



Team Members:
Dan Thorell - Team Leader
Tom Buss - Environmental Health Manager

Plan Stage Team Members:
Jeannine Taylor - Community Outreach Coordinator
Lisa Peacock - Personal Health Administrator

Quality Improvement Story Board

Improving Food Safety Knowledge for All

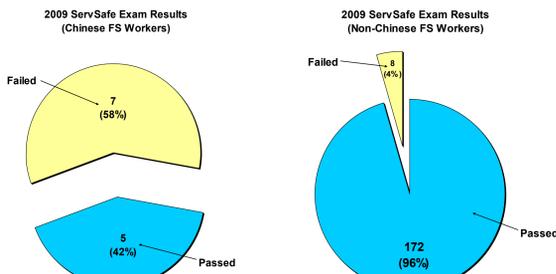


Plan

Identify an Opportunity and Plan for Improvement

I. Getting Started

The Michigan Department of Agriculture (MDA) mandated that by June 30, 2009, at least one person in authority at a licensed food service establishment be certified by a nationally accredited food safety organization. Grand Traverse County Health Department (GTCHD) offered certification through the National Restaurant Association's ServSafe® program. Most restaurants became certified through ServSafe with a 94% passing rate. However, only five of the twelve workers from Chinese restaurants who attended NRA ServSafe courses in 2009 actually passed to become certified. This failure rate of 58% is well above the failure rate of 4% observed in the cohort of remaining students. The failure rate among Chinese food service workers underscores a problem that has always existed within the GTCHD Food Service Sanitation Program: How to communicate with owners/operators/workers from Chinese restaurants who do not speak or understand English well?



2. Assemble the Team

The GTCHD Quality Improvement Team was assembled to create a diverse group of individuals within the organization. Because the project involved the Environmental Health Division food safety program, the EH Director was a logical choice for the team. In addition to managing Environmental Health, the EH Director also is the ServSafe instructor for GTCHD. In order to facilitate the goal of spreading QI within all programs of the Health Department, the Personal Health Administrator was selected. The PH Administrator is located in the main Health Department building and manages several programs and staff. The GTCHD Community Outreach Coordinator has experience and expertise in communication, marketing, and graphic design. These assets were considered critical to the success of the project. The team leader is an Environmental Sanitarian with varied experience. The team leader has coordinated accreditation review of Powers and Duties of the Health Department, coordinated logistics for H1N1 vaccination, and has conducted research and developed programs and policies. The team leader's innovative style, coordination skills, and statistical skills were considered key qualities for the management of the QI project.

Grand Traverse County Health Department MLC-3 Quality Improvement Work Plan May 2010 - February 2011			
Month	Task	Month	Task
May	<ul style="list-style-type: none"> MLC-3 Learning Session Finalize Team Set-up team meeting schedule (Wednesdays 2 to 4 p.m.) Refine Aim Statement Work on QI Tools (Process Map, Fishbone Diagram) Work on Team Charter 	October	<ul style="list-style-type: none"> Stage 3 "Study" of PDSA MLC-3 Tele-conference Team Meetings
June	<ul style="list-style-type: none"> Team meetings MLC-3 site visit Continue working on Step 3 of Plan Stage 	Nov.	<ul style="list-style-type: none"> Stage 4 "Act" of PDSA MLC-3 mini-collaborative Team Meetings
July	<ul style="list-style-type: none"> Team Meetings Step 4 and 5 of Plan Stage MLC-3 Webinar MLC-3 Mini-collaborative teleconference 	Dec.	<ul style="list-style-type: none"> Stage 4 "Act" of PDSA Story Board Team Meetings
August	<ul style="list-style-type: none"> MLC-3 Webinar Team meetings MLC-3 Tele-conference Stage 2 "Do" of PDSA 	January	<ul style="list-style-type: none"> Stage 4 "Act" of PDSA MLC-3 Tele-conference Story Board Team Meetings Final Report
Sept.	<ul style="list-style-type: none"> Team meetings Stage 3 "Study" of PDSA MLC-3 Webinar 	February	<ul style="list-style-type: none"> Stage 4 "Act" of PDSA Story Board Final Report

Original Aim Statement:

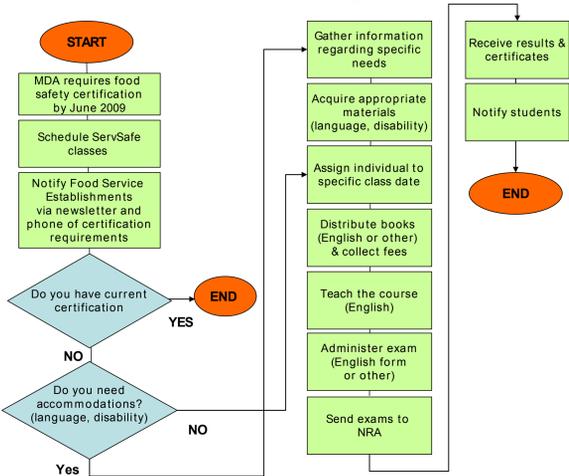
By January 15, 2011, food service workers from Chinese restaurants will demonstrate a 20% increase in the ServSafe exam passing rate after receiving culturally appropriate training and educational materials provided by GTCHD Environmental Health program staff.

3. Examine the Current Approach

GTCHD created a process map to outline the current process for scheduling students for a ServSafe course and exam. Using the process map, GTCHD QI Team identified the following problem areas:

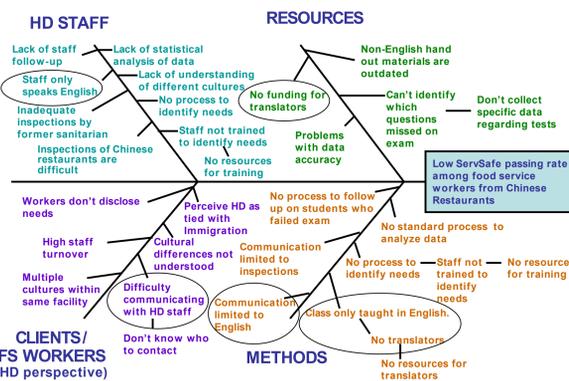
- There is no standard policy for identifying specific needs regarding language or disability.
- Even though students may request a non-English book and exam, the course is only offered in English.
- No translator available for Chinese food service workers to ask ServSafe instructor questions from text book.
- No follow-up survey for students to measure course and exam quality.
- Little follow-up for students who failed exam to determine root cause (no follow-up for Chinese students).

ServSafe Exam Scheduling Process Map



GTCHD employed a fishbone (cause and effect) diagram to determine possible causes of the low ServSafe exam passing rate among food service workers from Chinese restaurants. The most significant factor was identified as communication problems between GTCHD staff and Chinese restaurant staff due to language barriers. During this exercise, it was apparent that many assumptions were made regarding issues within the Chinese restaurants. GTCHD decided that a focus group of restaurant owners/managers would be helpful to determine the perspective from our clients viewpoint.

Why is the ServSafe Passing Rate Low?



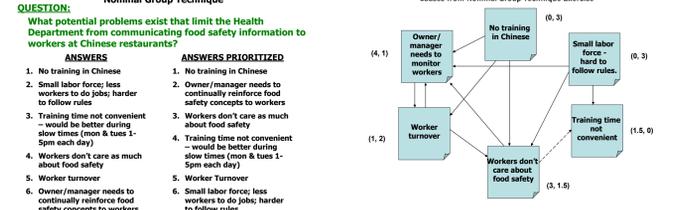
The GTCHD Quality Improvement Team held a focus group meeting for owners/operators of Chinese restaurants on June 22, 2010. The meeting began with a welcome and introduction period. Once the group was comfortable, the QI Team presented the current status of food safety training for Chinese restaurants including the low ServSafe passing rate among Chinese students. One of the restaurant owners speaks English fluently and was able to act as interpreter between the QI Team and the other owners/managers. There was much discussion regarding the demographics of Chinese food service workers and ways to communicate.

Chinese Restaurant Owner/Operator Focus Group Brainstorming Session

- Chinese workers are preferred over Americans because Chinese workers are proficient in a particular style of cooking using very hot woks and sharp knives for cutting.
- The Cultural Revolution took place from 1966 to 1976 where there was a lack of education in China. There were either no schools or very poor schools, so children were not educated well during that time. Many people working in Chinese restaurants were school age during this time.
- According to Henry of China Fair, simplified Chinese is the primary language that most of them read. The older generation can read traditional, but the younger generation can only read simplified. Simplified utilizes simple characters, while traditional is much more complicated to read and is more drawn out.
- When asked what would help regarding food safety training and understanding, they said that the biggest barrier to them passing ServSafe and to learning food safety techniques, they said, is its language.
- They said they have an understanding of the basics regarding food safety, but much of the information in the book goes very in-depth and they struggle to understand it.
- When asked if language was the biggest barrier to them passing ServSafe and to learning food safety techniques, they said, yes, it is language.
- They suggested having posters that could be hung in their kitchens for employees that were in both English and Simplified Chinese.
- Many Asian workers can read English even if they cannot speak it. English is taught in school in China from a young age, but spoken English is not retained.
- They suggested putting the Health Department logo on all of the posters so that they will be taken seriously.
- They all agreed that administering a survey to all Asian restaurants to gather more data would be fine. They would be willing to review the survey and any literature that we assemble to make sure it makes sense.

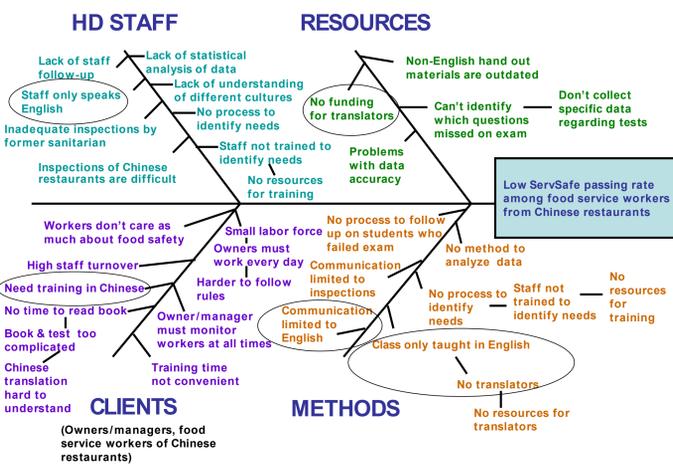
The QI Team presented the focus group with an exercise known as the Nominal Group Technique (NGT) which is used to prioritize and generate a course of action. The NGT exercise started with posing a question pertaining to problems that exist regarding food safety training for Chinese food service workers. Each focus group member was asked to answer the question and then the answers were listed on a large dry erase board. Each group member was asked to prioritize each of the answers using a ranking system. The figure below illustrates the results of the NGT exercise.

Focus Group Data



In order to further identify the root cause, an Interrelationship Diagram was employed to study the cause and effect relationship between prioritized answers from the NGT exercise. The answers from the NGT exercise were arranged in a circle and then a line was drawn between answers if a relationship exists. Next, an arrow was drawn on the line pointing to the item that is most affected by the other. The number of arrows going in and the number of arrows stemming from each cause were counted. The factor or cause with the most outgoing arrows is ranked the highest. In this case, the cause "No Training in Chinese" was ranked the highest and correlates with results of the other tools used to identify the root cause of the low ServSafe passing rate. "Small Labor Force," was also identified as a cause that has significant influence on the other factors. However, the problem of a small labor force is not a factor that can be controlled by GTCHD and therefore the QI Team focused on the issue of "No Training in Chinese."

Why is the ServSafe Passing Rate Low?



The original fishbone diagram was redone after the focus group exercise to reflect potential causes as determined by our clients, the owners/operators of Chinese restaurants in Grand Traverse County.

Revised Aim Statement:

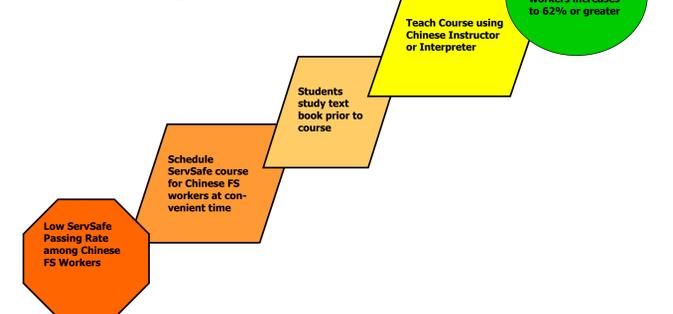
By January 15, 2011, food service workers from Chinese restaurants will demonstrate a 20% increase in the ServSafe exam passing rate.

4. Identify Potential Solutions

GTCHD QI Team identified potential solutions based on root cause analyses and focus group data. The QI tools and focus group clearly identified the language barrier as the root cause for the low ServSafe passing rate among Chinese food service workers. One potential solution was evident in order to meet the requirements of the AIM statement: Structure a ServSafe course specifically for Chinese food service workers. The following criteria would be key components of the improvement:

- Teach the course in Simplified (Mandarin) Chinese using a Chinese instructor or interpreter
- Structure the course to meet the needs of the student's busy schedule.
- Provide the course, Chinese text book, and Chinese exam free of charge to encourage all area Chinese restaurants to participate by sending as many employees as possible.

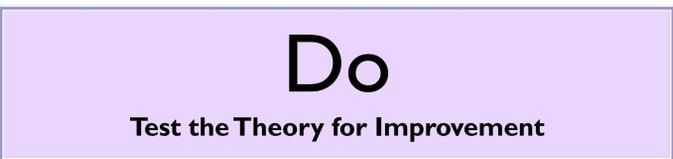
Morphing Diagram



5. Develop an Improvement Theory

GTCHD QI Team developed an improvement theory to increase food safety knowledge among Chinese FS workers. The outcome of the improvement theory is described as follows:

- If GTCHD provides a ServSafe course which is taught using the Simplified Chinese language by means of a Chinese instructor/interpreter, Chinese text books, and Chinese exam forms, then Chinese FS workers will demonstrate a 20% increase in the ServSafe exam passing rate.
- If GTCHD schedules the Chinese ServSafe course on a Monday and Tuesday which are slow days for Chinese restaurants, then the number of potential students will be maximized.
- If GTCHD offers the Chinese ServSafe course free of charge, then Chinese restaurant owners will be more likely to send kitchen staff to the training.



6. Test the Theory

GTCHD planned a Chinese ServSafe course and exam.

- GTCHD QI Team searched for a Chinese ServSafe instructor. Availability of a certified ServSafe instructor who teaches the course in Chinese was minimal. Also, the instructor that was available charged a significant amount of money for their services. As recommended by the QI Team's mentor, GTCHD contacted Jean Chang, Epidemiologist from Public Health Muskegon County to inquire about interpretation services. Jean Chang speaks Chinese and English fluently and recently helped teach a Chinese ServSafe class for Muskegon County Chinese restaurants. Jean agreed to assist GTCHD with a Chinese ServSafe course.
- GTCHD collaborated with Dorothy Wicks, Genesee County Health Department Environmental Health Supervisor, who provided GTCHD with a professionally produced DVD of a Chinese ServSafe course hosted by Genesee County Health Department and taught by Shereen Lin, PhD, a certified ServSafe instructor.

- GTCHD QI Team scheduled a special two-day Chinese ServSafe course for Monday, August 30th and Tuesday, August 31st, 2010. The two-day course structure was based on successful Chinese ServSafe courses offered by Genesee County Health Department and Public Health - Muskegon County. Also, Monday and Tuesday were selected based on the recommendation of the Chinese Restaurant Focus Group that those days were the best to conduct training due to low customer volume in the restaurants.
- GTCHD developed a flyer advertising the Chinese ServSafe course and had it translated into Simplified Chinese (Mandarin). The flyer was hand-delivered to all the Chinese restaurants in Grand Traverse County six weeks prior to the course. Also, the flyer was sent to all neighboring Health Departments and a message regarding the class was sent to the Environmental Health Directors email listserv.
- Despite the advertisement and follow-up visits and phone calls to area Chinese restaurants, only eight students signed up for the class. The ServSafe text book was distributed to the students 3 weeks prior to the course.
- The Chinese ServSafe course proceeded using a combination of the Chinese ServSafe video presentation and live discussion and review with Jean Chang. Also, GTCHD ServSafe instructor, Tom Buss, interacted with the students using Jean Chang as the interpreter. Most of the students were engaged in the class discussions and asked questions tailored toward individual experiences and situations.

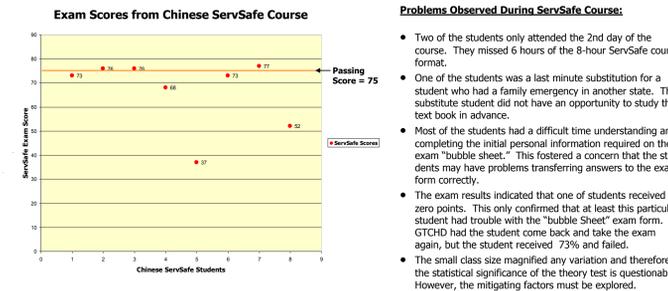
Course Results:

- Three students out of eight passed the Chinese ServSafe exam which yielded a 37.5% passing rate.
- The course results did not meet the GTCHD QI Team AIM Statement requirement of a 62% passing rate or higher.

Study

Use Data to Study Results of the Test

7. Study the Results



Act

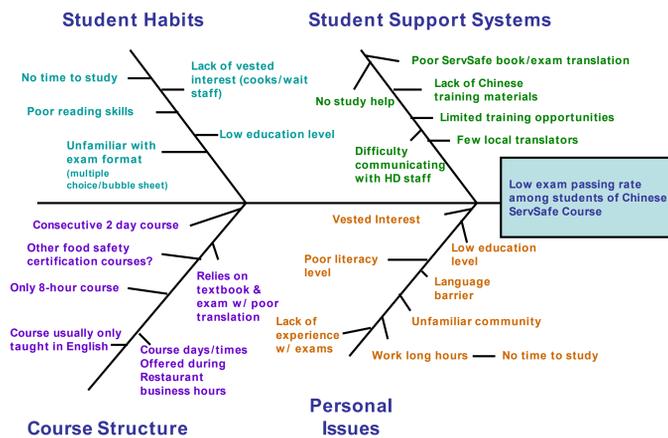
Develop a New Theory and Establish Future Plans

8. Develop a New Theory

After the results were studied and proved the original AIM Statement had not been met, there was a realization that the root cause of the problem was still lingering. The QI Team did recognize that there were some great achievements that could be attributed to the QI project. A positive report was developed by GTCHD and owners/managers/FS workers from Chinese restaurants. A survey of the students just before the ServSafe exam confirmed that the students were extremely grateful for the effort to provide training in their native language. However, as highlighted by the poor exam results, there are obviously other variables that are contributing to the low ServSafe passing rate among Chinese students. The GTCHD QI Team decided to develop a survey to distribute to all of the ServSafe students from Chinese restaurants whether they took the Chinese course or they took the course taught in English.

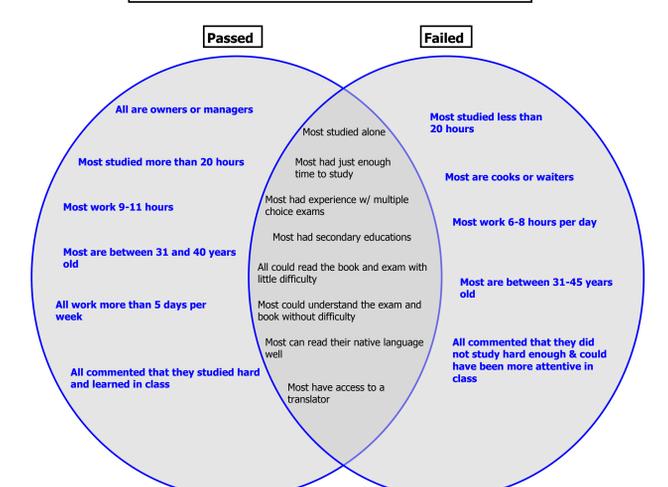
In order to include all possible variables in the survey, a fishbone diagram was utilized to develop potential survey questions.

Variables to Consider for Survey



After the survey was developed, it was then translated into Chinese by Jean Chang, Public Health-Muskegon County. The surveys were hand delivered to each student and then collected two days later with a 94% return rate. The answers to each survey question were compiled into six separate categories: those who passed the English version of the course; those who passed the Chinese version of the course; those who failed each version of the course; and those who passed overall and failed overall. In an effort to find common factors, a Venn Diagram was constructed to compare those who passed the exam and those who failed.

Venn Diagram of Chinese ServSafe Student Survey Results



An examination of the Venn Diagram outlined similarities and differences between the two groups. The QI Team focused on the unique differences highlighted by the diagram. The fact that all those who passed were owners or managers indicates that "vested interest" may be a significant factor which can be linked to other factors identified such as study habits and work hours per day. Cultural differences or social class issues may be an issue which is not apparent on the surface. Anecdotal information obtained from informal discussions with restaurant owners and discussions during the focus group indicated that many of the Chinese food service workers come from poor rural areas of China with minimal educational opportunities. In fact, the QI Team interpreter, Jean Chang, revealed that handwriting and grammar skills of those students who failed the ServSafe exam were generally more basic and elementary than those who passed the exam. These observations are difficult to confirm, but the combination of low education level and low vested interest may be a significant root cause of the low ServSafe passing rate. Vested interest may be a more significant variable than low education level. Some States require that all food service workers have a current "food handler's card," which is obtained after passing an approved training program. Workers then have a vested interest in passing the training course because their job is in jeopardy. Vested interest then overcomes the low education disparity. The food service worker will take extra measures to pass the course, i.e. seek a tutor, study harder, form study groups, etc. In Michigan, the food code only requires the person in charge to be certified. In order to effectively increase vested interest among Chinese food service workers, an incentive must be present.

9. Establish Future Plans

- Initially, the effort to increase the ServSafe exam passing rate among Chinese food service workers seemed like it was going to be black and white. Provide training in the students native language and they will be more likely to pass the exam. In reality, this QI project is not black and white but several shades of gray. The complexity of the potential root causes and their interrelationships have been both enlightening and perplexing. At this point in time, it is apparent that before any future plans are established, more work must be done. Also, the ultimate goal of increasing overall food safety knowledge and lowering the incidence of food borne disease must be paramount. Therefore, the following initial steps will be forthcoming:
 - Meet with the Chinese restaurant owners and managers to present the findings of the QI project and discuss potential options for training
 - Determine possible incentives for Chinese food service workers to participate in food safety training (i.e. increase vested interest)
 - Establish AIM statement for new PDSA cycle