, such as those involved in environmental health.

In order to successfully address these challenges individuals and nonprofits need to be aware of the environment they are operating in and use the best available knowledge and techniques for success. In many fields, an aid to achieving success is the concept of best practices. Best practices typically focus on methods or techniques that have been proven to work: BusinessDictionary.com defines best practice as “A method or technique that has consistently shown results superior to those achieved with other means, and that is used as a benchmark.”27 Best practices are not set in stone and can evolve as new information enters the picture or if the situation changes. With the unique challenges faced by individuals and nonprofits in the environmental health sphere along with the need for their existence, it is important for them to understand and follow the best practices and methods that will guide them to success.

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27 http://www.businessdictionary.com/definition/best-practice.html
PROJECT PROPOSAL AND METHODS

PURPOSE

The main objective of this master’s project is to investigate and identify through an interdisciplinary lens some of the unique challenges and best practices in the environmental health area.

METHODS AND PROCEDURES

This purpose will be achieved by examining through an interdisciplinary lens the practices, as well as the unique challenges, that individuals working towards change in the environmental health sphere face, through the following methods:

- Conversational interviews
- Published papers or electronic interviews
- Published comments
- Published video recordings
- Public organizational or personal web sites
- Published guidelines or other information by organizations or non-profits
- Personal observations

The conversational interviews will be conducted by speaking with individuals in non-profits, community activists, and others who are working towards better environmental health outcomes.

The investigation includes looking at non-profits and individuals working in the area of environmental health and seeing how they are working towards better environmental health, whether it is through education, trying to employ the Precautionary Principle at the local level, or
any other methods they are using. I specifically will look at the handling of environmental health issues at the local community level including toxic pollution, every day chemicals, and other environmental exposures, along with looking at what existing programs or activities are working to minimize potential exposure and harm. This investigation includes looking at what potential or actual barriers and problems individuals ran into with these programs or activities, and was there a practice or method that allowed the problem or barrier to be overcome.

SUBJECT SELECTION

The identification of individuals and nonprofits to potentially interview as well as gain information from will come from an Internet search, a news article search and a non-profit organization search. Through these searches, I will identify several non-profits that fall into the focus area, as well as several individuals who are either professionally involved with the issues or who are community activists working for change.

The goal of the sample for the investigation is to illuminate the practices that individuals working towards change in the environmental health sphere are doing. My primary selection criteria are that these nonprofits or individuals currently work or have experience in working at the community level. The selection of individuals or nonprofits will come from various regional locations in the United States, but with no attempt to get a sample from each regional location, as the focus is on overarching best practices, not regional practices.

The formal proposal was submitted to the Institutional Review Board associated with Duke University and was approved.
CONFIDENTIALITY

In order to gain the best perspective on these issues as well as recognize the sensitive issues surrounding the environmental health sphere, all information gained through personal interviews will be kept confidential and only used in aggregate form.
OUT OF THE SEVEN INDIVIDUALS CONTACTED FOR INTERVIEWS, FOUR INTERVIEWS WERE CONDUCTED. ALL OF THE INDIVIDUALS FELL INTO THE TARGETED CRITERIA. THE INTERVIEWS WERE A MIX OF INDIVIDUALS WHO WERE NOT FORMALLY WORKING IN A NONPROFIT SETTING AND THOSE INDIVIDUALS WHO DO WORK IN HIGHLY INVOLVED AND SUCCESSFUL NONPROFITS.

THESE INFORMAL CONVERSATIONAL INTERVIEWS AND/OR INFORMAL MEETINGS RANGED FROM 30 MINUTES TO AS LONG AS TWO HOURS. THREE OF THE INTERVIEWS WERE CONDUCTED IN PERSON AND ONE INTERVIEW WAS CONDUCTED BY PHONE.

THE QUESTIONS AND DISCUSSION CENTERED ON ISSUES SUCH AS:

- What they as experienced and knowledgeable individuals in this area have seen as being the problems and issues
- What practices have helped to resolve any of the issues
- What has worked for them or their organization and/or what they have seen work in another area
- What they perceive are the barriers to creating a healthier environment as well as reducing risk from exposures
- Any best practices that they observed
FINDINGS

The following two sections, Unique Challenges and Best Practices or Methods, cover the major points gathered from the research and interviews. The first section covers some of the unique challenges found in regards to individuals and nonprofits in the environmental health sphere. In the second section, the crucial best practices that were identified focus on the areas of credibility, education, communication, and involvement.

UNIQUE CHALLENGES

What makes working in the environmental health sphere different from other issues nonprofits may focus on? Many nonprofits or individuals typically deal in tangible issues, benefits or services that people can see, feel, and experience in other ways. These can include domestic violence shelters, where there is a tangible result of women, men, and children being assisted through housing and counseling among other services. Animals saved by a pet rescue nonprofit are tangible and people can see them and the animals themselves can evoke strong emotions in some people. A pet rescue nonprofit can also cite the number of pets rescued and even perhaps the number placed in homes.

A food bank has a tangible mission that people can see and experience; they can donate food, donate their time to sort and pack food, and potentially see the recipients of the food. Many environmental nonprofits have tangible outcomes such as land conservation trusts that buy up land or the visible and measurable results from an endangered species program. Some individuals or nonprofits may focus on recycling, where there is a tangible result, or litter abatement or a river cleanup, where there are visible results. This is many times in contrast to those working in the environmental health sphere.
For many who work in the environmental health sphere there is no immediate, tangible service or benefit that a person can experience or see directly that they may attribute to the work of the individual or nonprofit. This lack of visible results or outcomes, as, say a pet shelter has, is because the work focuses on things that affect health such as pollution and exposure to other substances, such as arsenic, lead, mercury, benzene, BPA or PFOA among many others. There are those who work to get policy changed and when a new policy is instituted that can be a visible, tangible result, but in the interim they may face the same challenges in convincing people there is a problem and that the policy needs to change. This lack of visible results or outcomes can make the work more difficult, since more effort is spent on convincing various audiences that there is a problem and then convincing various audiences the extent of the problem.

A large factor in trying to convince people about the problems is the idea of scientific uncertainty and not having tangible, absolute proof. Many people want proof they can see. Other factors that add into the difficulty of making progress includes geographic location, individuals’ knowledge base and education, attitudes and beliefs, as well as a general lack understanding by people of the potential problems that exist. There are also many political hurdles and special interests involved. This combines with the problem that many in the health field confront everyday: it is hard to change people’s behavior, even if it will benefit them. Many times to change behavior one has to change beliefs.

This focus on health impacts is a focus on belief and perception. When an individual or nonprofit is working towards a goal, typically, it is something they strongly believe in, but the problem is that they have to get people to engage and “buy into” this belief. For example, this is similar to attempts to get individuals to cut back on the red meat that they eat. A person would
have to believe eating red meat is not healthy and then believe there was a consequence to eating red meat. The person then has to recognize that he or she would somehow receive more benefit from cutting back their red meat consumption than the benefit he or she loses by not eating red meat, such as enjoying a steak. Since there is uncertainty about what a person may gain from changing their behavior, if they really love steak then the likelihood of their behavior changing is low. This equally applies when attempting to get an individual to quit smoking, buy a safer product or to get rid of a children’s wood play set because it contains arsenic. In the case of the child’s wooden play set, an individual may want the safest options available, but may sincerely believe that the play set is safe and that either it has not been treated with arsenic or that arsenic does not pose a danger. They could just not understand the risk from arsenic or they could have other pressures not to acknowledge a problem.

People’s beliefs are formed primarily through indirect knowledge, knowledge learned in school, or from what we are told by our family and friends, as well as through direct personal experience. Emotions can also influence people’s reactions to information and people can form a “strong emotional commitment” to beliefs and will not easily give them up, even when presented with facts.\(^\text{28}\) This can make it very difficult for individuals working to change people’s beliefs about environmental health issues, such as with the prior arsenic example. Understanding a bit more about the basis of how people think and rumors spread can help address this challenge.

Rumors and incorrect information can be a difficult issue to deal with. Cass R. Sunstein points out that since much of our knowledge is indirect, this is a primarily reason rumors spread. Sunstein states, that there are two processes by which rumors spread:

• Social Cascades – occur because each of us tends to rely on what other people think and do. If most of the people we know believe a rumor, we tend to believe it too. Lacking information of our own, we accept the views of others. When the rumor involves a topic on which we know nothing, we are especially likely to believe it.

• Group Polarization – refers to the fact that when like-minded people get together, they often end up thinking a more extreme version of what they thought before they started to talk to each other.29

People believe rumors because rumors have credibility due to people believing them, “not because direct evidence is known to support them.”30 One example is the old adage: don’t go out in the rain because you will catch a cold.” Some people today still believe that you can catch a cold if you go out in the rain, because it has been told to them by family members and others who believe it and who they find credible. Sunstein says rumors tend to “arise and gain traction because they fit with, and support, the prior convictions of those who accept them” and “many of us accept false rumors because of either our fears or our hopes.”31

People process information through their own biases and some studies have shown that trying to counter false beliefs or perceptions can sometimes strengthen a person’s commitment to their belief or perception.32 The studies showed that this occurs with individuals regardless of the accuracy of their belief or perception.33 This emphasizes how important it is for individuals to be

30 Ibid., 6.
31 Ibid., 6.
32 Ibid., 43.
33 Ibid., 44.
a credible and reliable source to the audience they wish to influence. One must realize trying to “correct” a rumor head-on may lead to it becoming further entrenched and may not be the best way to approach the situation as it may “increase polarization.” This can be especially true when people do not get balanced and accurate information. It might be thought that with the Internet and so much information available to people that this might not be an issue, but it has actually magnified the issue.

The proliferation of Internet access along with the increasing amounts of information available to people tend to make it much easier for inaccurate and untruthful information to spread. This also has allowed people to sort and pick their sources of information and potentially ignore information that does not fit with their beliefs, living in what Sunstein calls “information cocoons, or echo chambers of their own design . . . .” The spread of rumors, by individuals or groups either directly or through the Internet, is not without harm as many examples have been seen of people or businesses harmed due to rumors. Some false rumors are deliberately started by individuals or groups, who might have an agenda, and then spread. Other rumors come about from misinformation. In either case, the effect is the same, and individuals working in the environmental health sphere will face many of these rumors as they attempt to effect change. People’s emotional attachments to their beliefs and perceptions make it a trickier proposition to deal with, but these attachments can go further.

People can attach emotions and social value to objects. Marketing research has pointed to this with the investigation of intergenerational consumption patterns where children will buy the same brand that their parents did and in some cases their grandparents as well. This familial

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34 Ibid., 87.
influence in product purchasing might be one reason it is difficult to get an individual to believe that their favorite product has the potential to cause them harm. Additionally, many people believe that products on the market have gone through safety testing and they would not be for sale if harmful or dangerous. Every individual has his or her own beliefs and perceptions that influence their daily decisions based on experiences and background. This is a major challenge for individuals and nonprofits working in the environmental health sphere.

This challenge embodies many of the same problems that the health community in general has in getting people to engage in healthier behaviors as explained in one respect by the Health Belief Model. There are four constructs in this model developed by Rosenstock,37

1. **Perceived Susceptibility** – An individual’s assessment of their risk of getting the condition (or being affected)
2. **Perceived Severity** – An individual’s assessment of the seriousness of the condition, and its potential consequences
3. **Perceived Barriers** – An individual’s assessment of the influences that facilitate or discourage adoption of the promoted behavior
4. **Perceived Benefits** – An individual’s assessment of the positive consequences of adopting the behavior

This model can help deliver insight into some environmental health issues. Individuals face the challenge of moving their target audience through each phase of this model and then addressing the issues associated with each stage in order to get someone to change their

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behavior. This means the actions and practices of individuals, either on their own or within an environmental health nonprofit, can have a much more profound impact on their successes. In the environmental health sphere, certain practices that may not matter as much in a pet rescue nonprofit or a food bank may be much more critical for success.

Another unique aspect of the environmental health field is that some individuals working in the area are not experts in the environmental health field and many times, they have become involved due to either personal experiences or seeing something happening that needed someone to help solve the issue. This may complicate the situation in getting people to believe and listen to what they have to say, because they may not be perceived as a credible source. Environmental health problems are typically interdisciplinary, involving legal, environmental, health, policy, and scientific issues. Individuals who find themselves involved in this area will typically seek out needed experts and resources, and in some cases, individuals personally finance these activities. Depending on the issues, there is also help available from state agencies or nonprofits that specialize in helping with environmental health and justice issues. This type of support may enhance an individual’s credibility, but he or she still might have to work harder to gain the trust of those they are trying to convince of the problem.

Gaining the trust of one’s audience is important in order to work towards a solution. This can include not only gaining supporters on an issue, but also gaining the trust of donors and other potential funding sources that might be needed to make progress on the issue. There is a large variety of individuals involved in the environmental field with a wide variety of funding availability and assistance. Typically, only established non-profits with much larger budgets can hire scientists, lawyers and doctors as part of their staff. Many times individuals are self-taught on the issues they are involved in and have outside consultants and experts that assist them, or in
the cases of nonprofits, sit on their boards. Even for some leaders of non-profits who may, for example, have a chemical engineering background, they have to learn about the connections between health and environmental exposures, including chemicals. This again means that certain practices may be much more critical for success than in other areas of focus, such as a food bank.

BEST PRACTICES OR METHODS

During research and interviews, several themes came up multiple times and in some cases with slight variations depending on the situation. Four larger themes surfaced in the research that became the focus of the best practices; however, many of these practices interact and influence each other so there is not in reality a clear separation. Beyond practices that individuals spoke about, a noticeable pattern of traits also surfaced that deserve mention: these include patience, tenacity, creativeness, determination, and passion.

Best practices should be something that adapts with learning and experience as well as with the needs of the individual or organization in mind. Many of the practices below are solid core practices that can be tweaked as situations and knowledge change.

CREDIBILITY

The idea of credibility yielded some very interesting twists in who people may perceive as credible. The research shows that individuals need to put thought into “what constitutes credibility” to the audiences or populations they are trying to reach. Credibility is much like the old adage “beauty is in the eye of the beholder” in that every individual might have a different view of what makes an individual or organization credible to them. This means it is very important to understand all the different audiences or populations you or your organization might
want to reach. There is a need to understand the beliefs, perceptions, and attitudes of those one might wish to reach with information or in an attempt to get a behavior change. To understand one’s audience it might include conducting research on the geographic area and demographics as well as consulting with other organizations that work with the populations you might want to reach. This could also mean finding a person who is respected with the audience or population you want to reach who might be able to become a champion for your program or campaign. Caution is highly advised as from the research it is clear that assumptions cannot be made about people from their positions or titles, because sometimes politics, personal agendas, or corruption at the local level can undermine a program or keep a program from coming into existence. The possibility of a program being undermined or being kept from starting has the potential to be magnified when someone other than you or your organization has more credibility with an audience than you do.

Credibility plays a big part in the success of any effort to effect change. It does not matter if you are trying to change people’s attitudes, behavior, fundraise, or work towards policy change, credibility is important. A very good example of the importance of credibility came out of the research where there was a situation where people did not trust the individuals or the organization reaching out to the community. The community viewed those reaching out with suspicion and people felt the individuals and organization were only involved for the money. People in the community viewed the fundraising activities and requests for donations, instead of the organization’s stated mission, as the primary goal of the organization and staff. The staff and organization did not get the trust of the community, as they were perceived as “outsiders” having an agenda; however, the individuals and organization did not know this view, so their time and resources were wasted. Additionally, this potentially put children at risk for serious health issues
due to the information not being perceived as credible. The research shows that gaining the trust of people, particularly in a low-income neighborhood or close-knit community where perceived outsiders may not be trusted can be a hard thing to do, particularly if there is any distrust of the motives involved.

Research also points out that it is important to be able to remain credible to the surrounding community and those you are trying to influence. One example of this shown in the research is that some individuals working towards change had their opponents attempt to dig for “mud” on them in order to discredit them. The individuals involved had nothing in their background that could be used to discredit them with their audience, which helped their cause. Additionally these individuals knew their credibility would be an issue so they were extremely careful and aware of their actions and everything they wrote or said while working for change. In this case, it was felt social media would have been a problem since it is difficult to keep under control and easy to make a mistake. This approach worked and from the research credibility was one of the highest factors in the continued successes of these individuals. Persistence, creativity, and determination were the other factors involved in their successful push for change.

Many factors can play into credibility and another example from the research is that some organizations maintain credibility by maintaining a highly professional and talented staff who has built a trusted reputation in the community. Augmenting this is the use of interdisciplinary experts when needed and effective use of networking. This can be particularly important when dealing with policy change.

From these brief examples, it is clear that credibility issues can change from situation to situation and it is important to consider these various situations when thinking about the goals you may have or the mission of an organization. There may be certain situations where
remaining credible when dealing with different audiences or populations is difficult due to their definitions and perceptions of credibility. The difficulty of remaining credible is magnified by the challenges faced by trying to effect change when it has a less visible and immediate effect and hinges on people trusting and believing in the information that is given to them. If people do not find an individual or organization credible then it can waste resources and make it that much more difficult to effect change.

**Key Best Credibility Practices:**

- Understand the targeted audience or population
  - Their perceptions, attitudes, and beliefs
  - Their cultural background
  - What is important to them
  - Know and understand your audience and who and what they view as credible sources
    - Realize that who or what someone views as a credible source, you may not, and the source in reality may not be credible, but it is a credible source to your target audience and that is something that has to be accepted and worked with or worked around
- Be reliable, very important to credibility
- Be sincere: it becomes a major problem if people think they are just a means to an end
Situational Considerations:

- Understand being an expert in an area does not mean you are automatically seen as credible and trustworthy, it could mean the opposite to someone.
- Find a trusted program or policy champion within your targeted audience or population to work with.
- Be careful not to come across as only understanding the issues you are concerned about and potentially giving the perception that that is all you care about.
  - Relating to your audience and their concerns and needs is important.
- Professionalism can be very important to some audiences.
  - This relates back to knowing your audience as different people may define professionalism differently and for some individuals it may have a negative connotation.
- Use interdisciplinary experts to not only bolster credibility, but to make sure you really understand the big picture.
- Use of social media/Internet postings, considerations:
  - Appropriateness.
  - Help or potential to hinder.
  - Does it reach the audience.
  - Enough time to devote to do a good job.
  - Can the message be misinterpreted.
    - Watching what and how something is said: think about other ways comments or blogs could be interpreted.
    - Get others to read messages and get feedback before going public.
- Keep in mind once something is posted, even if it is deleted there may already be copies saved by someone that could reappear
- Any damaging statements, photos, etc., to be found that can be used to discredit an individual or organization
- For organizations, and even to some extent individuals, this applies not only to organizational postings, but personal postings and those of others such as employees, staff, or volunteers that might reflect on the organization or those associated with it

**EDUCATION**

The environmental health field is a dynamic field with new questions, knowledge, and understanding emerging almost daily. Research shows education is a critical component of the success of any work in the environmental health sphere. This encompasses education at all levels of society. Education is key for understanding the risks that our choices bring. In this regard, research shows that some individuals feel that this needs to start at the most basic level with increased science, technology, engineering, and mathematics (STEM) education. There is some agreement that the lack of scientific understanding is harming our collective health in many ways including lessened quality of life, lost productivity, and high financial cost. This is another reason so many would like to see the Precautionary Principle implemented.

There are still many myths and rumors as well as a general lack of understanding in some cases about medical issues and health in general. This lack of understanding about health issues becomes much more complicated when one starts to add in environmental factors. Education can
help to improve health behavior especially when evaluating it through a model like The Health Belief Model.\textsuperscript{38}

- Perceived Susceptibility – An individual’s assessment of their risk of getting the condition (or being affected)
- Perceived Severity – An individual’s assessment of the seriousness of the condition, and its potential consequences
- Perceived Barriers – An individual’s assessment of the influences that facilitate or discourage adoption of the promoted behavior
- Perceived Benefits – An individual’s assessment of the positive consequences of adopting the behavior

Education can assist in moving an individual through the stages of the model and can act as external cues to prompt a person to act. This means that education cannot only be just “information” but it must empower individuals so that they can change the situation and overcome any barriers to action. Education must include not only information on the problem but what steps can be taken to solve the problem or change the situation. This is another reason knowing one’s audience or population is important, because educational material works best when targeted and tailored to the audience or population one is trying to reach.

Some nonprofits with their outreach and education programs have collaborated with health care professionals in order to provide them with information and education on environmental health issues as well as to help them to educate their patients, particularly expectant mothers.

\textsuperscript{38} David F. Marks, Michael Murray, Brian Evans, and Emee Vida Estacio. \textit{Health Psychology: Theory, Research, and Practice}. (Great Britain, Padstow, Cornwall: TJ International Ltd, 2011), 122-124.
Nonprofits and individuals are filling a huge need in this respect, as research has shown there are many health care providers who are not aware of environmental health issues and how environmental factors can contribute to increased disease risk and other health issues.

In considering education, research shows that the training of volunteers may often be overlooked. Volunteers are amazing people who can be a major asset to organizations and causes. Volunteers can be crucial to a campaign or a nonprofit, but there are times when they are inadequately prepared to represent the issue or the organization. For example, having volunteers ask people to sign a petition when they do not understand the issue and cannot answer questions asked by those interested in signing the petition can cause a loss of credibility of the individuals and/or nonprofit that the volunteers are representing. I have personally cringed when I have been out and heard volunteers give out wrong information. Of course, this is not limited to volunteers; anyone working on an issue needs to keep themselves up-to-date and informed, particularly in this field as new information comes out almost daily.

**Key Best Education Practices:**

- Outreach, collaboration, and education in the medical community
- Educating and training volunteers on the issues
- Community educational programs starting at the elementary school level
- Increase STEM education at all levels
- Educational programs for the community
- Stay up to date
COMMUNICATION

Communication is an important part of daily life. Probably everyone can think of a time when they said something and the person they were speaking with “took it wrong.” In some aspects, good communication has become a bit more difficult since there is so much information available to individuals, some of it good and some of it bad, but it all competes for our attention. We decide on a daily basis how to sort through all the information that comes at us, and for an organization that needs to reach people, the challenge is how to reach their targeted audience and to clearly convey their message.

There are many aspects to communication, but looking at the basic communication model can help to understand communication issues. Shannon and Weaver’s Model of Communication (SMCR), has four basic parts:

- A source (or persuader) – the encoder of the message, this is the one who decides what form the message will take and how it is presented. The code may be in any form such as verbal, nonverbal, visual, musical or some other form
- A message – this is what is meant to convey the source’s meaning
- A channel – this carries the message and can also have distracting “noise”
- A receiver - decodes the message attempting to sift out the noise and adding his or her own interpretation

Noise can include the following:

- Physical noise such as the noise at a football stadium

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Cognitive, where the receiver does not understand the words the sender is using

Psychological, where the receiver is not really listening

Socio-cultural, where a receiver interprets the message through their own cultural context that may be different than the sender’s

One aspect to keep in mind is that communication is not linear; people adjust their responses, actions, and communications based on feedback they get when trying to communicate.

Understanding this base model of communication is important for effective communication to various individuals, audiences, and populations because it helps to understand the various factors involved in trying to communicate information. Many factors play a part in communicating a message and this can include cultural considerations, beliefs, attitudes, language differences, source credibility, educational differences, and competition for attention among many other factors. For successful communication to a targeted audience, all important factors must be considered along with how the message is being delivered such as verbally or written.

When designing a message of any kind it is very important to have a clear idea of who is being targeted with the message. Knowing your audience is not only important for credibility, but also for communication. In order to communicate effectively, one must understand the targeted audience or population, including their beliefs, perceptions, and attitudes, as well as cultural influences. For example, trying to reach everyone with the same fact sheet on lead poisoning or household chemicals may not work and could be a waste of resources, if there are different subgroups with a wide variety of beliefs and attitudes or educational backgrounds.

Executive Director of the Center for Health, Environment & Justice (CHEJ) Lois Gibbs points
out that when creating a message people need to think about the values people hold and that messages need to focus on the values people care about. If a message does not resonate with someone, in some way, the likelihood of getting the desired response is low. Only by knowing one’s targeted audience or population can an appropriate message be designed.

Research shows that poor message framing is one reason some communication attempts fail or a desired health behavior does not happen. Word choice and the way words are organized matters. In health behavior research, studies show that how the message is framed makes a difference. For example, research showed that whether a message was Gain-Framed or Loss-Framed made a difference.

- **Gain-Framed Appeals** – are information about a health behaviour that emphasizes the benefits of taking action
- **Loss-Framed Appeals** – are information about a health behaviour that emphasizes the costs of failing to take action

This particular research found that “Gain-Framed messages are expected to be more effective when targeting behaviours that *prevent* the onset of disease; whereas Loss-Framed messages are expected to be more effective when targeting behaviors that *detect* the presence of a disease.”

There is still a lot of research to do in regards to how to frame effective messages for behavior change, but other research areas have found similar results in that people will respond differently.

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41 http://www.youtube.com/watch?v=R7oXKvCO7rg&feature=relmfu
43 Ibid., 255-257.
44 David F. Marks, Michael Murray, Brian Evans, and Emee Vida Estacio. *Health Psychology: Theory, Research, and Practice.* (Great Britain, Padstow, Cornwall: TJ International Ltd, 2011), 256.
to an identical message if worded differently each time. For message framing in general, remember to keep it appropriate for the audience.

A few tips:

- Keep in mind the information and think about how someone would use it.
- Question whether the individuals have the skills and knowledge to use the information.
- Use wording, colors, text size, and images that are appropriate to the message and delivery method (pamphlet, posters, billboard, etc) as well as to the audience.
- Keep in mind the level of literacy required to understand the information being presented as well as any language barriers.
  - This includes not only reading ability and comprehension, but mathematical, scientific, or any other type of literacy required to understand the information presented.
  - This also includes not only text, but any graphs, charts, or other visuals.
- When translating materials into another language make sure to have a native speaker of the dialect your target population speaks to check it for any problems. Not doing this has been a source of problems for many organizations.
  - There can be subtle cultural variations in language that if not correctly translated can cause a loss of credibility as well as not accomplishing the intent of the communication.
  - For example, there can be words that have a positive connotation in English but a negative one in another language.
• In order to be effective and to attract attention the design of the message matters, particularly in a cultural context.

• In order to break down complex issues, figure out appropriate analogies that the audience can relate to.

**Key Best Communication Practices:**

• Appropriate Message Framing for the situation and the audience or population in the appropriate medium.

• Understand others’ values.

• Be creative.

• Understand disadvantages & advantages of the use of Social Media
  
  o Today it is very easy for anything said to either be taken out of context or to be publicly spread.
  
  o Just because something is posted on a Facebook account or another Web site that has all the privacy features turned on does not mean it is private. Someone could easily take a screen shot and post it for the world to see.

• Watch assumptions and stereotyping
  
  o For example, just because someone has an advanced degree does not mean he or she might understand what certain terms, such as “endocrine disruptor,” means.
  
  o Be aware that giving someone information does not translate to action, it also does not mean they will read it or understand it.
• Listen
  o Keep in mind hearing and listening are not the same thing
  o Listening can be really hard as it is an active process and we have to sort through all the noise to get the message, including our own judgments, expectations, and thoughts about what is being said
  o Try to grasp the feeling and emotion behind what is being said
  o Ask for clarification, paraphrase what was just said and then ask the other party, am I correct

• Network
  o This can be important for many different reasons and needs to go beyond the professional networking most people think of
  o Organizations or individuals can share resources or information that can help to increase what can be done and potentially increase their reach
  o A good network of those who can pass on information or potentially assist with introductions is invaluable
  o Early on, try to reach out to a wide range of people and develop contacts, working to get to know them and build a trusting, credible relationship
  o Keep in mind: Trying to build a trusting credible relationship is more difficult when people think you might have an agenda for doing so
  o Some individuals have spent months working on a relationship before trying to effect change
    ▪ Referring back to an earlier statement, be careful of perceived motives or it could damage a relationship
INVolvEMENT

Typically, getting people involved with an issue is the goal of individuals and organizations in order to effect change. This involvement can occur at many different levels from stuffing envelops to presenting a bill in a legislative body. Where one is trying to get neighbors, volunteers, policy makers, or health care providers involved, one thing is certain: there will be a large variety of reasons for people to get involved with an issue. This is an important point to remember because others may not find the issue important for the same reason and if the focus is only on one reason for being involved others might be alienated and not become involved or some who became involved might leave. This goes back to knowing your audience.

Gibbs created a video about getting people involved as part of CHEJ’s 30th Anniversary Series. Gibbs points out that it is necessary to find out what people care about and how can that relate to the issue you care about. This is about finding common ground to work together on the same issue based on what people care about. This requires thinking about the bigger picture and really listening to people to find out what they care about. Gibbs points this out in the video with an example of trying to get people involved against an incinerator. When one individual was asked about the incinerator, he said he did not care about it. In speaking with him further, about what he was interested in, it was found that he was highly interested in the traffic issues, road issues, and driving time that would be affected by the incinerator. So by approaching this person about those issues he then became highly involved, same goal, different reasons and interests.

http://www.youtube.com/watch?v=sOjrYqdPIAE&feature=related
**Key Best Involvement Practices:**

- Know your audience
- Find out what they care about
- Small wins

**TYPE OF APPROACH**

One other area the research shows some disagreement on is whether the best approach is to work for change from the bottom up by getting individuals to force change through their behavior changes and consumption choices or from the top down by getting policy changed. In some regards, the mission or focus of the individual or organization along with their resources might dictate which approach works best. Companies will typically adapt to consumer preference changes, especially if their products quit selling, so there is validity in educating and changing behavior, not only for creating healthier individuals, but for forcing market change as well. Some organizations strongly believe that both bottom up and top down approaches are necessary for effective and quicker change for the health of all citizens. This is because it can take time to reach all people and convince them that there is a problem that needs to be addressed, and in the mean time, their health and the health of their children are in danger. Overall more research is needed in this area to determine what might be most effective.
CONCLUSION

This paper has briefly investigated and looked at the unique challenges that those working for change in the environmental health sphere face. Health professionals face many of the same challenges every day in getting people to change their behavior in regards to such things as stopping smoking, weight loss, and other lifestyle factors that contribute to disease. Overall, individuals working in the area of environmental health can benefit from understanding the basics of health-related models and health communication, as well as the way people process information and make decisions. Some crucial best practices identified focus on the areas of credibility, education, communication, and involvement. These best practices are critical to the success of any individual or organization trying to effect change and can assist in overcoming some of the challenges.

Those working in the environmental health sphere face a major challenge due to public disputes over health effects and the validity of the scientific findings related to environmental exposures. Not only is the challenge in overcoming someone’s inherent beliefs, attitudes, or perceptions, but trying to be credible enough to make the case that a product, chemical, or other environmental factor is potentially dangerous enough to health that a person should change their behavior despite the conflicting messages from the media or even their family and friends.

The environmental health sphere is an important area to be working in particularly given the potential for major health risks to people, particularly children. Many environmental exposures that cause permanent harm to children as well as lifelong problems, such as lead, are entirely preventable. This is one reason success is so important in this area. There are many resources out there for individuals or organizations looking for help and information, this is
another reason networking is important. Poor health from any source leads to stress, reduced quality of life, lost productivity, and increased costs to society as a whole.
SOURCES CONSULTED


NEWSPAPER ARTICLES


Dunne, Mike. “Air sampling bucket simple, effective tool for environmental activists.” Saturday State Times/Morning Advocate. 29 January 2000.


Washington Bureau. “HIGH-STAKES TESTS Federal health investigators will expand dioxin blood tests around Mossville to see why residents have unusually high levels of the dioxin.” Times-Picayune. 29 March 2001.


VIDEOS

Lois Marie Gibbs - "30 Years After Love Canal"
http://www.youtube.com/watch?v=Xfapp83sHfE

CHEJ 30th Anniversary Series Video #4- How to get people involved
http://www.youtube.com/watch?v=sOjrYqdPIAE&feature=related

CHEJ 30th Anniversary Series Video #8- Messaging
http://www.youtube.com/watch?v=R7oXKvCO7rg&feature=relmfu

CHEJ 30th Anniversary Series Video #13- Green Purchasing
http://www.youtube.com/watch?v=skSuIa0fF8M&feature=related

A FEW ORGANIZATIONS LOOKED AT

Beyond Pesticides
http://www.beyondpesticides.org/index.html

Breaking the Silence
https://sites.google.com/site/breakingthesilencebsec/

Breast Cancer Action Montreal
http://www.bcam.qc.ca/

Breast Cancer Fund
http://www.breastcancerfund.org/

Center for Health, Environment & Justice
http://chej.org/

Citizens for Healthy Growth
http://www.citizens4healthygrowth.org/

Connecticut Coalition for Environmental Justice

Ecology Center
http://www.ecocenter.org/

Environmental Working Group
http://www.ewg.org/
Green For All
http://www.greenforall.org/

Healthy Child Healthy World
http://healthychild.org/

Healthy Michigan; Healthy Kids
http://healthymichigan.net/

Institute For Environmental Solutions
http://www.i4es.org/index.html

Learning Disabilities Association of Michigan
http://www.ldaofmichigan.org/index.html
http://www.ldaofmichigan.org/healthychild.htm

Louisiana Bucket Brigade: Clean Air, Justice, Sustainability
http://www.labucketbrigade.org/

Louisiana Environmental Action Network
http://www.leanweb.org/

Massachusetts Breast Cancer Coalition
http://mbcc.org/

Safer Chemicals Healthy Families
http://www.saferchemicals.org/

Silent Spring
http://www.silentspring.org/

The Alliance for a Healthy Tomorrow
http://www.healthytomorrow.org/index.html