CONSUMERS' KNOWLEDGE, OPINIONS, AND ATTITUDES

TOWARD SAFETY IN SELECTED FOOD ITEMS

A Preliminary Summary Report
National Economic Analysis Division
Economic Research Service
U.S. Department of Agriculture

Federal and State inspection laws have been designed to assure the consumer that meat and poultry products are wholesome and properly labeled, thus helping to guard against foodborne illness caused by bacteria or insanitary processing. Nevertheless, the incidence of foodborne illness continues to be of great concern. A sizable proportion of the reported cases of foodborne illnesses has been traced to foods prepared or eaten in the home. At present, insanitary food handling practices are among the weakest links in the chain of food protection in the United States. Interest generated by Congress, public health services, and other concerned groups has resulted in an intensified effort to plan consumer education programs. To facilitate them, a survey to evaluate consumer awareness of and attitudes toward food safety practices in the home was deemed necessary to provide essential guides for planning. Similarly, such a study should aid in identifying those groups of people having the greatest need for food safety information.

Data for this preliminary report were collected during June and July 1974 from 2,197 respondents throughout the continental United States. The information was obtained via personal interviewing with respondents who had the major responsibility for the decisions on purchasing and preparing food items for use in the household. Selection of the respondents was based on area probability sampling procedures so that the results obtained are projectable, within certain statistical limits, to all households within the continental United States.

This preliminary report focuses primarily on respondents' behavior and attitudes toward food safety practices as they relate to salmonellosis, one of the leading communicable disease problems of bacterial origin in the United States. There are, conservatively, an estimated 2 million cases a year of salmonellosis in the United States. It is likely that many people attribute their salmonella-caused sickness to "the bug" or the flu. The disease is characterized by flu-like symptoms such as severe headaches, vomiting, diarrhea, cramps and fever. In particularly susceptible persons, such as infants, elderly persons, or those with chronic diseases, it may result and has resulted in death.

This preliminary report summarizes some of the major findings from a U.S. Department of Agriculture survey of consumers' knowledge, opinions and attitudes toward safety in selected food items. Since this report is being released before final review and analysis, data are subject to possible revision and further interpretation. A detailed final report including an analysis of data by factors such as geographic region, age, education, and behavior/awareness level of the homemaker, is being prepared for publication.

Controlling salmonellosis (the disease) is complicated because salmonella (the bacteria) are widely distributed in the environment and can reach man in many ways. Salmonella bacteria are most often found in fresh poultry and red meat, although the disease can also be transmitted by persons, pets, and recreational waters. The application of proper sanitary practices will prevent salmonellosis. Its occurrence is probably the result of apathy, poor judgement, carelessness, and inadequate knowledge of the proper ways to handle foods.

The following results indicate what self-protection measures, if any, homemakers take or are aware of in the preparation of foods in the kitchen--self-protection measures that would protect homemakers and their families from salmonellosis.

Cross Contamination

Let's suppose you are chopping fresh meat for a stew, and chopping vegetables for a fresh salad with the same knife and cutting board. How would you go about preparing this meal? Just such a hypothetical situation was presented to the homemakers in this survey. They were presented with three alternative statements from which they were to choose the one statement which best described the way they would go about preparing this meal. The three alternative ways were:

A. After cutting up the fresh meat, I would chop the fresh vegetables and then wash the knife, the cutting board, and my hands with soap and water.
B. After cutting up the fresh meat, I would rinse off the knife, the cutting board, and my hands and then chop the fresh vegetables.
C. After cutting up the fresh meat, I would wash the knife, the cutting board, and my hands with soap and water and then chop the fresh vegetables.

Which statement did you choose? If you chose either statement A or statement B, you agree with the majority of the study's homemakers--approximately 59 percent of them chose either statement A or B as best representing the way they would prepare the meal. Unfortunately, however, these homemakers were wrong.

Were you? Remember, the fresh meat has been in contact with the knife, the cutting board, and your hands. It is possible that all are now contaminated. As mentioned earlier, salmonella can be found on fresh meat and poultry. Although salmonella on fresh meat and poultry can be killed if these foods are cooked properly, there is a danger that sallmonella from these products can spread (cross contaminate) when the homemaker prepares them in conjunction with other foods. Unless the knife, the cutting board, and your hands are thoroughly washed with soap and hot water (mere rinsing is not sufficient) before you chop the salad vegetables, these bacteria can be transferred over to the vegetables, and you wind up eating a fresh vegetable salad teeming with salmonella. Only a little more than one-third of the homemakers interviewed chose the correct method--statement C.

Current government inspection procedures do not include provisions for testing for the presence of salmonella on fresh meat and poultry products. Evidently, some consumers are unaware that absolute protection is not always attainable. Homemakers in this survey were also asked, in another question, how likely it was for meat and poultry, most of which are now government inspected, to carry harmful bacteria or germs. Approximately 63 percent of the respondents thought it was "not too likely" or "not at all likely" for meat and poultry to possess such harmful bacteria. Thus, it appears that homemakers may underrate their individual responsibility for hygienic food preparation such as would be involved in the hypothetical meal just discussed.

Time-Temperature Relationships

Temperature and time influence the growth of bacteria including salmonella. Like other living things, bacteria need food, warmth, moisture, and time to grow and multiply. A standard rule, recommended by the U.S. Department of Agriculture, is that hot foods should be kept hot (above 140°F) and cold foods cold (below 40°F). Particularly, food may not be safe to eat if held for more than 2 to 3 hours at temperatures between 60° and 120°F, the zone where bacteria grow most rapidly, and the zone within which "room temperature" is traditionally thought to be.

This time-temperature relationship applies not only to foods containing eggs or milk products, but also to cooked meat and poultry products. When homemakers were asked how concerned they were about uncooked meat and poultry standing at room temperature for 2 to 3 hours, a large proportion of them (88 percent) indicated they were "very concerned" or "somewhat concerned." However, when asked a similar question about cooked meat standing at room temperature for this period of time, a somewhat smaller proportion (53 percent) said they were "very concerned" or "somewhat concerned." It therefore would appear that many consumers think that once a meat or poultry item has been cooked, it is quite safe to leave out at room temperature, not realizing that this cooked item can become a haven for bacteria growth.

This conclusion is further reinforced by results obtained from another question in the survey in which respondents were asked what food items they would avoid fixing for a picnic, items that might become unsafe to eat in 3 hours if not kept very hot or very cold. Two-thirds of the homemakers stated they would not avoid fixing fried chicken, roast beef, and baked ham. It appears that consumers are more aware of the dangers involved in leaving egg-rich foods to stand at moderate temperatures for a long period of time. For such items as potato salad, deviled eggs, and cole slaw, approximately one-third of the homemakers stated they would not avoid fixing these products to be eaten away from home where there was no way to keep them either very hot or very cold. Cream/custard pie, and various salad sandwiches (chicken, tuna, or egg) would not be avoided by a somewhat smaller proportion (one-fourth to one-fifth) of the homemakers.

Turkey

With the onset of Thanksgiving and Christmas, turkey cooking will be at its usual peak. Many would agree that the cooking of a succulent and tasty turkey is indeed an art. However, it should be performed within certain safety guidelines. Improper preparation can leave a household vulnerable to bacterial disease such as salmonellosis. In addition to the preparation, it is equally important to take precautions in the handling and storing of the turkey afterwards. The time-temperature relationships as described earlier also apply to the proper procedures for preparing and handling turkey.

For each homemaker interviewed, an attempt was made to look at her actual behavior when preparing a turkey (and other food products to be discussed in the final report). She was asked to recall the last whole turkey she cooked. She was then asked about the specific procedures she followed when she cooked it.

In this survey, 60 percent of the homemakers interviewed claimed to have prepared a whole turkey in the 12 month period prior to interviewing. A majority of the homemakers who prepared turkey also cooked stuffing with it. As emphasized earlier, fresh meat and poultry can contain salmonella bacteria. When a fresh turkey is stuffed, the salmonella from the turkey may be transferred to the stuffing. Therefore, for absolute safety, stuffing or dressing should be cooked in a separate container.

As evidenced in the survey, however, most homemakers do not do this. Only 26 percent of the homemakers who prepared stuffing cooked all of it in a separate container.

If the homemaker insists on cooking stuffing inside the turkey, it is imperative that she cook the stuffing thoroughly. In the cavity of the turkey, it takes longer for the stuffing to be sufficiently cooked (it should reach a temperature of at least 165^{o} during roasting). Just because the outer surface of the turkey appears to be done does not necessarily indicate the stuffing is safely done, too. A majority of the homemakers, when asked how they knew the stuffing was done, replied that when "the turkey is done, the stuffing is done."

The risk of cooking the stuffing in the turkey is further compounded when the stuffing is packed tightly. Packing tightly does not allow the oven heat to penetrate as quickly. However, 40 percent of the homemakers who stuffed their turkeys packed the turkey tightly. To the homemakers' credit, only a small proportion of them (6 percent) indicated they stuffed the turkey a day or more prior to roasting. Advance stuffing of the turkey, of course, would allow time for salmonella bacteria to multiply in the stuffing.

We asked homemakers a series of questions to determine the total amount of time they allowed their cooked turkey to remain at room temperature without or before being refrigerated. Approximately 37 percent of these homemakers indicated that the turkey was out for 2 hours or more, a situation that may not always result in bacterial contamination, but one that could do so.

The reported percentage was probably conservative, since our survey focused essentially on the first meal homemakers had with this turkey. Ninety-three percent of the homemakers who prepared turkey indicated they had turkey left over from the initial meal. However, we did not attempt to examine homemakers' behavior with every subsequent meal they may have had with leftover turkey. A homemaker's behavior with leftover turkey and any accompanying stuffing and gravy, however, is critical.

The time period (2-3 hours) at room temperature, beyond which bacterial growth may have reached dangerous levels, can be obtained cumulatively. For example, leaving cooked meat for an hour at room temperature, refrigerating it, and then leaving it out for another hour (without reheating it properly) is comparable to leaving the cooked meat out for 2 consecutive hours. Refrigerating or freezing cooked meat inhibits the increase of salmonella, but any already on the meat will remain alive and will increase when the meat is put back into the danger temperature zone.

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