#1. HACCP IN RETAIL FOOD SAFETY

by O. Peter Snyder, Jr., Ph.D.
Hospitality Institute of Technology and Management

The Food Safety Problem

In 1971, there was a national food conference on food protection sponsored by the American Public Association to deal with the increasing problem of foodborne illness in the United States. Compared with 1945, the incidents of all foodborne diseases were increasing even then.

While we had begun to use the words, Hazard Analysis and Critical Control Points, it is interesting to see how the summary reports dealt with the same problems that we are having today in implementing a national food safety initiative.

1. Prevention of Contamination of Raw Agricultural and Marine Products
2. Prevention of Contamination of Commercially Processed Foods
3. Prevention of Mishandling of foods in Commercial and Institutional Food Service Operations
4. Education of the Consumer That Will Minimize the Abuse of Foods
5. Development of an Improved System for Detection, Investigation, and Reporting of Microbial Hazards and Outbreaks Associated with Foods
6. Coordination of Regulatory Activities among Governmental Agencies with Industry Control Programs.
7. Training and Utilization of Professional and Nonprofessional Manpower
8. Development of Public Support for Federal, State, and Local Food Protection Programs
9. Selection and Use of Criteria for Evaluating Program Effectiveness
10. Needs for Research, Analytical Surveillance, and Related Technical Activities in support of a National Food Protection Program.

What have we really accomplished since 1971? Reports of foodborne illness outbreaks indicate that very little has been accomplished. Incidents of waterborne and foodborne diseases are greater than ever. It did not take the development HACCP to identify the fact that raw agricultural and marine products were becoming more contaminated from the environmental wastes, such as sewage waste that was being disposed of carelessly on land, in rivers, and in the oceans. This should be expected with an increasing density of people and animals in the world.

The three classes of hazards in the food supply are chemical hazards, physical hazards, and biological hazards. Interesting though, only one of these classes of hazards continues be a major problem. That is the biological hazard. Chemical hazards in food are largely controlled through government standards and testing and laws that govern the use of insecticides and pesticides. It is estimated that now, the natural toxic compounds in the food are usually thousands of times greater than the amount of insecticides and pesticides remaining in food. The problem of physical objects in the food, which was a very significant problem ten years ago, has largely disappeared because of excellent particle detectors that have been placed at the end of the wholesale production lines. However, from time to time, incidents of particle contamination still occur in retail operations. For example, in retail operations, workers still scoop ice with a glass, and the glass breaks in the ice. Food and beverages can become contaminated with staples and clips from packages when employees open boxes.

The Microbiological Hazard

As we look at the microbiological contamination of the food system today, it is apparent that the level of pathogenic microbial contamination from human and animal sources is greater than ever. The causes are primarily in the growing and harvesting. Are there control methods available? Yes! The controls are to keep wild animals, birds, rodents, etc. away from the feed and basically keep the animals' living environment sanitary. The animals must also have clean water to drink. Because there is little human pathogen control on the farms today, the waste products from the contaminated animals get on the outside of the animal and then, contaminate the meat during slaughter. It also gets into the rivers and streams.

This means that our raw foods have always been contaminated. Since the beginning of time, we have relied on the cook to take care of the biological contamination problems in raw foods. The cook does this by washing the fruit and vegetables correctly in safe water or cooks food sufficiently to achieve pasteurization or sterilization. We may talk about Hazard Analysis and Critical Control Points on the fishing boat, in a fish processing plant, or in a slaughter plant, but none of this food is guaranteed to have pathogens at a safe level so that it can be consumed in its raw form. Raw food can be consumed, but the grower / harvester of the raw food such as oysters, clams, smoked salmon, and perhaps steak tartare must certify it as safe.

If we irradiate chicken and hamburger, theoretically, it can be eaten raw. Unfortunately, in most cases, cooks that purchase the food look only at food in terms of the price, not safety. They will buy the least expensive item that meets their visual and taste quality standards. Recent studies have shown that with radiated meat and poultry, if it is priced 10% above the unirradiated, 25% will select it. If it is priced the same as the unirradiated, 50% of the people will select it. If it is priced 10% below the unirradiated product, 75% will purchase it. This is human nature, but it has a profound effect on the risks that the cook must control in the kitchen.

How Much Does Regulatory Inspection of Food Help?

In the 25 years from the 1971 report by the National Conference on Food Protection, there has been virtually no improvement in the inspection process. If anything, inspection is less effective. In the wholesale system, the FDA reports that they can only get to processing plants maybe every 5 or 10 years. The U.S. Department of Agriculture still believes that an inspector doing visual inspections of carcasses is some form of control.

In the retail system, there are no national competency requirements for the inspectors. They still do not need to know anything about how to look at a recipe and decide whether the recipe is safe. They do not have to relate the adding of acid in a recipe to the safety of the food. They do not have to demonstrate cooking pasteurization of food. There is no initiative by FDA to establish a mandatory competency level for the inspectors that do retail food inspection. They all really need to be chilled food process authorities who can certify processes as safe. What we have are some young trained inspectors who want to do recipe process control, also known as HACCP, and many others who do not have the skills to do this, so they fall back into the habit of doing facilities and utilities inspections. In addition, there is no mandatory funding for training of inspectors, nor are they required to have certain mandatory instruments for doing retail inspections. These would include a pH meter, water activity meter, thin-tip thermocouple, simple surface microbiological testing kits, etc. in order to validate that the processes in the retail operations are under control.

The food code, in reality, continues to be simply an elaborate version of early codes. The code still speaks of pasteurization of chicken at 165º for 15 seconds, when pasteurizing chicken is no different than pasteurizing hamburger and roast beef. The code still calls for cooling in 6 hours, when, in fact, research has shown that 15 hours is safe. There are voluminous chapters in the retail code that deal with construction, plumbing, lighting, and etc. of the facility. The term "potentially hazardous food" is totally obsolete. "Potentially hazardous food" refers to a food that supports rapid and progressive growth of microorganisms, where the term "rapid and progressive" is undefined. Foods that are contaminated with pathogens, toxins, or physical objects but do not support growth of pathogens are not considered to be in the category of "potentially hazardous food." This is in direct conflict with HACCP.

Summary--Safety Is In the Hands of the Food Industry

This introduction is intended to be a wake-up call to the wholesale and retail food industry. If the industry says that problems will not be solved by our government regulatory agencies, it must recognize that, then, problems will only be solved as the 1971 National Food Conference on Food Protection said, "by the industry taking charge and assuring through management leadership that the pathogens in the food served to the customer are controlled." Over the long term, it is hoped that we can encourage the growers and suppliers of the food to provide us with food that is less contaminated. But it will be many years before many items come into the kitchen marked "can be eaten raw without washing and/or cooking."

In subsequent articles, then, I will spell out specific validated control procedures that cooks in the retail industry must follow to assure that they have controlled the risk to an acceptable level. Remember, there is no such thing as "zero" risks. It is critical that we reduce the risk to a level that is acceptable in terms of legal defense and insurance claims. The next article provides an overview of the principles of HACCP and food operation self-control.