

6. FOOD SAFETY

Goal

Reduce the number of foodborne illnesses.

Terminology

Foodborne illness and **foodborne disease**: Broad terms that encompass infection and intoxication caused by microbial or chemical contaminants in foods.

The *Food Code*: A book of recommendations of the Food and Drug Administration (FDA) for adoption and use by state and local health departments, consisting of requirements for safeguarding public health and ensuring food is unadulterated and honestly presented to consumers. The *Food Code* is intended for use in achieving compliance in food service, retail food stores or food vending operations.

Food industry: Producers (farmers, fishermen, ranchers), processors, storage, warehousing and transport, and retail.

Retail food industry (as covered by the *Food Code*): Vending operations, grocery stores, other retail food outlets, and food service in restaurants and institutions.

Foodborne disease outbreak: The occurrence of two or more cases of a similar illness resulting from the ingestion of a common food.

Infective dose: The number of pathogenic microorganisms that will cause disease. This number may vary depending on the status of the individual's immune system.

Pathogen: A microorganism that causes illness.

Emerging pathogen: An illness-causing microorganism previously unknown to be a human pathogen, a foodborne pathogen not expected to occur in particular foods, or a pathogen that is dramatically increasing in prevalence.

Overview

Foodborne illness in the future may be more serious due to:

- a) An increase in people at risk, especially the elderly and immunocompromised

- b) Declining safe preparation practices
- c) Increasingly diverse industry
- d) Global food supply
- e) Emerging pathogens

Historically, contamination of food was a major threat in the spread of infectious diseases and foodborne illness. Kentucky's food protection programs, developed during this century, have reduced the risk of unsafe foods to consumers. State and local regulation of food manufacturers, distributors, retail sales and restaurants has achieved dramatic progress in protecting consumers from unsafe foods.

Raw agricultural food samples, for example, test higher than 98 percent within established tolerance levels for pesticides permitted on products grown for food. Approximately 94 percent of all food establishments are found to be in substantial compliance with food laws at the time of routine unannounced inspections.

Nevertheless, outbreaks of foodborne illness still occur in Kentucky, posing a threat of sickness or even death. These do not always trace back to food producers and handlers. In at least some instances the cause is improper handling of foods by consumers or failure of the governmental protective systems themselves.

Kentuckians are demanding a wider variety of food items and demanding them year round, thus fueling an increasing global food supply. These concerns, along with society consuming more foods away from home, a growing number of a susceptible population (elderly), and an increase in known foodborne pathogens, all challenge the public health official to ensure foods remain safe.

Despite high overall compliance rates, at least 6 percent of Kentucky retail food establishments are found to have violations rated critical when inspected. Over 6 hundred thousand pounds of foods and a million pounds of milk have been removed from channels annually, due to non-compliance with sanitation requirements or substandard sanitary conditions. In addition, several million pounds of milk are diverted to lower levels of usage due to substandard quality compliance.

Resolving such deficiencies calls for greater awareness by commercial food handlers of code violations - their implications and potential consequences. Improving the overall level of sanitary compliance will require the institution of a statewide designed program of training and certification of industry management personnel, adopting Kentucky's new food code, and reinforced emphasis on surveillance and enforcement activities. Training and education seminars are essential to keep the inspectors and persons involved with food and milk production informed with current developments and happenings within their industry.

Food Safety objectives for the year 2010 therefore emphasize continuing and strengthening the ongoing maintenance functions as well as new measures that will reinforce the existing programs.

Progress Toward Year 2000 Objectives

- 12.1 To reduce by 25 percent infections caused by key foodborne pathogens.
- 12.2 To reduce outbreaks of infections due to *Salmonella enteritidis* to less than one yearly.

Nationally, as of 1997, the incidence of disease caused by four key pathogens, *Salmonella* spp., *Campylobacter jejuni*, *Escherichia coli* 0157:H7, and *Listeria monocytogenes*, has decreased to levels below the year 2000 targets. Raw data obtained from the Kentucky Division of Epidemiology does not differentiate species of *Salmonella* and *Campylobacter*.

- 12.3. To increase to at least 75 percent the proportion of Kentucky households in which basic food safety will be practiced.

Annual holiday food preparation guidelines are disseminated via state press release, Food Safety Audio-Visual educational materials have been provided to all local health departments; Food safety educational materials have been promoted and handed out at the 1997 and 1998 State Fair; and safe food handling instructions have been provided to all local health departments for dissemination to the general public.

- 12.4. To implement a statewide retail food establishment standard (the new uniform federal model “Unicode”) for uniform regulation of retail food establishments.

The Model FDA Food Code has not yet been implemented. Adoption is proposed for the year 2000.

- 12.5. To teach food hygiene to children in all primary and secondary schools, and in technical and appropriate professional schools.

School Food Safety Curriculum is being developed and should be ready for introduction to schools during year 2000.

- 12.6. To provide a model food manager’s training and certification course which may be reciprocally acceptable to all local health departments.

A model Food Safety Training Video with participant manual has been developed and presented to all local health department retail food inspectors for use in training food managers. However, a model statewide mandatory training package has not yet been implemented. Progress has been made towards introduction of a statewide program in that twelve (12) local health departments have adopted mandatory food protection manager certification rules by local ordinance that

apply to approximately 46 percent of the state's retail food establishment managers. Mandatory food protection manager certification could be implemented during year 2000.

- 12.7. To maintain at 100 percent ongoing inspectional surveillance by local health departments of all retail food operations including institutional food operations.

On target

- 12.8. To maintain at 100 percent ongoing annual inspectional surveillance carried out by state and local health departments for all establishments which process, manufacture, store, and distribute foods, and for food salvage establishments, and for growers of raw agriculture products under the authority of state food laws and regulations.

Statewide surveillance of the food-manufacturing program is on going as planned.

- 12.9. To maintain an ongoing fish product monitoring program with sampling to determine tissue contaminant residue levels for fish taken from Kentucky's streams and lakes.

On target

- 12.10. To continue annual issuance of consumer fish consumption advisories based on data obtained from cooperating state and federal regulatory agencies for fish tissue residue contaminant levels.

On target

- 12.11. To continue the ongoing program to sample and test food for pesticide residuals and other toxic chemicals.

On target

- 12.12. To continue a program to collect and require laboratory testing for microbiological and chemical contaminants and quality of food.

On target

- 12.13. To increase to 100 percent public health environmentalist registration within twelve months after employment.

On target

- 12.14. To achieve a 100 percent sanitary compliance level by all Grade A milk sheds (dairy farms), Grade A plants and receiving/transfer stations, and 90 percent compliance by manufacturing milk sheds and plants.

In 1998 there was 90 percent compliance for all

- 12.15. To reduce to no more than 2.5 million pounds the amount of milk that must be destroyed because of adulteration or substandard quality.

3,980,258 pounds had to be destroyed in 1999.

- 12.16. To reduce to no more than 1 million pounds the amount of Grade A milk that must be diverted to manufactured milk products because of failure to meet prime quality (Grade A) standards.

876,161 pounds were diverted in 1999.

- 12.17. To reduce to less than 1,500 the number of notices issued for noncompliance to milk producers.

1,795 notices were issued in 1999.

- 12.18. To decrease to less than 500, the number of suspensions of milk producers' permits because of noncompliance.

In 1999 570 permits were suspended.

2010 Objectives

- 6.1 (Developmental) Reduce the proportion of infections caused by bacteria, parasites, and key foodborne pathogens. Reduce the yearly outbreaks of infections due to *Salmonella* serotype Enteritidis and *Escherichia coli* O157:H7.**

Potential Data Source: Kentucky Reportable Disease Surveillance

Implementation Strategy:

- Incorporate the use of a revised foodborne illness surveillance investigation collection form and the Kentucky reportable disease form, which would enable the Department, through the communicable disease reporting system, to collect data for food related illness stemming from bacteria and parasites.
- Pursue the addition of *Toxoplasma gondii* to the list of food related illness to be reported and investigated.

- Improve the method of collecting and reporting data for foodborne bacteria and foodborne parasites.
- Urge use of radiation pasteurization to reduce the level of bacterial contamination in meat.

6.1a. (Developmental) **Reduce foodborne infections caused by the parasitic pathogens *Cryptosporidium parvum* and *Cyclospora cayetanensis*, hepatitis A virus, and Norwalk virus.**

6.1.b. (Developmental) **Reduce the incidence of postdiarrheal hemolytic uremic syndrome.**

Potential Data Source: Kentucky Reportable Disease Surveillance

Implementation Strategy:

- Add *Cryptosporidium*, *Cyclospora*, and Norwalk virus to the Kentucky Reportable Disease reporting system.
- Adopt the FDA Food Code.
- Implement the Primary Education Food Safety Curriculum.
- Implement the Food Protection Manager Certification for retail food managers.
- Make available educational food safety materials at public gatherings.

6.2 (Developmental) **Reduce the number of deaths from *Listeria monocytogenes* and *Vibrio vulnificus* annually.**

Potential Data Source: Kentucky Reportable Disease Surveillance

Implementation Strategy:

- Add *Vibrio vulnificus* to the reportable disease listing in Kentucky.
- Implement similar steps as those listed under Objectives 6.1 and 6.1a.

6.3 (Developmental) **Reduce foodborne infections caused by antimicrobial-resistant bacterial pathogens of the species *Salmonella*, *Campylobacter*, and *Escherichia coli* in humans and the prevalence of resistant pathogens collected from animals.**

Potential Data Source: Kentucky Reportable Disease Surveillance

Implementation Strategy: Add the listed organisms to the reportable disease listing in Kentucky.

6.4 (Developmental) **Make food-induced anaphylaxis death a reportable condition.**

Because allergens are present in a variety of foods, and because even trace amounts of these allergens can induce anaphylaxis, education and clear ingredient information are critical to the management of food allergy.

Potential Data Source: Reports to the Division of Epidemiology and Health Planning

Implementation Strategy:

- Ensure that these food related deaths are reported to and investigated by the Division of Epidemiology and Health Planning.

6.5 (Developmental) Increase the proportion of consumers who practice each of the four critical food handling behaviors:

- 1) Clean: wash hands after touching raw meat or poultry
- 2) Separate: clean and sanitize cutting board or use a different board after cutting raw meat or poultry
- 3) Cook hamburgers thoroughly
- 4) Chill: refrigerate promptly

6.5a. (Developmental) Maintain and keep current food safety curriculum for teaching students throughout Kentucky.

Potential Data Sources: Surveys listed below

Implementation Strategy:

- Continue to provide food safety educational handout materials for distribution at fairs, special public events, church and civic groups.
- Provide to all local health departments food safety video training and educational materials for use in educating the general public.
- Surveys to measure progress will be commenced at the 1999 Kentucky State Fair and will be conducted for the same purpose by local health departments at local public gatherings.
- Inform the public that the Food Safety Branch has developed a Web Site for information and educational purposes that consumers may access.

6.6 (Developmental) Reduce the occurrences of the following factors in retail food establishments: improper holding temperatures, inadequate cooking, poor personal hygiene, contaminated equipment, and foods from unsafe sources.

Potential Data Source: Retail food establishment inspection data

Implementation Strategy: Conduct training in the use of the *Food Code* by retail food handlers.

6.7. (Developmental) Assess the effect of changes in pesticide residue tolerances mandated by the Food Quality Protection Act.

Potential Data Source: Office of Pesticide Programs, Environmental Protection Agency.

Implementation Strategy: Monitor the reassessment of the effect of changes in pesticide residue tolerances mandated by the Food Quality Protection Act.

6.8. Increase to at least 75 percent the proportion of households in which principal food preparers routinely refrain from leaving perishable food out of the refrigerator for over 2 hours and clean and sanitize cutting boards and utensils after contact with raw meat and poultry.

Baseline: For refrigeration of perishable foods, 70 percent; for cleaning and sanitizing cutting boards, 66 percent; and for cleaning and sanitizing utensils, 55 percent, in 1988.

Data Sources: Conduct surveys to measure progress at the Kentucky State Fair. Local health departments conduct surveys for the same purpose at local public gatherings.

Implementation Strategy:

- Provide food safety educational handout materials for distribution at fairs, special public events, church and civic groups meetings.
- Provide food safety video training and educational materials to all local health departments for use in educating the general public.

6.9. Carry out the provisions of the FDA FOOD CODE, to be adopted by the Department for Public Health, for regulation of food safety in all retail food establishments.

Data Source: Department for Public Health Surveillance

Implementation Strategy:

- Maintain the mandated surveillance level necessary to achieve safe food handling establishments.
- Carry out a statewide food protection manager certification program.
- Utilize the science-based provisions of the Model FDA Food Code.

6.10. Maintain raw agricultural produce pesticide sampling and monitoring (approximately 200 samples annually) program for produce grown in Kentucky.

Data Source: Department for Public Health testing

Implementation Strategy:

- Maintain the raw agricultural produce pesticide sampling and monitoring program for testing produce grown for sale.
- Collect random samples of fresh fruits and vegetables grown for retail sale.
- Analyze the samples.
- Report results from the analysis.

6.11. Maintain fish tissue contaminant residue sampling (approximately 20 samples annually) and testing for edible fish species listed in Kentucky's annual fish consumption advisory publication.

Data Source: Fish samples which are collected from state fish processors and analyzed for pesticide and chemical residues in accordance with EPA established limits.

Implementation Strategy: Maintain the fish-sampling objective of testing edible fish tissue in fish harvested from the state's waterways that are subject to fish consumption advisories.

6.12. Maintain inspection surveillance (approximately 1,000 inspections annually) and enforcement under the authority of KRS 217.005 to 217.285 for Kentucky's approximately 1200 food manufacturing and storage firms.

Data Source: Department for Public Health Surveillance inspection surveillance.

Implementation Strategy:

- Maintain the mandated surveillance level necessary to achieve safe food handling in the state's food manufacturing and storage establishments which consists of:
- Routine inspection surveillance.
- Collection of food samples to determine wholesomeness of foods.
- Review of food product labels to determine the status of misbranded foods.

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