Community Engagement for Food Protection: Building a Balanced, Sustainable Model to Protect the Health of the Public

2009-2010

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EXECUTIVE SUMMARY:

Despite strong efforts of the food industry, educators and regulators, gaps and inconsistencies exist in the food protection system that place the public at risk for foodborne illness. As food protection moves toward engaging all stakeholders, there is consensus with regard to the elements that are needed to address the systemic forces contributing to foodborne illness. They are collaboration, partnership, education and accountability. The project suggests a paradigm shift to a new model of food protection. The proposed model strives for accountability through regulation and enforcement. By including all stakeholders and resources, the model also aims at ensuring that the food industry workforce has the knowledge, training and tools needed for their important role on the frontline of public health.

Sanitarians, food managers and extension educators have been working together on a pilot project in the City of Minneapolis that is demonstrating promising preliminary results. The project stems from research, tools, resources, collaboration and initiatives developed by industry, as part of the NACCHO Food Safety Demonstration and the Advance Practice Center grants, the University of Minnesota School of Public Health and the University of Minnesota Extension.

Minneapolis sanitarians conduct approximately 3, 500 risk based food inspections annually. Sanitarians refer food businesses that exhibit chronic non-compliance and repeated violations to a pilot program comprised of three components: self auditing, food safety training and monthly community meetings. Curriculum correlates with the self-audit process, covering personal hygiene, cross contamination, time and temperature, approved sources, chemicals, utensils and equipment, physical facility and food defense. The program is designed to break the cycle of non-compliance by helping food operators establish a food protection system and self-auditing process in their own facility. The goal is to change the locus of control from the inspector to the operator. With this change, the operator takes ownership for compliance.

A preliminary analysis compared inspection reports from 123 pilot restaurants conducted before and after introduction to the program. A 40% decrease ($p=0.0002$) in critical violations was observed. Participants improved in employee health and hygiene ($p=0.002$), protection from cross contamination ($p=0.002$), time and temperature logs ($p=0.001$), use of chemicals ($p=0.013$) and food security management ($p=0.0006$) (unpublished results). Results suggest regular self-audits and training can lead to comprehensive food protection and reduction in food borne illness risk factors. Further evaluation is needed to determine the model's effectiveness.

The goal of the project is to establish a more effective food protection model that achieves compliance through partnership, collaboration, training and enforcement by utilizing the strengths and resources of restaurateurs, regulators, educators, frontline food workers and community stakeholders.

INTRODUCTION/BACKGROUND:

The food industry is a substantial contributor to the United States economy. The National Restaurant Association (NRA) reports that 945,000 restaurants in the United States generate $566 billion in sales yearly, representing 4% of the gross domestic product.[1] It is estimated that an individual purchases a meal or snack away from home an average of five times per week, spending $1,054 annually. Approximately 70 billion meals and snacks were eaten in American restaurants and other foodservice establishments in 2007.[1] The increase in the number of people patronizing restaurants and purchasing ready-made foods has been accompanied by an increased risk of illnesses transmitted by food handlers.[2] Most reported foodborne illness outbreaks are from foods prepared outside the home.[3] A report issued by the Electronic Foodborne Outbreak Reporting System (Food Net, 2006) indicated that 59% of reported foodborne illness outbreaks were associated with restaurants in 2005.[4]

Studies indicate that food service workers often lack safe food handling knowledge, especially with respect to temperature control, personal hygiene and sanitizing utensils.[5] Studies show that improper food worker practices contributed to approximately 97% of the reported foodborne illnesses in food service establishments and homes.[6] For example, research found that more than half of the food service workers surveyed did not use a thermometer to check the food temperatures and 60% did not always wear gloves when handling ready-to-eat foods[7]. Poor personal hygiene is also a well documented problem.[7,8] The lack of adequate food safety training is significant because of the costs associated with outbreaks of foodborne illness.

Foodborne disease results in approximately 76 million illness, 325,000 hospitalizations, and 5,000 deaths in the United States each year.[9] Of an average 550 foodborne disease outbreaks reported to the Centers for Disease Control and Prevention each year from 1993 through 1997, more than 40% were attributed to commercial food establishments.[10] Restaurants in the United States are regularly inspected by local, county, or state personnel. The guidelines of the U.S. Food and Drug Administration (FDA) state that "a principal goal to be achieved by a food establishment inspection is to prevent foodborne disease".[11]

Food safety inspections are one strategy that has an impact on reducing food borne illness risk factors, and a second intervention that has been shown to reduce risk factors is having a qualified person in charge that is responsible for food protection in the facility.[12] The 2009 FDA Model Food Code, Chapter 2 addresses the need for a person in charge to demonstrate knowledge of foodborne disease prevention and to respond to inspector's questions. However, even with routine inspections and demonstration of knowledge requirements, critical violations still occur.

State and/or local health departments may require the presence of Certified Food Manager (CFM) to complete an initial certification as well as attend continuing education classes. Responsibilities of the CFM include identifying hazards of the day-to-day operation, developing and implementing policies and procedures to prevent foodborne illness, taking corrective action when necessary, providing food safety training for employees, conducting in-house self-inspections of daily operation and train employees as to ensure that at least one trained individual

is present at all times when food preparation activities are conducted. However, violations are still cited suggesting that food handlers' malpractices contribute to 97 percent of foodborne illnesses in food service establishments.[6] A survey of the industry revealed that a significant number of part-time and temporary employees are untrained and that few regular employees are receiving continuing education.[13] Allwood et al. investigated hand washing behaviors and found a significant association among correct demonstration, physical infrastructure and training methods used by the establishment and compliance.[8] Findings suggest that the number and kind of hand washing methods used in training corresponded to hand washing performance. Appropriate education can help improve food safety performance in restaurants.[14, 15, 16] Research found that a multidimensional approach rather than education alone was required to improve the personal hygiene of food workers. [17, 18] Food safety training for food managers and front line workers must go beyond the traditional classroom method of lecturing and test taking. Additionally, educational programs for food managers are needed to provide skills to effectively train front line workers.

A study published in 2007 conducted in the City of Minneapolis concluded that communication between sanitarians and food operators was an important factor in preventing food safety risks. Allowing time during the inspection process for discussion was found to be an opportunity for both parties to learn from each other which correlated with fewer violations.[19] As a result of these findings, self auditing was recommended as a tool for establishments to improve compliance. Self-auditing programs are developed for restaurants to assess their practice of behaviors linked to reducing the risk of foodborne illness and can help identify topics for food safety training. A recent survey[20] found that participants participating in a self auditing program reported practicing behaviors related to food safety more frequently. However, self-reporting is based on the honesty of an individual and the reporting of what might be a socially acceptable answer even if it is not a practiced behavior. Often, self-reported behavior is the only data available to food safety educators and there is a need to establish validity of self-reported evaluation instruments with observational studies.

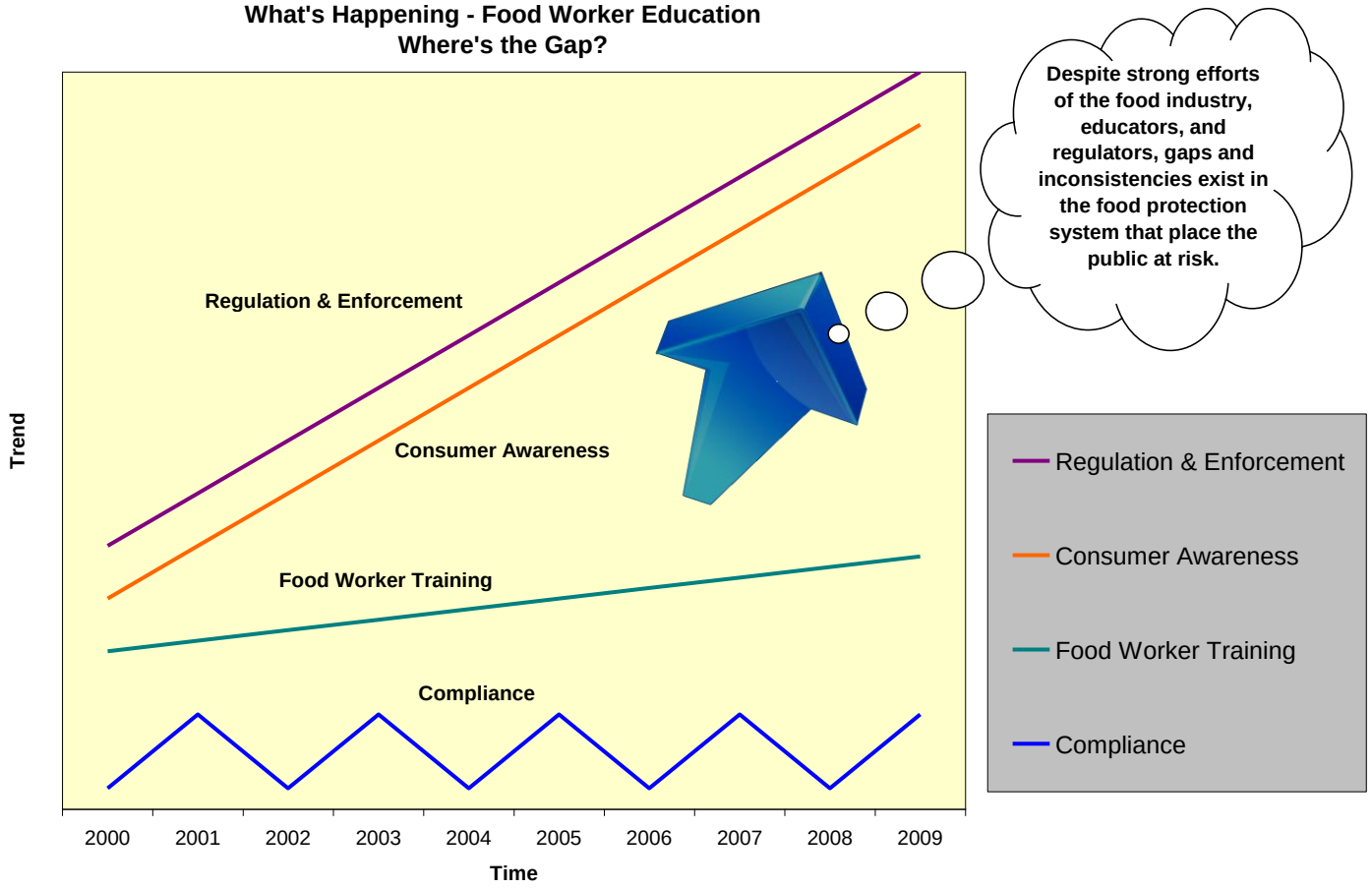
Coordinated efforts to educate food professionals and strengthen the role of the CFM are moving to the forefront. Nationwide, the restaurant industry employs 13.1 million people with the majority of reported foodborne illness outbreaks associated with food-handler error.[1] The pervasive model used for the most part of the past century developed valuable and effective tools for inspection and enforcement. However, the model does not equally emphasize community engagement and education. The current belief is that enacting new regulations and increasing pressure on the food industry through enforcement is likely to result in better compliance and safer food. Education through community engagement addresses structural elements in food protection and moves from reliance on short-term to long-term collaborative solutions.

Problem Statement:

Despite strong efforts of the food industry, educators and regulators, gaps and inconsistencies exist in the food protection system that place the public at risk for foodborne illness.

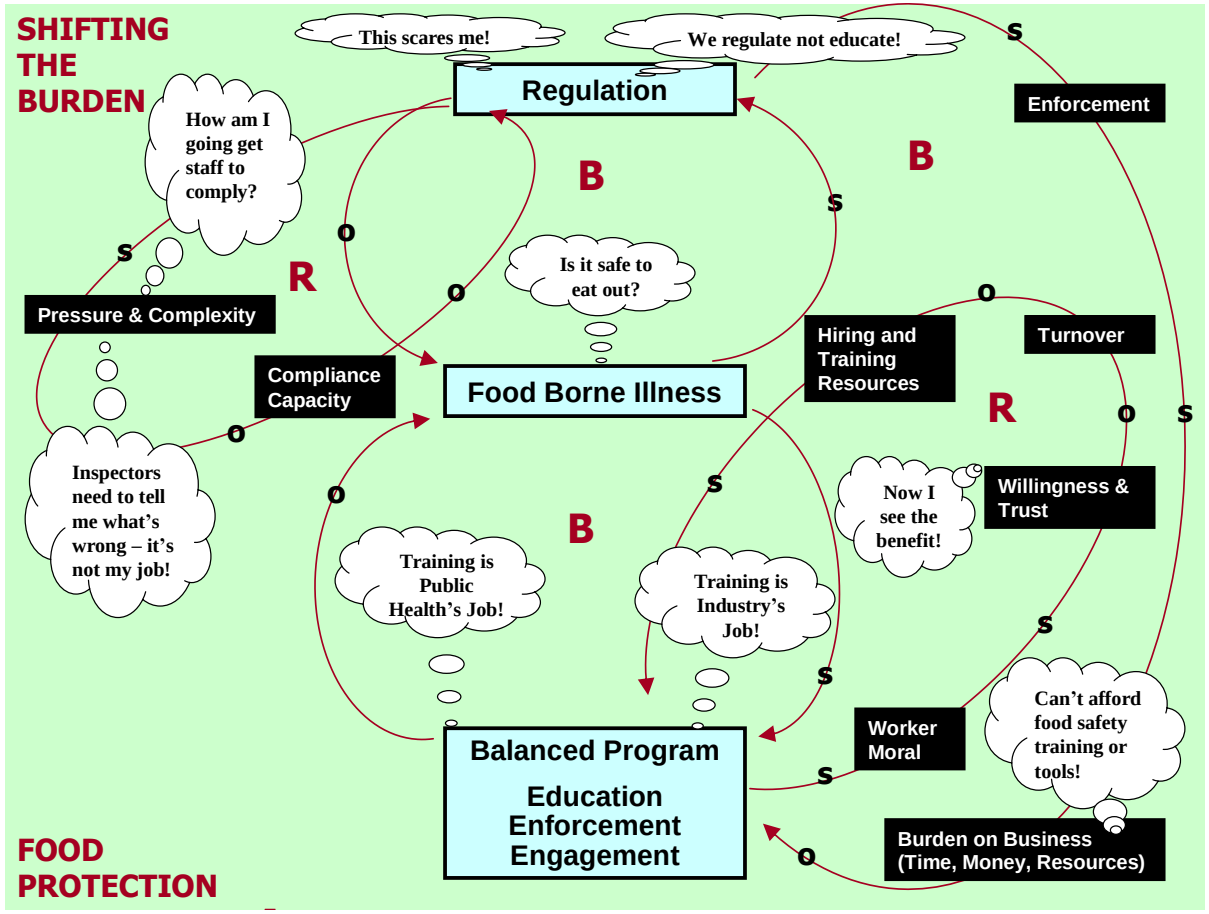
Behavior Over Time Graph:

This project explores and evaluates a model in which food worker training is as high a priority as regulation and enforcement so that compliance levels can meet consumer demands for increased food protection. Currently the reaction to large scale outbreaks is to enact new laws and increase pressure on industry. Regulation without education and engagement hinders compliance.



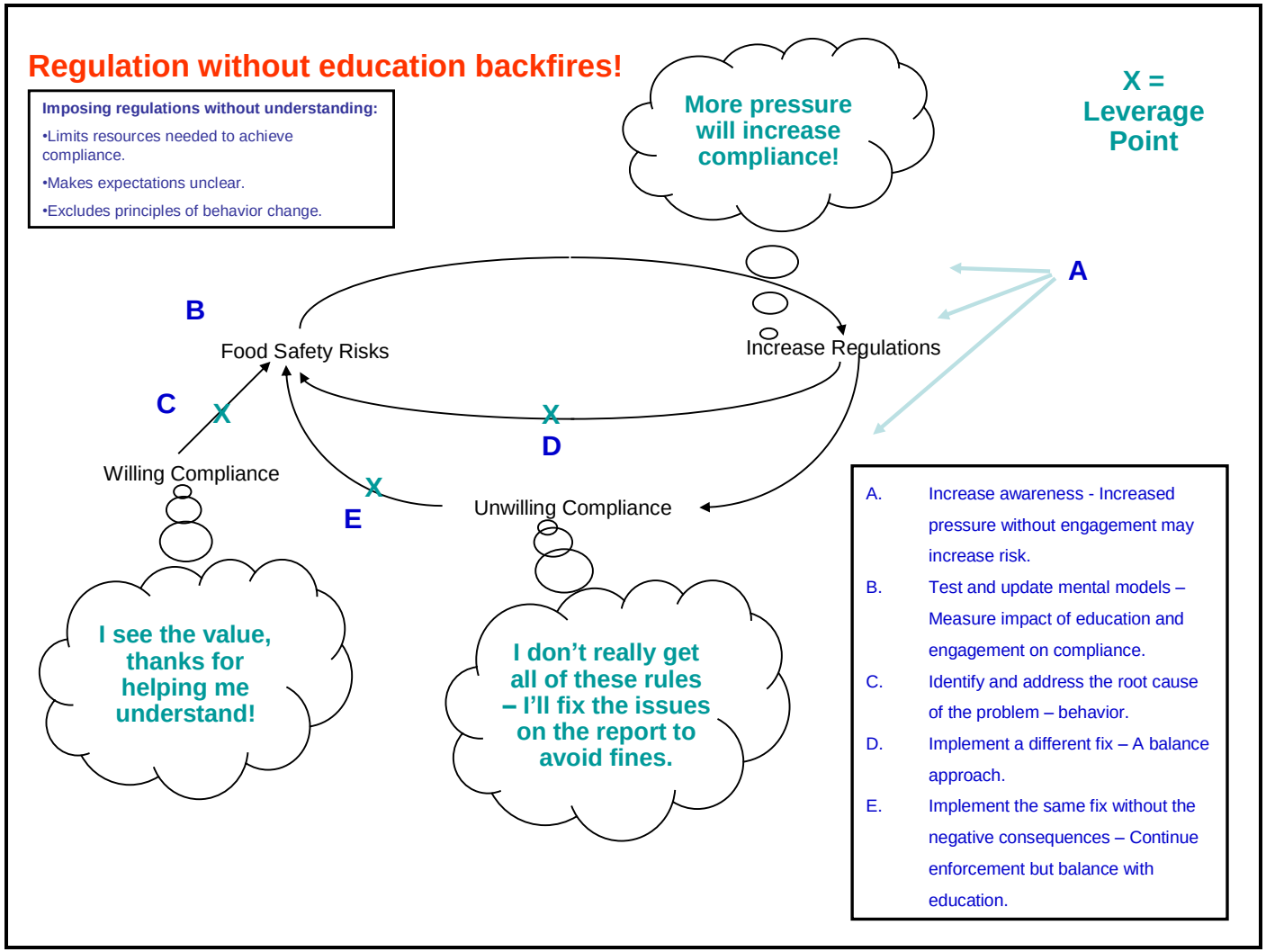
Causal Loop Diagrams and Applicable Archetypes:

Government is pressured by the public and media to crack down on food safety negligence. The real issue has to do with management, training and supervision of the front-line food worker. Stakeholders need to collaborate to make sure food workers have the capacity to keep food safe and are held accountable. People think that enacting new regulation and increasing pressure and enforcement makes food safer. However, systems thinking addresses structural elements in food protection and the need to move from reliance on short-term solutions to long-term collaborative models with high buy-in and alignment among stakeholders.



Leverage Points:

Outbreaks and recalls heighten the perceived value of education if opportunities are taken to communicate how education along with regulation can be a more powerful deterrent to future occurrences.



10 Essential Environmental Health Services:

Our project seeks to enhance the following Essential Environmental Health Services and the following functions described in the Institute of Medicine report.

Essential Services
3. Inform, educate, and empower people about environmental health issues.
4. Mobilize community partnerships and actions to identify and solve environmental health problems.
9. Evaluate effectiveness, accessibility, and quality of personal and population-based environmental health services.

IOM Functions
Assessment - The project evaluates a model for food protection.
Policy Development – The project aims at moving community engagement and food worker training higher on the public agenda and enacting an ordinance for mandatory self-audit and employee training in Minneapolis.
Assurance - The project increases the capacity of environmental health specialists, food managers and front-line food-workers to protect public health.

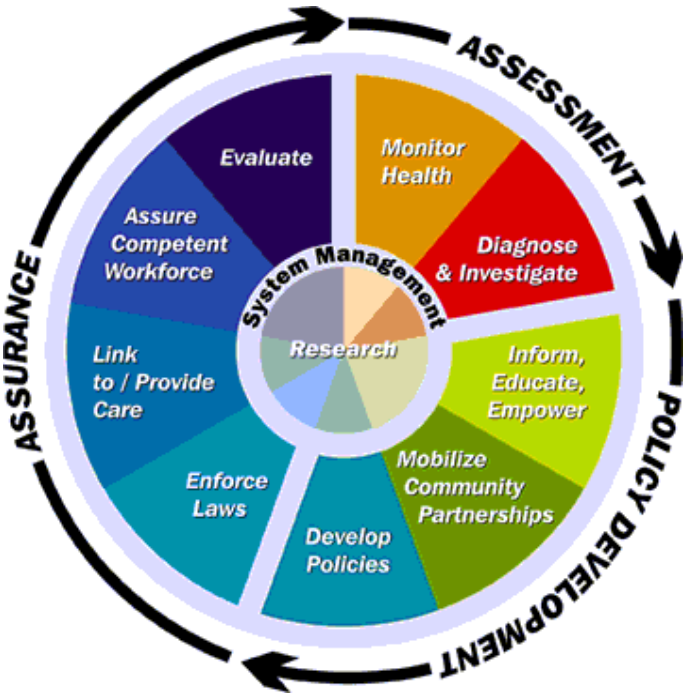


Figure 1: Reprinted from The Public Health Functions Project coordinated by the Office of Disease Prevention and Health Promotion, Office of Public Health Science, Office of the Secretary, U.S. Department of Health and Human and CDC's "National Strategy to Revitalize Environmental Public Health Service.

National Goals Supported

Our project seeks to support the following national goals.

1. CDC Health Protection Goals, Healthy Communities Goal 38, Promote safe and high-quality air, water, food, and waste disposal, and safety from toxic, infectious, and other hazards, in communities. http://www.cdc.gov/osi/goals/places/communities.html

2. Healthy People 2010 Objective: Understanding and Improving Health, Focus Area 10, Food Safety, Goal 10-6, Safe food preparation practices in retail establishments, Improve food employee behaviors and food preparation practices that directly relate to foodborne illnesses in retail food establishments.
http://www.healthypeople.gov/Document/HTML/Volume1/10Food.htm

"***Training of retail employees.*** *The retail food industry has a large employee population with high rates of turnover. Language and literacy barriers and nonuniform systems for training and certifying workers pose additional challenges. Improper holding temperatures, inadequate cooking, poor personal hygiene, contaminated equipment, and foods from unsafe sources have been associated with foodborne disease outbreaks in retail food establishments. Retail food employees' use of safe food preparation and storage practices, along with use of recommended practices spelled out in the U.S. Public Health Service's Food Code should reduce outbreaks*."

3. National Strategy to Revitalize Environmental Public Health Services, Goal VI., Create strategic partnerships, foster interactions among agencies, organizations, and interests that influence environmental public health services.
http://www.cdc.gov/nceh/ehs/Docs/nationalstrategy2003.pdf

Objective VI: Coordinate and promote activities that identify critical stakeholders, and foster communication and interaction among agencies, organizations, and interests that influence environmental public health services.

- Activity VI-AI-1: Identify stakeholders who influence all components of the environment (built and natural) that have an impact on environmental public health services.
- Activity VI-AI-2: Support activities (e.g., conferences, meetings, seminars, etc.) that influence stakeholders to work together to improve environmental public health.
- Activity VI-AI-3: Develop mechanisms for regular communication and coordination among stakeholders.

4. Environmental Health Competency Project: Recommendation for Core Competencies for Local Environmental Health Practitioners
http://www.apha.org/programs/standards/healthcompproject/corenontechnicalcompetencies.htm

Competency A. Assessment.

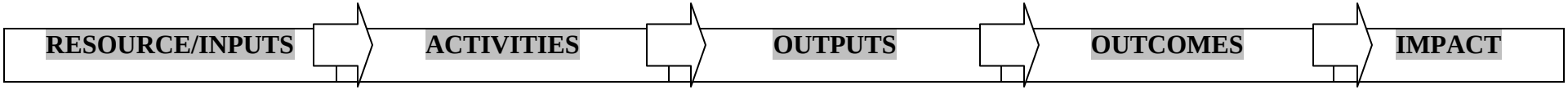
- A1 Research: The capacity to identify and compile relevant information to solve a problem, and the knowledge of where to go to obtain the relevant information.
- A2 Data Analysis and Interpretation: The capacities to analyze data, recognize meaningful test results, interpret results, and present the results in a meaningful way to different types of audiences.
- A3 Evaluation: The capacity to evaluate the effectiveness or performance of procedures, interventions, and programs.

Competency C. Communication.

- C1 Education: The capacity to use the environmental health practitioner's front-line role to effectively educate the public on environmental health issues.
- C2 Communication: The capacity to effectively communicate risk and exchange information with colleagues, other practitioners, clients, policy-makers, interest groups, media, and the public through public speaking, print and electronic media, and interpersonal relations.

Project Logic Model:

GOAL: Improve overall food safety compliance, reduce the number of citations and prevent foodborne outbreaks.



Financial ➢ Grants - USDA/NACCHO ➢ Partnership agencies providing funding ➢ Food industry economics ➢ Enforcement	**Programs** ➢ FEST Training ➢ CFM Training ➢ Self Audit Training ➢ Community Meetings ➢ Food Safety Council ➢ Multicultural Outreach	**Measures** ➢ # of food workers trained ➢ # of CFM trained ➢ # of self audit enrollees ➢ # of community meetings	**Learning** ➢ Increased food safety awareness ➢ Increased number of trained food service employees ➢ Behavior change ➢ Increased compliance	**Behavior** ➢ Increased food safety compliance among food service workers ➢ Accountability
Supplies ➢ Educators ➢ Teaching Resources ➢ Inspectors ➢ Compliance Reports ➢ Community Space ➢ Multi-lingual Services ➢ Educational Materials ➢ Tools and Templates	**Food Safety Best Practices (FSBP)** ➢ Define the unique characteristics and situations of food service workers and managers related to learning and using FSBP. ➢ Identify "knowledge/information systems" within food service establishments that inhibit and support the adoption and utilization of FSBP. ➢ Develop and implement effective onsite FSBP educational approaches for food service establishments. ➢ Evaluate learning/skill gains, behavior change, and the adoption of best practices and related organizational systems	**Measures** ➢ # of evaluations/reports ➢ Development of a food safety best practices definition ➢ Implementation of a multi-tiered training program	**Learning** ➢ Improved delivery of trainings ➢ Improved understanding of the industry educational and training needs ➢ Evaluation of programs and services provided to the industry ➢ Understand reasons for non-compliance ➢ Peer Learning ➢ Participatory learning ➢ Action learning ➢ Improved self-audit tools	**Results** ➢ Overall food safety compliance ➢ Citation reduction ➢ Reduction in food borne illnesses ➢ Enhanced education ➢ Collaboration ➢ Trust and buy-in ➢ Willing collaboration ➢ Increased capacity and professionalism for all stakeholders ➢ Change of norms ➢ Safe food
Partners ➢ University of Minnesota ➢ City of Minneapolis ➢ Community Organizations ➢ Federal/State/Local Agencies ➢ Business Operators				

PROJECT OBJECTIVES/DESCRIPTION/DELIVERABLES:

Program Goals

Improve overall food safety compliance, reduce the number of citations and minimize foodborne outbreaks through a systems-based food protection program aimed at behavior change in front-line food workers through community engagement.

Health Problem

The public is placed at risk by food workers engaging in unsafe food handling practices. A systems-based approach is needed to address chronic non-compliance and repeated violations.

Outcome Objective

1. Test and evaluate pilot project to determine the impact on food safety compliance.
2. Propose enactment of the self-audit/employee training ordinance.
3. Implement effective and sustainable food protection program.

Determinant

Improve food safety inspection outcomes.

Impact Objectives

As a result of the intervention, violations observed on food safety inspections will decrease at six month intervals upon program implementation.

Food safety knowledge among food workers will increase at six month intervals upon program implementation.

Contributing Factors

1. Establishments lack the resources to adequately train staff on food safety best practices.
2. Lack of leadership and oversight by managers of food handlers to implement food protection standards.
3. Missed opportunities for collaboration and teamwork.
4. Lack of evaluation to gauge public health food safety program success.
5. Unintended consequences of enforcement.

Process Objectives Complete

1. Preliminary analysis completed June, 2009.
2. Department administration approved proceeding with project June, 2009.
3. Identified Council Member to sponsor ordinance, July 2009.
4. Presented model at the NACCHO Annual Conference, July 31, 2009.
5. Presented model at the Minnesota Food Safety Partnership Meeting, October 31, 2009.
6. Assigned Sanitarian to project, October 2009.
7. University of Minnesota team approved to continue with project through 2012.

Process Objectives in Progress

1. Complete second phase of recruitment, training and evaluation by July, 31 2010.
2. Implement communication plan by August 31, 2010.
3. Present findings and recommendations to department administration by September 30, 2010.
4. Present finding to sanitarians by September 30, 2010.
5. Present findings to partner agencies by September 30, 2010.
6. Present findings at Food Safety Advisory Council Meeting by October 15, 2010.
7. Complete ordinance enactment process by November 1, 2010.
8. Establish program performance measures and standardize processes, protocols, and data collection by December 31, 2010.
9. Implement program, monitor performance measures and share results starting January 1, 2011.

METHODOLOGY:

Events and Activities

Event: Self-Audit Training
Activities:
Sanitarians, food managers and educators worked together to develop the self-audit component of the program based on examples and lessons learned from the international food service industry and HACCP implementation in food processing. Self-audit training teaches restaurants to implement a systems approach to food protection and involve staff in monitoring areas corresponding to a risk-based inspection: employee health, hygiene and training, protecting food from contamination, handling of potentially hazardous foods, purchasing from an approved source, handling and storage of chemicals, handling of utensils and equipment, cleaning, maintenance and food security. The self-audit program also provides restaurants with the opportunity to improve performance, monitor progress and initiate corrective action. Business operators benefit from conducting regular self-inspections by preventing food-borne illnesses, reducing liability risks, avoiding fines and building the skills of employees. Most operators like the self-audit tool and believe that it helps them achieve compliance. Sanitarians refer establishments to the training when there are compliance problems.

To date, 125 restaurants participate in the self audit program. In a questionnaire given to pilot program participants, an operator said that she "has her staff perform the self-audit and subsequently examines the results with her staff and uses the act of reviewing the audit report as an educational tool for them." She also said that it helps her employees communicate and learn from each other about food safety.

Event: Food Safety Employee Training (FSET)
Activities:
Between 2007 and 2010, 750 front line food service employees including bar tenders, wait staff, banquet servers, cooks, supervisors and dishwashers at 38 establishments were trained in two-

hour FSET sessions covering food safety, personal hygiene, cross contamination, sanitation, time/temperature, food security, emergency preparedness and FDA ALERT. Training is based on the self-audit process, the Food Protection Self-audit Picture Guide and Poster Set and includes practical hands on exercises and demonstrations. Sessions are conducted on-site so training is applicable and tailored to the facility.

Event: Food Protection Community Meetings.
Activities:
350 participants attended from 2007 to 2010. Community meetings are an educational forum where the food service industry (managers and staff), academics and regulatory agencies come together to discuss topics in food safety. Monthly meetings are intended to create an atmosphere where food operators can increase their food safety knowledge base, ask questions and request feedback. Topics center on food protection and emergency preparedness. Food operators have expressed that meetings enhance the learning process and believe that peer learning has helped achieve better compliance. Each meeting counts as one hour toward Food Manager Re-Certification. Very positive feedback is being received from both large corporate chains and smaller independent businesses.

Event: Minneapolis Food Safety Advisory Council
Activities:
The council has convened 2-4 times per year from 2002 - 2010. Invitations are extended to food service owners, managers and operators to attend meetings with federal, state and local regulators, policy makers and educators to discuss current and future topics in food safety in Minneapolis, MN. The council acts as a sounding board and venue for input on food safety issues and program initiatives. The council is diverse and new members join often. Participation ranges from 25 - 35 attendees per meeting.

Event: NACCHO Presentation
Activities: A panel consisting of a Chef, Sanitarian, U of MN Educator, and EH supervisor presented preliminary findings at the NACCHO annual conference on July 31, 2009 in Orlando, Florida. Presentation received positive responses from participants and NACCHO food protection staff. The panel solicited feedback from attendees regarding program problem statement.

Event: Minnesota Food Safety Partnership (FSP) Presentation
Activities: The panel also presented preliminary findings at the FSP Fall Meeting, October 21, 2009. FSP is a consortium of environmental health professionals, industry partners, and other stakeholders working together to protect the public health in the area of food safety.

RESULTS:

1. Reduced critical violations based on preliminary findings.
2. Received USDA-NIFSI grant based on preliminary results.
3. Received approval to hire a sanitarian to support the program.
4. Developed new partnerships and networking opportunities.

5. Increased referrals from sanitarians.
6. Improved community perception of agency.
7. Established cross-disciplinary teams and work groups.
8. Developed ground work for a model that could be applied to other issues and/or fields.

CONCLUSIONS:

This project investigated the limitations and unintended consequences of the current system of addressing non-compliance in the food industry. Preliminary analysis suggests that a food protection model designed to achieve compliance through partnership, collaboration, training and enforcement, by utilizing the strengths and resources of restaurateurs, regulators, educators, frontline food workers and community stakeholders, has significant potential in regard to protecting the public from foodborne illness. This effort attempts to build a food protection program engaging all stakeholders to address the systemic forces that contribute to illness outcomes. The project team aims to achieve a paradigm shift toward establishing the highest level food safety behavioral norms in the community by focusing on increasing the professional capacity of food managers and front-line workers.

Community engagement allows stakeholders to work collaboratively to address the root causes of unsafe food handling practices by creating an environment in which there is a collective movement toward higher food safety standards. Agency cultures, stakeholder and community diversity, multilingualism and multiculturalism increase the complexity and importance of communication. Differing missions, visions, agendas, budgets and roles among stakeholders have to be integrated and aligned toward common objectives. Although the process is complex, resource intensive and chaotic at times, the effort produces community resources that all stakeholders value because of their relevance, quality, and effectiveness.

Food managers and sanitarians have been integral to the program through field testing and providing essential feedback to make improvements. End-user involvement has been the basis for their overall positive view of the program. Gaining support of decision makers can be challenging because results are not immediate and extra funding is needed to develop the model. The key to success will be to maintain open communication and collaboration as the project progresses.

The project is now moving into the second phase. Based on feedback from the field, self-audit tools and the referral process have been streamlined. Best practices among food facilities will be integrated into the food safety curriculum. The second phase of evaluation will examine restaurant performance at different levels, look at the impact of multiple factors on compliance and learn from international approaches to food protection. The desired outcome would be to establish a permanent program by enacting City ordinances and developing sustainable funding sources.

LEADERSHIP DEVELOPMENT OPPORTUNITIES:

Kendra Kauppi

As I conclude my EPHLI journey, I reflect back on the learning experience this past year (2009-2010). Through the program, I was able to learn and apply a new way of thinking and approaching problem solving as related to a project in my area of expertise - food safety. However, as the year progressed, I found myself using systems thinking in every day life. Coming from an academic background, very little leadership training is available for students pursuing a science/public health degree; people who will eventually be leading units, departments and organizations. Most of these skills are learned and modified on the job. In addition, I found myself involved in self-exploration. At times it was fascinating and at other times uncomfortable using tools such as the SKILLSCOPE 360, MBTI and the Change Style Indicator to help understand how and why I make the choices I do. More importantly, it helped me to understand others in that we are all different. In a leadership position, I will have to be the one to recognize and modify my behavior. One lesson I have found invaluable is the understanding conflict and learning how to apply (conflict) management and negotiation skills. Throughout the program, I have met many wonderful people – true professionals in public health who in working on assignments and projects together reinforced the idea that problems are not unique to a specific region. The leadership project results can be shared with others. I will continue to use and develop the leadership skills that I have gained through EPHLI both in my professional and personal life.

Tim Jenkins

The EPHLI experience has been extraordinarily rewarding to me and I am grateful to have had the opportunity to be part of Cohort V. People in the field of environmental health are passionate about their work and I am impressed by, despite a demanding year for our field, the commitment my colleagues had to getting the most out of the program. The experience and knowledge of fellows, mentors, coaches and trainers broadened my knowledge and perspective. The high quality assessment tools and follow-up during our sessions in Atlanta and St. Louis gave me practical insight into how to communicate and collaborate better. EPHLI provides skills, tools, resources and methodologies to solve environmental health issues, prevent illness and save lives. EPHLI provides the leadership skills needed to challenge "the way it has always been done" thinking and to have the difficult conversations necessary to bring about change. I look forward to being a mentor and part of the EPHLI network for years to come. Thank you so much to everyone for a great year!

ABOUT THE EPHLI FELLOWS

Kendra Kauppi

Kendra Kauppi is an EPHLI fellow (2009-2010). She is a Research Associate and Food Safety Extension Educator at the University of Minnesota. Kendra earned a BS in microbiology and biochemistry and MS and PhD degrees in Food Science with a special interest in Food Safety Microbiology. Kendra brings several years of teaching experience including academics and out-reach to the food service and production sectors. She also has experience in food science research and has authored and coauthored several publications and presentations in the field. She holds certificates in Safe Quality Food (SQF), HACCP and is a Certified Food Manager (CFM) instructor/proctor. She is currently working on the Self-Audit collaborative project between the University of Minnesota and the City of Minneapolis in which she is responsible for conducting community meetings and training front line food service workers while interfacing with sanitarians. She is part of a team that has recently been awarded a grant to fund the "Development of an Integrated Multi-Level Food Safety Training Program for Spanish-Speaking Food Service Workers." Her educational experience and enthusiasm ensures that food operators and frontline food workers will receive the necessary training to deliver safe food. Kendra enjoys working across disciplines with public health, regulatory agencies and the food service industry while implementing the research achievements of academics. In her spare time, she enjoys playing and watching hockey (go Gophers and Wild), performing with the Roseville String Ensemble, embracing four seasons of outdoor activity that Minnesota has to offer (including the snow), camping in the BWCAW, traveling and volunteering for local organizations.

Tim Jenkins

Tim Jenkins is an environmental health supervisor for the City of Minneapolis, Minnesota, Regulatory Services & Emergency Preparedness Department.
He began his career in the environmental health field in 1997 working for the University of Minnesota to address food and water safety in migrant farm worker camps in southeastern Minnesota. In 1999, he worked for the City of Bloomington, Minnesota, environmental health program and was hired by the City of Minneapolis as an Environmental Health Specialist in 2000. He has an MPH in Community Health Education, a registered Sanitarian and a Certified Food Manager (CFM) instructor/proctor. Tim is also trained in emergency preparedness. He strives to build teams and partnerships to engage the community in developing strategies to solve environmental health challenges and has helped to strengthen environmental health preparedness by working with teams to develop programs, resources, and tools for industry and environmental health professionals. Tim volunteers as an English as a Second Language teacher and is interested in working in international environmental health in the future. Tim and his family live in the Twin Cites where they enjoy the four seasons of the North Country - especially the snow! He looks forward to continuing involvement in EPHLI as a mentor.

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