Restaurant Inspection and Manager Certification

Literature Review


To measure the impact of restaurant health inspections, the authors compared mean scores and mean numbers of critical violations (food temperature, hand washing, protection of food from contamination, sanitization) in a group of restaurants inspected with different frequencies over two years. These establishments were inspected 4 times in 1987 and 3 times in 1988, or 4 times in 1987 and 2 times in 1988, or 3 times in 1987 and 2 times in 1988. Inspection scores decreased significantly among establishments what were inspected 4 times in 1987 and 3 times in 1988, as well as amount establishments that were inspected 4 times in 1987 and 2 times in 1988. Also the mean number of food temperature violations increased significantly in restaurants inspected less frequently in 1988. Study was done to show that compliance is related to frequency of inspection.

(Editor's note: This study was done by an agency using it's own data. This is not really an unbiased assessment.)


The aim of this study was to determine the effect of frequency of inspections of eating establishments on their sanitary conditions. The evaluation was a single-blind randomized controlled trial using 400 Canadian eating establishments in the Ottawa area. Raising the frequency of inspections from 6 to 12 per year did not, on average lead to improvement in the sanitary condition of the eating establishments. The authors suggested that other measures might be more effective. These measures might include voluntary or compulsory health education presentations for food handlers and amendments to the Food Premises Regulations. (For example, control of foodborne illness might be strengthened outside eating establishments by measures to diminish Salmonella carriage in raw poultry).


The objective of this study was to evaluate the effectiveness of a food manager training and certification program in increasing compliance with restaurant sanitation codes. By using sanitary inspection records, the authors compared pre- and post-training inspection scores for 94 restaurants that fell into three groups: a "mandatory group (managers attendance was mandated for these restaurants); a "voluntary" group (managers attended voluntarily); and a control group (no staff attended the training program).

The results indicated that restaurants for which managers were mandated to attend a training and certification program, there was a significant improvement in inspection scores. The improvement was sustained over a two-year follow-up period. The mean control group did not change significantly over time. However, improvements were not noted in all areas of food safety. However at 2 years, deficiencies continued to be noted in all three groups of restaurants with respect to food holding temperatures, equipment and sanitizing procedures, and the presence of insects and rodents. These findings suggest that the food manager training and certification program had a limited impact on these problem areas.

It was concluded that food manager training and certification programs may be an effective way to improve the sanitary conditions of restaurants and reduce the spread of foodborne illnesses.

To analyze the associating between the results of routine inspections and foodborne outbreaks in restaurants a matched case-control study was conducted using available data from Seattle-King County, Washington. Case restaurants were facilities with a reported foodborne outbreak between January 1 1986 and March 31, 1987 (N=28). Two control restaurants with no reported outbreaks during this period were matched to each case restaurant on county health district and date of routine inspection (N=56). Data from the routine inspection that preceded the outbreak (for case restaurants) or the date-matched routine inspection (for control restaurants) were taken from computerized inspection records. Case restaurants had a significantly lower mean inspection score (83.8 on a 0 to 100 point scale) than control restaurants (90.9%). Restaurants with poor inspection scores and violations of proper temperature controls of potentially hazardous foods were, respectively, 5 and 10 times more likely to have outbreaks than restaurants with better results. Although this study demonstrates that Seattle-King County's routine inspection form can successfully identify restaurants at increased risk of foodborne outbreaks, it also illustrates that more emphasis on regulation and education is needed to prevent outbreaks in restaurants with poor inspection results.


To determine restaurant inspection and food handler education practices in Canada, a survey of 141 jurisdictions was conducted. The response rate was 100%. All jurisdictions inspected restaurants, but the frequency of routine inspection varied from none to 6 or more times per year. The frequency of violations found on routine inspection was associated with foodborne illness. However, the frequency of inspection was not correlated with disease or with violations. Food handler education courses were mandatory in 32% of jurisdictions. Most courses were one or two days. No correlation was found between the numbers of individuals trained in the past year and violations or reported foodborne disease.

The lack of reduction in reported foodborne illness may be due to the ecological nature of the survey or to the lack of effectiveness of food handler education, or of routine restaurant inspections in reducing violations.


The effectiveness of restaurant inspections and food handler education are not known. Consequently, the optimal frequency of neither has been determined. Thirty (30) randomly selected restaurants from seven health units in 3 provinces were inspected by one of three senior inspectors. A questionnaire was used to collect the data. The violation score worsened when the time since last inspection was greater than 12 months, but did not worsen when the interval was shorter. Those restaurants, in which supervisors and food handlers had completed food handler education had better inspection scores than those who did not. Restaurants with food handlers who had food service education had better scores only for time and temperature violations. These outcomes were significant in a multiple regression model. The duration of education was under 5 days. Recommendations: Routine inspections should be done yearly. Foodservice education should be offered to both supervisors and food handlers.
This paper identifies qualitative performance standards for retail food inspection work. Enhanced standards should help to achieve more effective inspections, and thus better address public health concerns and provide more value for taxpayer funding.

Effective inspections should help prevent, or reduce the severity of foodborne disease outbreaks. These are estimated as high as 81 million cases every year in the U.S. and result in an estimated 10 thousand deaths. A great many of these illness and deaths occur from poor food handling practices in retail and institutional kitchens. **Many inspections fail to address the factors associated with outbreaks.**

Higher performing food inspection professionals are more able to communicate and share food risk and sanitation knowledge with industry. This practice should help industry managers and workers to be better educated, motivated, and empowered to do their jobs better.

The effective inspection achieves a reasonable balance between physical facility and equipment matters, and those areas relating to greater food safety risk, such as inadequate food temperature control, employee health problems, and poor hygienic practices. The inspection findings are code specific and are reviewed in helpful detail.

Article suggests how higher degree of professionalism for food inspectors can be achieved. **"Highly professional food inspectors should work with the industry to resolve problems of common interest."**

The relationship between visual inspection ratings given to ten food retail premises and the microbiological quality of food samples was examined. Viable counts of bacteria and of *Staphylococcus aureus* were determined for cooked meat samples from each of the premises. **There was no correlation between potential risk of foodborne infection, as assessed by total inspection rating, and bacteriological counts in food (P<0.05). There was no consistent relationship between scores given to any component of the total rating and the bacteriological quality of food.**

The effectiveness of the current UK inspection scheme in assessing risk of foodborne disease was questioned. It was suggested the appropriately weighted criteria, such as food temperature abuse, be included to improve the scheme.

This is a report of the investigation results of two outbreaks of acute foodborne gastrointestinal illness liked to commercial establishments. The investigations demonstrated both the potential value and the inherent limitations of such inspections. **Inspections cannot guarantee prevention of foodborne outbreaks. Supervision and education of food workers and consistent adherence of food workers to good hygienic practices are the most critical and sometimes neglected elements in control and prevention of foodborne disease.** This article points out that food safety is the responsibility of all persons involved in food preparation, particularly foodservice managers.
A survey of food service workers was conducted to assess the degree to which food safety training has affected a safer food service environment. The purpose was to identify area of the training programs that could be improved and to promote a more meaningful educational experience for regulatory officials and for the foodservice industry.

The reported study evaluated training of foodservice-certified personnel and non-certified personnel by means of a questionnaire related to food safety as developed by the staff of the Philadelphia Department of Public Safety. (Certified personnel were individuals who had taken a pre-approved training course and had passed the test.) Results of the study indicated that certified personnel answered more questions accurately than did non-certified personnel. However, questions used in the survey were not that accurate. Note Question #3. The answer was that food slicing machines" should be cleaned when there was a buildup of food on the blade". Article concluded that more study is necessary concerning methods for changing the behavior to promote production of safe food.

Inspection of restaurants and education of food handlers are two methods used by regulatory agencies to ensure food served in restaurants is safe to eat. The variation which exists in the implementation of these programs suggests that the programs' effectiveness is lacking or is not clear. Recommendations based on the Community Health Practice Guideline methodology, the results of a critical review of the literature, the results of a survey of practices, and expert opinion were developed. The recommendations include continuation of routine inspections at a frequency of one to two a year per restaurant and the continuation of education programs.

Literature databases were scanned to locate articles pertaining to food handler education and restaurant inspection. Papers which met pre-established criteria, as described in the generic protocol produced by the Community Health Practice Guideline Project (CHPG) were evaluated by standardized consideration of criteria. Studies were rated on a scale of 1 to 3.

There were eight papers related to the intervention of education, four papers dealing with the intervention of restaurant inspection, and one pertaining to both. The evidence presented in the papers regarding food handler training in improving food establishment sanitation was weak, but it appeared that some training resulted in improved inspection scores. It appeared that inspections were beneficial, although it was not clear whether three or more inspections were better than two. No inspections appeared to result in worse inspection scores.

This paper provides an overview of the past, present and future environmental health activities of the Bureau of Health Professionals, U.S. Department of Health and Human Services. Aspects of credentialing, registration, continuing education, role delineation, curriculum development, supply/demand, and competency are presented.

Report of the use of a self-developed foodservice evaluation program (Restaurant Hazard Evaluation and Analysis Program). The program shifts the emphasis of the inspectional operations to those aspects of the operation that are most likely to contribute to the rapid progression of microbial growth and resultant illness. Inspection scores are modified to reflect this approach. The modified scores are combined with some meaningful and practical applications of fixed and variable risks to yield values from which predictions can be made and goals set. Since the inception of this program, the performance of food service establishments has demonstrated and appreciable and measurable improvement.

15. Tebbutt, G.M. and Southwell, J. M. 1989. Comparative study of visual inspections and microbiological sampling inpremises manufacturing and selling high-risk foods. Epidemiol. Inf. The possible relationship between microbiological sampling and visual inspections was carried out in local food manufacturing premises. The five main parameters for visual inspection were: overall appearance; personal hygiene; risk of contamination; temperature control and training and education. A variety of high-risk processed foods, and specimens from hands and wiping cloths and environmental swabs were examined. The results from the two study periods indicated that there was an over all poor agreements between microbiological results and inspection rating. On its own, neither sampling nor visual assessment reliable monitored the performance of the premises. A combined approach, using selective microbiological examination to support a system of standardized inspections, is suggested for monitoring food hygiene standards in premises selling high-risk foods.


The heightened awareness of high-profile foodborne illness outbreaks in the U.S. has brought the idea of food manager certification and training into mainstream discussion within the regulatory community and the foodservice industry. The restaurant industry recognizes the importance of serving safe food to customers and is taking steps to provide training programs for the industry. Consistent reinforcement of the educational training received by foodservice managers and employees is as important as basic food safety training. The local environmental health specialist (EHS) or health inspector is a key component of this reinforcement. Local health inspectors should be more than enforcers, they should be valuable consultants. Therefore, it is critical that inspectors be trained and knowledgeable in the area of food safety and sanitation. Most health inspectors are not required to have specialized training to function as a food safety inspector.

The paper discusses training required for a Registered Environmental Health Specialist. The professional credential reflects the broad depth and knowledge required of general environmental health specialist but does not concentrate on professional development in the area of food safety and sanitation. Therefore, in 1998, the National Environmental Health Association and the National Assessment Institute developed a new examination to accredit food safety professionals. The 120 multiple-choice questions test the food safety professional's knowledge in those aspects most critical to food safety -- foodborne illness; inspection of food establishments; enforcement; equipment and utensils; management and personnel; sampling procedures and interpretation of results; physical facilities; cleaning and sanitizing; purchasing, shipping, receiving and storage.

The FDA Food Codes 1993-1999 specify exacting standards concerning the food safety knowledge of food service operators. Operators must be able to respond to inspector's questions relating specifically to food safety or through passing an accredited food safety (manager certification) examination. However there is no such requirement for the health professional conducting food safety inspections to have any food safety knowledge at all. The time for the certification of health inspectors in the principles of food safety has come.

Discussion of the scoring and grading of restaurants and what it means to the regulatory authorities, the public and the media (TV, radio, newspapers, etc.). To draw conclusions about the value of scored for restaurant inspections, it is necessary to discuss the key issues. Those issues are:

1. the context within which the inspection is made,
2. the interpretation of scores by the public
3. the way the scores are used in the management of food protection programs.

The traditional scoring system deducts points from 100 for each violation, with violations in critical areas counting more than other deficiencies. **Thus, the traditional inspection represents a snapshot of the facility operation, or about 1 hour of time from what may be an 18 hour day for a restaurant.**

In the late 1970's, the Oakland County Health Division (Michigan) assessed its food service program and concluded improvements were needed in the operational aspects of the establishments. Voluntary manager training, even with encouragement, had failed to produce desired results. Therefore, mandatory training was proposed, but county legislators wanted proof of its effectiveness. As a result, a study was conducted with restaurants randomly selected for experimental and control groups. Inspections of both groups, prior to training the experimental group of managers, determined initial sanitary conditions.

The initial inspection results indicated that the training made significant improvements in the sanitation status in two major areas. However, the changes were not in the anticipated areas of improvement. During the 2nd and 3rd post inspections, the earlier improvements were not reflected in the comparison of the experimental and control groups. However, surveys did indicate positive attitudinal changes.

Recommendations were:
1. Health departments should encourage foodservice managers to attend management certification programs.
2. Managers from restaurants that have a history of unsatisfactory sanitary conditions should be required to attend management certification programs.
3. Health departments should develop and provide materials to assist food service managers in training their food handlers.
4. Environmentalists should take an active role in assisting managers in establishing on-going training programs for their employees.
5. Health departments should consider more frequent inspections as a means to improve the conditions in troublesome restaurants.
OPS Notes on Restaurant Inspection

Inspection id not valuable because:
- Inspectors have no professional testing "certification".
- There is no identification of what inspectors should know for hazard control.
- Inspectors have a vested interest. They must find noncompliance or hazards (mistakes) to justify their jobs

Goal is NO INSPECTION because the industry uses SELF INSPECTION and SELF CONTROLS.

What should inspection be? Use British standards?!!? Do microbiology to show safety in food establishments. If food safety inspection is done, food should be monitored.

Ultimate inspection is behavioral inspection. Retail food establishments (and Inspectors) must demonstrate that:
- Employees are trained to wash fingertips.
- Cutting boards and food contact surfaces are washed and sanitized correctly at times to prevent cross-contamination of food products.
- Slicing machines and other equipment used to prepare and serve food is washed and sanitized in a manner that is sufficient to prevent cross contamination of products.
- Employees know how to pasteurize food to make it safe and how to use tip-sensitive temperature measuring devices to assess adequacy of pasteurization.
- How to accurately measure the pH of food and discuss why pH measurement is important in assessing and maintaining food safety.

Inspection is looking at wrong things. Food safety in America cannot improve if inspectors are not trained to look at right things.

Current inspection is ineffective because:

Summary (Paper puts it all together.)