



Food Safety

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PROGRESS REVIEW



In the 16th session in the second series of assessments of *Healthy People 2010*, Acting Assistant Secretary for Health Donald Wright chaired a focus area Progress Review on Food Safety. He was assisted by staff of the co-lead agencies for this *Healthy People 2010* focus area, the U.S. Department of Health and Human Services (HHS) Food and Drug Administration (FDA) and the U.S. Department of Agriculture (USDA) Food Safety and Inspection Service (FSIS). Also participating in the review were representatives from other offices and agencies within HHS and USDA. Dr. Wright observed that food safety, a top priority for both HHS and USDA, is an expansive issue that continues to present challenges as we approach the 2010 guidepost. Unfortunately, many people do not think seriously about food safety until a food-related illness affects them or one of their family members.

The complete November 2000 text for the Food Safety focus area of *Healthy People 2010* is available online at www.healthypeople.gov/document/html/volume1/10food.htm. Revisions to the focus area chapter that were made after the January 2005 Midcourse Review are available at www.healthypeople.gov/data/midcourse/html/focusareas/fa10toc.htm. Additional data used in the Progress Review for this focus area's objectives and their detailed definitions can be accessed at wonder.cdc.gov/data2010. For comparison with the current state of the focus area, the report on the first-round Progress Review (held on May 11, 2004) is archived at www.healthypeople.gov/data/2010prog/focus10/2004fa10.htm. The meeting agenda, tabulated data for all focus area objectives, charts, and other materials used in the Progress Review can be found at a companion site maintained by the Centers for Disease Control and Prevention (CDC) National Center for Health Statistics (NCHS): www.cdc.gov/nchs/about/otheract/hpdata2010/focusareas/fa10-food2.htm.

Data Trends

In his overview of data for the focus area, NCHS Director Edward Sondik outlined the annual burden of foodborne disease in the United States. Although the food supply in this country is one of the safest in the world, an estimated 76 million U.S. consumers get sick each year from foodborne illness—more than 300,000 consumers are hospitalized, and the yearly death toll approaches 5,000. The cost to society is around \$23 billion annually. Objectives in the Food Safety focus area provide a framework for reducing foodborne illness

through prevention, intervention, and response to adverse incidents. To better ensure the safety of food, FDA and FSIS monitor various points along the path from foodstuffs to table: production, processing, distribution and storage, transportation, retailing of food products, preparation of meals, and consumption. Of the objectives and subobjectives in the focus area that were continued after the Midcourse Review of *Healthy People 2010*, two have met or exceeded their targets, six are improving, three are getting worse, two have shown little or no

progress, nine are without data for measuring progress, and one remains in developmental status. Dr. Sondik examined in greater detail the objectives in the focus area.

(Objs. 10-1a, -1b, -1c, -1d, -1f): The rate of infection by *Campylobacter* species (spp.) decreased from 24.6 cases per 100,000 population in 1997 to 12.7 cases per 100,000 in 2005. The 2010 target is 12.3 per 100,000. Cases of *Escherichia coli* (*E. coli*) O157:H7 decreased from 2.1 per 100,000 in 1997 to 1.1 per 100,000 in 2005. The target is 1.0 per 100,000. Cases of *Listeria monocytogenes* decreased from 0.47 per 100,000 in 1997 to 0.30 per 100,000 in 2005. The target is 0.24 per 100,000. Cases of *Salmonella* spp. increased from 13.6 per 100,000 in 1997 to 14.5 per 100,000 in 2005. In the years between 1997 and 2005, there was considerable fluctuation in the rate, with no clear trend toward improvement. The target is 6.8 per 100,000. Cases of postdiarrheal hemolytic uremic syndrome (HUS) among children less than 5 years of age decreased from 1.80 per 100,000 in 2000 to 1.04 per 100,000 in 2004. The target is 0.90 per 100,000. Two-thirds of the deaths from foodborne illness in the United States are associated with the bacteria addressed by these subobjectives, in estimated proportions as follows: *Salmonella* spp., 30.6 percent; *Listeria monocytogenes*, 27.6 percent; *Campylobacter* spp., 5.5 percent; and *E. coli* O157:H7, 2.9 percent.

(Objs. 10-2a, -2b): A foodborne disease outbreak is defined as the occurrence of two or more cases of a similar illness resulting from the ingestion of a common food. In 2005, 26 outbreaks of *E. coli* O157:H7 were reported to CDC, an increase from 22 in 1997. The target is 11. Outbreaks of *Salmonella* serotype Enteritidis decreased from 44 reported to CDC in 1997 to 39 in 2005. The target is 22. For both subobjectives, there was considerable fluctuation in the number of reported outbreaks in the years between 1997 and 2005.

(Objs. 10-3a, -3b, -3c, -3d): The subparts of this objective are aimed at holding at no increase above

the 1997 levels the proportion of non-Typhi *Salmonella* spp. isolates from humans that are resistant to specific antimicrobial drugs. The proportion of such isolates from humans that were resistant to Fluoroquinolones increased from 0.0 percent in 1997 to 0.2 percent in 2003. The target is 0.0 percent. The proportion of such isolates from humans that were resistant to third-generation Cephalosporins increased from 0.1 percent in 1997 to 0.4 percent in 2003. The target is 0.0 percent. The proportion of such isolates from humans that were resistant to Gentamicin decreased from 2.9 percent in 1997 to 1.4 percent in 2003, surpassing the target of 3 percent. The proportion of such isolates from humans that were resistant to Ampicillin decreased from 18.3 percent in 1997 to 13.6 percent in 2003, surpassing the target of 18 percent.

(Obj. 10-4b): The proportion of adults aged 18 years and older with food allergy diagnosis who had suffered severe allergic reactions to food within the preceding five years increased from 26 percent in 2001 to 29.3 percent in 2006. The target is 21 percent. In 2006, the proportions among affected adult populations that experienced such reactions were 27.9 percent among males, 30.0 percent among females, 21.6 percent among whites, and 50.5 percent among blacks. In the age group 18 to 59 years, 31.4 percent of persons with food allergies had experienced severe allergic reactions to food, compared with 23.4 percent of those aged 60 and older.

(Obj. 10-5): The proportion of the non-institutionalized consumer population aged 18 years and older that observed four key food safety practices with regard to cleaning, separating, cooking, and chilling increased from 73 percent in 1998 to 76 percent in 2006. The target is 79 percent for all groups. By gender, race, and level of education attained, the proportions that followed these practices in 2006 can be broken out as follows: females, 78 percent; males, 73 percent; blacks, 74 percent; whites, 77 percent; less than high school completion,

77 percent; high school graduates, 75 percent; and at least some college, 76 percent.

Key Challenges and Current Strategies

In presentations that followed the data overview, the principal themes were introduced by Janice Oliver, Deputy Director, FDA Center for Food Safety and Applied Nutrition (CFSAN), and David Goldman, Assistant Administrator, FSIS Office of Public Health Science. Their statements and Progress Review briefing materials identified a number of barriers to achieving the objectives, as well as activities under way to meet these challenges, including the following:

Barriers

- With the aging of the U.S. population, a greater percentage of people is now susceptible to foodborne illness, and that percentage will increase. In 2007, an estimated 20 to 25 percent of the population was considered to be in a high-risk category—young, older, pregnant, or immunocompromised—and subject to serious illness or death from foodborne pathogens. Concurrent with this trend is the increase over the last few decades in the number and variety of agents associated with foodborne illness.
- It is difficult to assess how common foodborne illness is. The majority of foodborne illness cases are sporadic, and only the small number identified as being part of an outbreak are reported by State health departments to CDC through that Agency's Electronic Foodborne Outbreak Reporting System (eFORS). FoodNet (see item in next section) collects information on foodborne diseases caused by nine pathogens (bacterial and parasitic) and one syndrome (HUS), but does not conduct active surveillance for viruses, which are considered to be a major cause of foodborne illness.
- After several decades of antimicrobial drug use, multidrug-resistant bacterial pathogens are emerging that are less responsive to treatment. Of particular concern are non-Typhi *Salmonella* strains from humans that are demonstrating emerging resistance to the newest antibiotics, such as fluoroquinolones and third-generation cephalosporins.
- Pregnant women run a serious risk of becoming ill from *Listeria*, which can cause miscarriage, fetal death, or illness or death of a newborn. Consuming contaminated raw milk or milk products made from raw milk, such as cheese, during pregnancy can harm the fetus even without inducing obvious symptoms of illness in the mother.
- In the United States, allergenic proteins found in the following eight foods cause an estimated 90 percent of allergic reactions from foods: milk, eggs, fish, wheat, tree nuts, peanuts, soybeans, and shellfish. The presence of allergens in food can be life threatening for certain individuals. Currently, there is no cure for food allergies, and the only successful method of management is avoidance of foods containing the allergen. Death certificates show about 20 U.S. deaths from food-induced anaphylaxis annually, but research indicates the expected number would be around 125.
- Continuous high employee turnover rates in retail-level food establishments create an environment that is not conducive to maintaining a well-trained workforce with food safety knowledge in areas such as food temperature control, food preparation practices, personal hygiene, and employee health.

Activities and Outcomes

- FoodNet is a population-based active surveillance system that is designed to determine more precisely the burden and severity of foodborne diseases and attribute that burden to specific foods and settings. FoodNet is a collaborative project of CDC, FDA, FSIS, and certain State health departments. Since its creation in 1996, FoodNet has expanded the surveillance population from five States, representing 5 percent of the U.S. population, to 10 States, representing 15 percent of the population.
- Launched in 2007 and integrated with the Administration's broader Import Safety Action Plan, FDA's Food Protection Plan addresses both food safety and food defense for domestic and imported products. The Plan operates through a set of strategies that focus on risks over a product's life cycle from production to consumption, target resources to achieve maximum risk reduction, address both unintentional and deliberate contamination, and use science and modern technology systems. The Plan comprises three core elements of protection: preventing foodborne illnesses in the first place, intervening with risk-based FDA actions at critical points in the food supply chain, and responding rapidly when contaminated food or feed is detected. Many of the FDA actions build on existing partnerships with stakeholders and other partners, such as Federal, State, local, and foreign government agencies. For more information about the Plan, visit the Web site: www.fda.gov/oc/initiatives/advance/food/plan.html.
- On December 11, 2007, HHS and a counterpart agency of the People's Republic of China signed a Memorandum of Agreement (MOA) that establishes a bilateral mechanism to ensure products imported into the United States from China meet standards for quality and safety. Under terms of the MOA, the Chinese government will implement registration and certification requirements, expand information-sharing, and provide U.S. officials improved access to production facilities. The Chinese agency has a Web site at english.aqsiq.gov.cn.
- Approximately 7,500 inspection and veterinary personnel of FSIS inspect products that represent more than one-third of all consumer spending on food in the United States and about 40 percent of all domestic food production. For more information about FSIS, go to www.fsis.usda.gov.
- Following an increased number of positive tests for *E. coli* O157:H7 in beef and a larger number of illnesses caused by this pathogen in recent years, FSIS announced in October 2007 that it would take new actions to protect the public against this threat. As of November 2007, all beef-handling plants are expected to verify that they are effectively controlling *E. coli* O157:H7 during slaughter and processing according to FSIS-provided minimum criteria. To ensure more rapid recalls, FSIS is now taking into account a broader, more complete range of evidence when determining whether to seek a recall or take regulatory action. Also, FSIS notified foreign countries that export raw beef products into the United States of the new *E. coli* O157:H7 policies and programs and is working with those countries to ensure they implement equivalent measures. In addition, beginning in January 2008, FSIS will undertake routine, targeted sampling for *E. coli* O157:H7 at slaughter and grinding facilities, with larger volume operations to be tested more frequently than in the past.
- Begun in 2005, the Strategic Partnership Program Agroterrorism Initiative was formed by USDA, FDA, the Department of Homeland Security (DHS), and the Federal Bureau of Investigation (FBI) as a collaboration with States and private industry to protect the Nation's food supply from terrorist

threats. As part of the Initiative, FSIS and FDA have completed more than a dozen food supply vulnerability assessments, which are updated periodically. To prepare industry to protect the domestic food supply from an intentional attack, FSIS has provided training to more than 700 trade group representatives across the country.

- In February 2007, FSIS announced a proposed timetable for introducing a more robust, risk-based inspection system in processing plants. As part of a strategy to place resources where the greatest need exists, FSIS intends to assess the relative risk of the products of each plant and identify steps the plant is taking to control such risks in its operations. This will allow FSIS to allocate inspection resources more effectively while continuing daily inspection at all processing facilities.
- FDA and FSIS have implemented the Hazard Analysis and Critical Control (HACCP) system regulations for seafood (1997), meat and poultry (1998–2000), and juice products (2002). HACCP is an internationally recognized, scientific approach to producing safer food by anticipating how biological, chemical, or physical hazards are most likely to occur and following up with the installation of appropriate measures to prevent their occurrence.
- Effective January 1, 2006, FDA required food labels to state clearly if food products contain any ingredients that contain protein derived from the eight major allergenic foods. Such labeling should be especially helpful to children, who need to learn to recognize the presence of substances they must avoid.
- A nationwide food safety campaign called *Be Food Safe*, which includes print and broadcast notices, was launched in September 2006 at the Food Safety Education Conference, co-sponsored by FSIS. This new educational mass media campaign gives educators the tools to inform consumers about foodborne illness and raise awareness of the dangers associated with improper handling and undercooking of food. A new quarterly food safety magazine, *Be FoodSafe: The FSIS Magazine* was also announced at the same conference.
- For over 10 years, USDA, FDA, and CDC have served as the Federal liaisons to The Partnership for Food Safety Education, the public/private partnership that created the Fight BAC! Campaign. This national program emphasizes the four basic safe food handling behaviors: Clean, Separate, Cook, and Chill. These behaviors are the basis of the questions from the Food Safety Survey that are used in *Healthy People 2010* to measure changes in consumer food safety practices. FDA is issuing a new series of brief consumer publications, *Food Facts From FDA*, that cover a variety of food safety, nutrition, and food allergen issues.
- In accordance with a recommendation made at the first round Progress Review in 2004, FDA made available a satellite broadcast on the reduction of risk factors for foodborne illness at retail food establishments. In interviews, various leaders in the regulatory community and industry discussed success stories and tools used. Topics included communication skills, using risk control plans, tools for improving food employee behaviors, food preparation practices, personal hygiene of foodservice workers, and techniques used to ensure safe food temperatures. A second broadcast is planned for sometime in 2008 and will focus on the FDA *Food Code* provisions for preventing the transmission of foodborne illness from employees who are ill.
- *Ask Karen* is a Web-based communications tool that FSIS introduced in April 2004 to provide automated responses to consumer inquiries about safe handling, preparation, and storage of meat, poultry, and egg products. Using an extensive database of

food safety information, “Karen” (www.askkaren.gov) is a virtual representative available around

the clock to display answers to questions based on words typed by users of this feature.

Approaches for Consideration

Participants in the Progress Review made the following suggestions for public health professionals and policymakers to consider as steps to enable further progress toward achievement of the objectives for Food Safety:

- Refine ongoing efforts and explore alternative methodologies to more precisely estimate the total burden of foodborne illness on the U.S. population.
- Expand to new States initiatives that encourage increased individual and corporate responsibility among producers of foodstuffs for ensuring the wholesomeness of the food supply.
- Increase the use of information sharing and training agreements with other countries to prevent proliferation of food pathogens at the source of production and contamination of food products intended for export.
- To better estimate the annual total of deaths from food allergies, seek to disseminate more widely among health professional groups information about coding for food allergy anaphylaxis in the International Classification of Diseases.
- Step up efforts to raise the level of attentiveness of retail food purveyor staff to the necessity and means for preventing cross contamination of food products.
- Give greater attention to the implications for food safety of the increase in the proportion of food retailed as organic, particularly with respect to small-scale producers.

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[Signed March 6, 2008]

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