

Vibrio vulnificus Illness Reduction Strategies and Implementation Program for the At-Risk Oyster Consumer

A STRATEGIC PLANNING DOCUMENT



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**At-Risk *Vibrio vulnificus* Educational Program
Targeting the Medical/Professional Community**

STRATEGIC PLANNING DOCUMENT

Vibrio vulnificus Illness Reduction Strategies and Implementation Program for the At-Risk Oyster Consumer

MISSION STATEMENT

The Gulf and South Atlantic Fisheries Foundation, Inc. (Foundation) aims to deliver a strategic education and communications plan for reducing the health hazards for certain “at-risk” consumers resulting from the consumption of raw oysters that contain the naturally-occurring bacterium, *Vibrio vulnificus*.

PRIMARY GOAL

- With the help of an Advisory Group (Appendix 1), implement a strategic education and communications plan for the at-risk oyster consumer to reduce the number of *Vibrio vulnificus* (*V. vulnificus*) related illnesses in the states of Florida, Louisiana, and Texas.

SUB-GOALS

- Compile, analyze, integrate, evaluate and publish current information on *V. vulnificus* consumer educational materials and advice for the at-risk consumers;
- Identify and partner with key individuals and organizations (especially medical and health professionals) that are essential to the successful implementation of the *V. vulnificus* Illness Reduction Program;
- Develop *V. vulnificus* education materials targeted at medical and health professionals and at-risk consumers; and
- Contract with an Education Consultant to coordinate the implementation of all strategies included in the Strategic Plan.

BACKGROUND

Each year millions of Americans enjoy eating raw oysters, which provide an excellent source of protein and essential minerals, while contributing less calories and fat than most animal protein foods. Assuring that consumers can continue to safely enjoy raw oyster consumption is the goal of the National Shellfish Sanitation Program (NSSP),¹ which establishes sanitary controls over all phases of the growing, harvesting, shucking, packing and distribution of fresh and frozen shellfish (i.e. clams, mussels, oysters and scallops with roe or viscera attached).

The NSSP is implemented by state shellfish control agencies via the Interstate Shellfish Sanitation Conference (ISSC).² Implementation of the NSSP program by state shellfish control agencies assures that commercial oysters and other molluscan shellfish are produced in areas shown to be safe and free of direct fecal bacterial contamination, and marine biotoxins.

Oysters are typically found in estuaries, sounds and bays. They are filter-feeders, drawing water in over their gills where plankton and other particles are trapped and eaten. This unique method of food consumption means oysters can also accumulate bacteria found in the water around them.

Oysters are sometimes found in areas where a marine bacterium called *Vibrio vulnificus* (*V. vulnificus*) occurs. *V. vulnificus* is naturally occurring in coastal areas, and is found in higher concentrations in the summer months as water becomes warmer. *V. vulnificus* is not associated with fecal contamination or other pollution, therefore, the NSSP water quality standards and the monitoring of those standards by the state agencies cannot assure the absence of this bacteria in oysters from certain areas.

PROBLEM IDENTIFICATION

The Strategic Planning Document addresses two overarching problems:

1. raw and undercooked oysters harvested from approved waters are associated with a small number of serious illnesses due to the presence of *V. vulnificus* and continued consumption of raw oysters by at-risk consumers (i.e. those with underlying health conditions); and
2. the shellfish community, including oyster producers and state regulators, must meet near term illness reduction goals set under an ISSC approved *V. vulnificus* risk management plan.

Consumption of oysters containing *V. vulnificus* by healthy consumers poses little risk of illness but consumption by certain at-risk consumers can lead to serious illness or death within 2 days.³ In a review of *V. vulnificus* infections in the United States by Shapiro et al.⁴ 96% of patients with

¹ FDA, 2003. National Shellfish Sanitation Program, Guide for the Control of Molluscan Shellfish <http://www.cfsan.fda.gov/~ear/nss2-toc.html>

² ISSC, Formed in 1982 to foster and promote shellfish sanitation through the cooperation of state and federal shellfish control agencies, the shellfish industry, and the academic community. www.issc.org.

³ ISSC, 2006. ISSC Brochure, "The Risk of Eating Raw Molluscan Shellfish"

⁴ Shapiro RL, Altekruze S, Hutwagner L. 1998. The role of Gulf Coast oysters harvested in warmer months in *Vibrio vulnificus* infections in the United States, 1988-1996. *J Infect Dis.* 1998; 178:752-759.

primary septicemia consumed raw oysters within 7 days before symptom onset. While *V. vulnificus* infection may also occur as a result of wounds exposed to the bacteria from seawater, epidemiological data suggest that raw oyster consumption is a major vehicle of transmission.

Infection with *V. vulnificus*, though fairly rare, can have serious consequences. According to CDC,⁵ about 50% of the septic blood infections associated with *V. vulnificus* result in death. From 1995 to 2005, the number of *V. vulnificus* illnesses associated with the consumption of commercially-harvested oysters has ranged from 12 to 42 per year with 6 to 23 resulting in death (Table 1).⁶ During that period, *V. vulnificus* related illnesses due to oyster consumption accounted for 90% or more of the total *Vibrio vulnificus* illnesses reported annually.

TABLE 1. SUMMARY OF SHELLFISH CONSUMPTION RELATED *VIBRIO VULNIFICUS* CASES 1995 – 2005

YEAR	TOTAL CASES/DEATHS	CLAM CASES/DEATHS	SELF HARVEST CASES/DEATHS	ADJUSTED CASES/DEATHS ⁷
1995	32/14	4/3	0/0	28/11
1996	35/24	1/0	1/1	33/23
1997	23/11	1/0	0/0	22/11
1998	42/19	0/0	0/0	42/19
1999	37/21	0/0	1/0	36/21
2000	30/18	0/0	0/0	30/18
2001	41/20	0/0	1/1	40/19
2002	35/17	0/0	0/0	35/17
2003	34/16	0/0	1/1	33/15
2004	37/20	0/0	2/1	34/18*
2005	14/8	2/2	0/0	12/6

The FDA lists the health conditions that may place people at-risk of serious infection from *Vibrio vulnificus*⁸ as follows:

- Liver disease (from hepatitis, cirrhosis, alcoholism, or cancer)
- Iron overload disease (hemochromatosis)
- Diabetes
- Cancer (including lymphomas, leukemia, Hodgkin's disease)
- Stomach disorders
- Or, any illness or medical treatment that weakens the body's immune system.

A recent CDC study⁹ showed that people with these pre-existing medical conditions were 80 times more likely to develop *V. vulnificus* bloodstream infections than were healthy people. From 1989 to 1999, 257 *V. vulnificus* infections, including 131 deaths, were reported to FDA, and most

⁵ CDC, 2006. *Vibrio vulnificus*, http://www.cdc.gov/ncidod/dbmd/diseaseinfo/vibriovulnificus_g.htm

⁶ Glatzer, 2006. Unpublished data

⁷ *The “Adjusted Cases/Deaths” totals represent only oyster consumption cases associated with commercial harvest.

⁸ FDA, 2003. Fact Sheet: *Vibrio vulnificus* Health Education Kit, <http://www.cfsan.fda.gov/~dms/vvfact.html>

⁹ CDC, 2006, Ibid

cases had multiple pre-existing health conditions with 81% having liver disease and 25% having diabetes.¹⁰

In 2001, the ISSC adopted a *V. vulnificus* risk management plan¹¹ to reduce the number of *V. vulnificus* illnesses associated with the consumption of raw oysters. The Plan requires states having two or more confirmed shellfish-borne *Vibrio vulnificus* illnesses since 1995 traced to the consumption of commercially harvested raw or undercooked oysters that originated from that state (Source State) to develop and implement a *Vibrio vulnificus* management plan. Moreover, it sets an illness reduction goal based on the reported illnesses in four states California, Florida, Louisiana and Texas of 40 percent, for years 2005 and 2006 (average) and by 60 percent for years 2007 and 2008 (average).

The intent of the *V. vulnificus* risk management plan is to combine aggressive educational programs targeted to at-risk consumers with expanded use of post harvest technologies designed to reduce or eliminate *V. vulnificus* in oysters to reduce illnesses. Consequences of failure are substantial. States would have to mandate one or more of the following measures to remain in compliance:

1. Subject oysters intended for the raw, half-shell market to an approved post harvest process that reduces the *Vibrio vulnificus* levels to 3MPN/g or less, during certain months of the year when water temperatures are high;
2. Require oysters be labeled, "For shucking by a certified dealer," during certain months of the year when water temperatures are high; or
3. Close shellfish growing areas for the purpose of harvesting oysters intended for the raw, half-shell market during certain months of the year when water temperatures are high.

The Foundation developed this strategic plan to facilitate effective communication with, and education of, at-risk consumers and physicians and others in the health and medical community concerning the risk posed by raw oyster consumption. Education of health professionals is intended to foster changes in consumption behavior for those in the at-risk population consistent with the intent of the ISSC *V. vulnificus* risk management plan to reduce illnesses.

STRATEGIES AND TACTICS FOR ACHIEVING GOALS

In pursuit of the primary goal of developing a plan for reducing the incidence of *V. vulnificus* illnesses and deaths among the at-risk groups, a series of strategies and tactics were identified. The Foundation utilized an Advisory Group consisting of representatives from the oyster industry, state health and education organizations, and Non- governmental organizations (NGOs) to assist in the development of these strategies and tactics. The Advisory Group decided the operational focus of this plan would center on three of the four core states used for determining illness reduction in the ISSC *V. vulnificus* risk management plan (i.e. Florida, Louisiana and Texas) The fourth core state California was not included due to resource limitations and because shellfish control authorities banned the sale of Gulf oysters during summer months when *V.*

¹⁰ Glatzer and Bashin, 2003. *Vibrio vulnificus*, Digesting the Data 1989-1999, http://www.issc.org/Vibrio_vulnificus_Education/1/1%20B%20a%20Digesting%20the%20Data.ppt.

¹¹ FDA, 2003. Ibid

vulnificus are highest. The plan will rely on the following strategies and tactics for successfully accomplishing the primary goal:

Strategy 1: Educate and empower the medical and health community and at-risk support groups by delivering educational materials and messages about the risks associated with consumption of raw oysters.

Tactics

1. Contract with and train one or more qualified educational specialists to make presentations at meetings targeting physician groups, pharmacists, and at-risk support groups.
2. Attend, make presentations and exhibit at professional conferences.
3. Conduct/fund a direct mail campaign aimed at gastroenterologists, emergency room physicians, pharmacists, family practitioners, endocrinologists, epidemiologists, internists, state health departments, hospitals and at-risk support groups/members.
4. Place advertisements, editorials and articles in selective medical/health trade journals as well as magazines that reach members of the at-risk consumer groups.

Strategy 2: Expand and improve direct communication with, and education of, at-risk consumers.

Tactics

1. Develop a *Vibrio vulnificus* education identifier or logo.
2. Create a dedicated, appealing *V. vulnificus* website to assist the education of at-risk consumers.
3. Develop and disseminate new educational materials as well as reproduce and expand the distribution of existing educational materials.
4. Utilize radio and television commercials to broadcast and advertise messages to dissuade targeted, at-risk consumers from eating raw oysters.

Strategy 3: Develop strategic partnerships to broaden message delivery to at-risk consumers.

Tactics

1. Develop partnerships with major pharmaceutical companies that produce and distribute medications used by members of the at-risk consumer groups.
2. Develop and/or expand alliances with such groups as the National/State Liver Foundation, National/State Diabetes Association, state medical associations, medical staffing offices at hospitals, organ transplant centers, AIDS/HIV treatment centers, the Interstate Shellfish Sanitation Conference, state seafood marketing and promotion agencies, and the National Fisheries Institute.

WORKPLAN AND ANTICIPATED OUTCOMES

Strategy 1. Educate and empower the medical and health community and at-risk support groups by delivering educational materials and messages about the risks associated with consumption of raw oysters.

Tactic 1. Contract with and train one or more qualified educational specialists to make presentations at meetings with targeted physician groups, pharmacists, and at-risk support groups.

Educational Specialists are individuals with a strong community voice that engage the public and target audiences through a variety of different media (i.e., radio, television, print, public presentation, internet) to publicize a message. In the case of *V. vulnificus* education, the message focuses on the inherent risks associated with the consumption of raw oysters, and defining the at-risk population of oyster consumers. The intent is to enlighten and catalyze medical and health professionals and support groups to more aggressively and confidently intervene with at-risk consumers to facilitate a behavioral change.

Due to the specific personality attributes of these individuals needed to effectively engage target audiences and present information, a series of interviews will be conducted with professionals from the medical and academic communities. The optimal candidate for the position will possess an M.D. or M.D./Ph.D and have professional knowledge of *V. vulnificus*. Supplemental education will be afforded through train-the-trainer and internet based resources.

It is anticipated that at least two individuals per state will be needed to reach target groups. This coverage, on a per state basis, will maximize educational effort. The message relayed through the specialist will be specific, clear, and compelling, thereby deepening the knowledge base among the target audience and invoking behavioral change.

Implementation of this program will broaden the knowledge base among health professionals

about the risk for certain groups associated with raw oyster consumption. Preliminary results from the ISSC-Flying Fish on-line *V. vulnificus* education course show that a majority of physicians (76%) “strongly agree” they were more confident in identifying and treating *V. vulnificus* infection after completing the course.¹² Although most medical professionals are likely aware of *V. vulnificus* threats, these results suggest that an increase in education is needed for this target audience. To assist in this regard, specialists will coordinate with pharmaceutical companies, medical/health professional associations, and hospital medical staff to schedule small group presentations about the prevention, diagnosis and treatment protocols for illnesses resulting from the consumption of raw oysters. The specialist will attend and seek opportunities to present on *V. vulnificus* risks at national and/or regional professional medical conferences.

Although there is a definite need to enhance *V. vulnificus* education of the medical/health community, efforts need ultimately to focus on the at-risk consumer population. To maximize the reach, a public relations campaign targeting state and local media events will be conducted. Opportunities for specialists to participate in talk shows (radio and television) to discuss *V. vulnificus* and raw oyster consumption will also be pursued.

Tactic 2. Attend, make presentations and place a booth exhibit at professional conferences.

National, regional and state medical associations have been identified for conference attendance/participation/exhibition. Either the specialist will attend and make presentations at the association meetings or the Foundation will co-sponsor these efforts with the ISSC’s state education officers, university staff, and/or state health agencies. The association meetings that are to be considered are listed in Appendix 2. The list is not inclusive, but it represents the types of national, regional and state medical associations of interest.

Tactic 3. Conduct/fund a direct mail campaign aimed at gastroenterologists, emergency room physicians, pharmacists, family practitioners, endocrinologists, epidemiologists, internists, state health departments, hospitals and at-risk support groups/members.

An efficient, cost effective method for contacting the at-risk consumer is through the use of direct mailings targeting medical/health professionals. In this case we propose the use of direct mail to physicians and others in the medical community to educate and to inform these individuals about *V. vulnificus* symptoms and treatments, the risk of raw oyster consumption, and to characterize the at-risk consumer.

The majority of mail received by medical/health professionals is sales related. As such, mail from perceived ‘non-credible’ sources (i.e., non-state or non-federal entities such as the ISSC, the Foundation, etc.) is often discarded. To increase the likelihood that the mail is actually received by the intended physician, the Foundation will collaborate with state health organizations in the three core states of Florida, Louisiana, and Texas. The States have indicated funds are available for direct mail campaigns targeting medical/health professionals. By using this tactic, the Foundation expects to (1) increase awareness within medical/health community, (2) provide financial support to expand the current direct mailing capabilities of the core states health

¹² Bashin, M. 2005. Personal Communication

organizations, (3) augment the direct mailings of the core states to include *V. vulnificus* educational brochures, and (4) compose and forward a letter to the FDA for distribution to medical/health professionals across the United States.

Given the specialties and sub-specialties within the medical/health community, any number of medical/health professionals could come in contact with an at-risk patient, either in the capacity as a first responder to a *V. vulnificus* related illness or through treatment of a pre-existing condition that places the patient in the at-risk category. Therefore, the direct mailing campaign will target gastroenterologists, emergency room doctors, pharmacists, family practitioners, endocrinologists, epidemiologists, internists, state health departments, and hospital staff. For the intended educational message to be effective, repetition is necessary. Considering the seasonal nature of *V. vulnificus* illnesses (illness peaks during summer months) it is estimated that three mailings are required to effectively deliver the intended message to the target audience (one mailing before, during and after the summer season). All efforts will be coordinated with state cooperators and the ISSC.

Tactic 4. Place advertisements, editorials and articles in selective medical trade journals as well as magazines that reach members of the at-risk consumer groups.

As part of the multi-faceted approach to convey our messages to key medical specialists, and to members of the at-risk consumer groups, the Foundation will design and place a series of print advertisements in selective trade journals and newsletters. The primary call to action in these publications will encourage physicians to utilize the ISSC's online continuing education program. The program will offer physicians continuing education units while providing relevant information on *V. vulnificus* diagnosis and treatment protocols. In some cases, the message in medical journals will include a more direct statement about the risks of raw oyster consumption by certain at-risk patients. Another approach will be to submit editorials and case management articles to medical journals/publications. The educational specialist and/or other medical research specialists contracted by the Foundation will draft these articles.

Another type of advertising message will be designed for placement in newsletters and other publications that are mailed to the membership of such organizations as the National and State Liver Foundations, National and State Diabetes Associations, state medical journals and associations, alcohol treatment centers, organ transplant centers, and AIDS/HIV treatment centers. Since these types of publications are mailed only to members who fit our profile of at-risk consumers, the message will be simple and direct: Only Eat Oysters That Have Been Thoroughly Cooked.

With all advertising campaigns, frequency is the key to gaining awareness and penetration. Therefore, journals and newsletters providing the most cost effective coverage and penetration will be selected. A partial listing of national medical publications that the Foundation will consider for placement of print advertisements and/or articles can be found in Appendix 3.

In conclusion, the placement of advertisements, editorials and articles in selective national and regional medical trade journals as well as placement in newsletters that target persons with certain pre-existing medical conditions will accelerate the process of information dissemination to selective physician specialists and at-risk consumer groups.

Strategy 2. Expand and improve direct communication with, and education of, at-risk consumers.

Tactic 1. Development of a *V. vulnificus* education identifier or logo.

Central to any campaign is the broad recognition of an intended message. Given the number of cooperating organizations devoted to *V. vulnificus* education, a physician, at-risk consumer, or the general public could become overwhelmed by the multitude and diversity of *V. vulnificus* educational materials currently being published and distributed. To strengthen and unify the intended message of *V. vulnificus* educational campaigns, a central connection or bond must be established, one such method is the creation and use of an identifier logo.

A logo is an illustration of a company's or organization's image, which is then communicated to your prospective audience in a graphic or symbolic way. The logo can be used for everything from stationery, banners, websites, advertising, T-shirts and signs. A professionally designed logo attracts attention, and leaves a lasting impression in people's minds. For example the Nike "swoosh" and the heart with a torch symbol of the American Heart Association.

The Florida Bureau of Seafood Marketing has agreed to lend the services of their graphic artists to design a logo. A series of logo samples will be drafted by the Bureau and distributed to the Advisory Group for review and evaluation. Once finalized, the Bureau will be responsible for creating and forwarding both electronic and print formats of the logo to the Foundation. The Foundation will assume all property rights of the logo and its use. Use of the logo will be utilized on publications, web pages, research projects, presentations, formal documents, letters, advertisements, mailings related to *V. vulnificus* education and Gulf of Mexico oysters, and other related materials. Written permission from the Foundation's Executive Director or Board of Trustees will be required prior to the use of the logo by any interested party. This will ensure proper use of the logo and the commitment of the user to the reduction of *V. vulnificus* illnesses.

A simple, well designed logo and identifier will amplify the organization's identity, goals, spark instant recognition, and resonate and reinforce the organization's core values. In the case of the *V. vulnificus*, the logo would identify individuals, organizations, and institutions actively committed to a reduction in *V. vulnificus* related illnesses.

Tactic 2. Create a dedicated eye-appealing *V. vulnificus* website to assist in the education of at-risk consumers.

Usage of, and dependence upon, the internet for self-education and research has increased precipitously within the last decade, particularly for people trying to acquire information regarding medical conditions, symptoms, and treatments. Information regarding the risks of *V. vulnificus* is rarely included on corporate (for-profit), health-based websites, and only a small number of websites are dedicated to *V. vulnificus* education. Although the intent of these websites is to increase the knowledge base available for interested parties while keeping expenses at a minimum, the simple and nondescript design of the websites might limit website usage due to a perceived non-professional and, perhaps less credible message. By producing a more professional, eye-appealing, and interactive website dedicated to *V. vulnificus* education, website usage and retention of information contained within the website are likely to increase.

The Foundation proposes to develop and host a website designed primarily to attract and educate members of the at-risk consumer group, with a secondary goal of educating the public-at-large, the general oyster consumer and the at-risk oyster consumer. Website visitors will be provided with: (1) an overview of *V. vulnificus*, its association with Gulf of Mexico oysters, and pathogenesis; (2) a description of *V. vulnificus* illness symptoms and treatments available; (3) a definition of an at-risk consumer and medical conditions affecting at-risk consumers; (4) descriptions of post-harvest processes and oyster value-added products; (5) oyster recipes; (6) contact information for state health departments, spokespeople, the Foundation, ISSC, etc.; and (7) a list of *V. vulnificus* identifier logo users to define individuals and organizations devoted to *V. vulnificus* education.

Website promotion will be accomplished through a variety of media including radio, television, and print advertisements; a limited number of internet advertisements will also be created. A tracking program will be linked to the webpage and will record the number of page views and, if applicable, the source internet advertisement directing the page view. This will allow the principal investigators to assess the effectiveness of their internet advertising campaign.

Tactic 3. Develop and disseminate new educational materials as well as reproduce and expand the distribution of existing educational materials.

Numerous organizations within the core states, as well as other organizations, have produced educational print material designed to inform at-risk consumers of the risk of consuming raw oysters. The Foundation is currently unaware of any project aimed at measuring the direct effectiveness of these publications, but limited information is available through a survey conducted by the ISSC.¹³ Because this survey was conducted prior to an increase in educational efforts by a number of organizations, information contained within a complementary follow-up survey will allow interested parties to review the effectiveness of past educational campaigns.

Upon publication of the final ISSC survey results, Foundation staff, contracted project personal, the Advisory Group, and collaborating agencies/organizations will review this document and formulate key recommendations to include in the design and creation of new educational brochures targeting the at-risk oyster consumer. These recommendations will be forwarded to a graphic artist for the design and creation of a new brochure(s). Recognizing that some individuals in the Gulf oyster industry are concerned that existing brochures may unintentionally cause targeted and untargeted consumers to avoid all oysters, efforts will be taken to include positive messages in the text of the document.

In some cases the dissemination of educational print material has been limited due to inadequate funding; revisions and improvements were also limited due to funding. The Foundation will assist in the review, coordination, revision and expanded distribution of currently published educational materials. This activity will include, but not be limited to brochures, flyers, and mat boards for use in doctor's offices, trade shows, professional conferences, editorials, and articles in medical and consumer journals.

¹³ Flattery and Bashin. 2002. A Baseline Survey of Raw Oyster Consumers, ISSC OnPoint.

Tactic 4. Utilize radio and television commercials to broadcast and advertise messages designed to steer targeted, at-risk consumers away from eating raw oysters.

Multi-media advertising campaigns are effective instruments for relaying messages and/or influencing behavioral changes in a target audience. An increase in the number and type of media utilized during an advertising campaign is likely to increase the affected audience, especially when considering television and radio (millions of viewers and listeners). The Foundation proposes the use of highly creative television and radio advertisements in the core states of Texas, Louisiana and Florida. Radio and television offer the fastest and most cost effective means to expand awareness among the general public.

Done properly and creatively, radio and television can deliver a targeted message about who should only eat oysters that have been thoroughly cooked. To date, most oyster industry educational and marketing efforts have revolved around the creation and dissemination of print material. Use of radio and television advertising represents a new tactic for the oyster industry to use in educating the public. This tactic is expected to create broad awareness, not just among at-risk consumers, but to create a spill over effect where the general public shares information with friends and relatives who might be at risk.

The message contained in the advertising will be worded to avoid needlessly scaring the general public from eating raw oysters. Like some anti-smoking messages aimed at teenagers (e.g. truth.com), our message will have a “call to action” that unequivocally addresses the need to educate at-risk consumers about raw oyster consumption risks and the importance of heeding the advice to only eat oysters that have been thoroughly cooked.

Strategy 3. Develop strategic partnerships to broaden message delivery to at-risk consumers.

Tactic 1. Develop partnerships with major pharmaceutical companies that produce and distribute medications used by members of the at-risk consumer groups.

Pharmaceutical firms routinely host educational forums and working dinner meetings to inform members of the medical community about the diagnosis and treatment of medical conditions. These events provide the companies an opportunity to review and compare their products against competing brands while directly promoting and educating their target audience.

Since these forums are an established practice and means for pharmaceutical companies to reach and educate members of the medical community, we will seek to partner with selective companies that manufacture and distribute medications for the treatment of diabetes, liver disease and other medical conditions (e.g. Eli Lilly and Glaxo Smith Kline) that affect at-risk consumers.

This tactic may take another form. Use of physician telephone and web conferencing is another tool used by pharmaceutical companies to reach and educate members of the medical community. These approaches require less commitment of time by participating physicians and both services offer the potential for continuing education credits. The telephone and web conferencing programs, as well as a series of hosted evening dinner meetings may be launched independently or in conjunction with major national pharmaceutical firms.

Tactic 2. Develop and/or expand alliances with such groups as the National/State Liver Foundation, National/State Diabetes Association, State Medical Associations, medical staffing offices at hospitals, organ transplant centers, AIDS/HIV treatment centers, the Interstate Shellfish Sanitation Conference, State seafood marketing and promotion agencies, and the National Fisheries Institute.

Considering the limited size of the target audience, efforts must be aimed at educating the at-risk consumer directly, and not just indirectly through medical/health professionals or the general public. When considering the diversity of medical conditions affecting at-risk patients and the groups and organizations that provide support for these individuals, it is only logical to form partnerships with these organizations to disseminate *V. vulnificus* education information and extend/enhance the quality of life for their constituents.

Through previous efforts, the ISSC has formed partnerships with health/support organizations such as the American Liver Association (National Chapter and San Diego, Los Angeles, and Florida Chapters), the National Hepatitis Foundation, Iron Overload Foundation, and the National Hemochromatosis Society and found these partnerships to be extremely effective at educating the at-risk consumer. To compliment the efforts of the ISSC, the Foundation will provide funding support to local and regional health/support organizations within the states of Louisiana, Texas, and Florida.

Individual organizations typically publish a website, newsletter, and/or brochure aimed at educating and informing members of relevant topics. Funding will be provided to individual organizations to assist with the necessary supplies needed to create and disseminate these important publications. The Foundation will endeavor to augment publications with inserts and advertisements warning members of the risks associated with raw oyster consumption. Considering the access gained to at-risk consumers, the potential impacts and illness reductions achieved by partnering with health/support organizations is thought to be significant. Organizations will be contacted and informed of available funds through one-on-one contact, promotion on the Foundation's website, and inclusion of the program in our quarterly newsletter.

Conclusion

With the concerted effort of the Advisory Group along with state and regional agencies, the Foundation will implement this strategic education and communications plan for the at-risk oyster consumer. Through the implementation of the strategies and tactics identified here, the Foundation anticipates that the primary goal to reduce the incidence of *V. vulnificus* illnesses and deaths among the at-risk groups in the states of Florida, Louisiana, and Texas will be accomplished. Thereby, offering safe and healthy options for all seafood consumers.

Appendix 1. *Vibrio. vulnificus* Advisory Group Members

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Appendix 2. Medical and health professional conferences

National Organizations:

National Liver Association
Association of Internal Medicine Physicians
National Association of Family Practitioners
National Association of Gastroenterologist

National Diabetes Association
National Dieticians Association
National Association of Endocrinologist
Emergency Room Physicians Assoc.

Florida State Organizations:

Florida Association of Family Practitioners
Florida Association of Gastroenterologist
Florida Association of Internal Medicine Physicians

The Association of Florida Dieticians
Florida Association of Endocrinologist

Louisiana State Organizations:

LA Association of Family Practitioners
The Association of Louisiana Dieticians
Louisiana Association of Internal Medical Physicians

LA Association of Endocrinologist
LA Association of Gastroenterologist

Texas State Organizations:

TX Association of Family Practitioners
The Association of Texas Dieticians
TX Association of Internal Medical Physicians

TX Association of Endocrinologist
TX Association of Gastroenterologist

Appendix 3. Potential journals and newsletters for advertising placements

National/International Publications:

New England Journal of Medicine
The Endocrine Review
Journal of the American Medical Association
Annals of Internal Medicine
Journal of the American Diabetes Association
Diabetes Care
The Journal of Clinical Microbiology
The Journal of Infectious Disease
American Journal of Clinical Nutrition
The Family Medicine Journal
The American Family Physician
Journal of Clinical Endocrinology

State Publications (core states):

Louisiana Morbidity Report published by LA Office of Public Health
Journal of the Louisiana State Medical Society
Journal of the Texas Medical Association
Disease Prevention Newsletter published by the Texas Department of State Health Services
Journal of the Florida State Medical Society
Louisiana Dieticians Association's *Today Newsletter*
Journal of Florida Dieticians
Texas Dieticians Journal