THE PRACTITIONER'S TOOL KIT

HACCP Versus HARPC: Considering a New Approach to Retail Food Safety

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Editor's Note: The National Environmental Health Association (NEHA) strives to provide relevant and useful information for environmental health practitioners. In a recent membership survey, we heard your request for information in the *Journal* that is more applicable to your daily work. We listened and are pleased to feature this column from a cadre of environmental health luminaries with over 300 years of combined experience in the environmental health field. This group will share their tricks of the trade to help you create a tool kit of resources for your daily work.

The conclusions of this column are those of the authors and do not necessarily represent the official position of NEHA, nor does it imply endorsement of any products, services, or resources mentioned.

A Tried-and-True Approach: HACCP

We are all familiar with HACCP (hazard analysis critical control point) as a globally recognized preventive approach. Its focus is on controlling the three main types of food safety hazards: 1) biological, 2) chemical, and 3) physical. The primary goals are to prevent occurrences of the hazard, to eliminate the hazard, or at least to reduce the food safety hazard to acceptable or safe levels. HACCP works extremely well for food production, particularly meat and poultry, juice, and seafood processing. It is also an extremely valuable tool for institutional food service operations, such as school lunch programs and correctional, military, camp, long-term, and medical care facilities, where menu options are limited and recur cyclically.

The idea of HACCP came from production process monitoring used during World War II and was actually developed by Pillsbury in the 1960s when they designed and manufactured the first foods for space flight. Applying HACCP was shown to dramatically lower the risk of a foodborne illness among our pioneering astronauts. Since the development of HACCP, it has undergone numerous changes and updates. It was adopted by the Codex Alimentarius Commission as a uniform program for food safety management. The initial seven major principles were expanded to include five preliminary steps. Digital innovations were introduced to simplify compliance and ensure accuracy, and it has become a legal regulatory requirement in food manufacturing. HACCP plan software was introduced in 2021, which allowed internal development and timely revisions. In short, HACCP revolutionized food safety.

Despite HACCP's successes, we found limitations when it is applied to the varied menus of full-service restaurants. Accordingly, the many menu options are difficult to describe and list all potential hazards associated with each item added to the recipe and each step of the food's preparation. In our retail food inspections, we encounter at least 33 cooking methods, of which 18 are commonly used across the industry. The more exotic ones were introduced to prepare ethnic cuisine, and modern methods such as sous vide (low-temperature, long-time) sometimes defy definition without invoking *D*-, *z*-, and *F*-values. In addition, full-service restaurants typically offer a range of 8–12 appetizers, 12–18 entrees, and 5–8 desserts. Further, à la carte, table d'hôte, and buffet menus further complicate the task of preparing a realistic HACCP plan, much less ensuring its seamless implementation. Establishing monitoring systems, verification procedures, documentation, and recordkeeping to encompass this variety of variables becomes impractical and, on occasion, cannot be sustained when even subtle changes occur in recipes, ingredients, suppliers, vendors, and chefs.

We have seen regulatory demands for HACCP plan development go beyond the available internal development software, requiring contractual specialists to draft the HACCP plan. This demand has resulted in some plans having become so complex and detailed that they are only understandable to the regulator and contractor, but not by anyone employed by the facility for which they were written. Many of these incomprehensible and overcomplicated plans simply sit on the shelf, unreadable—oftentimes due to language and literacy—and therefore are unusable by the back-of-the-house staff. Regardless of it being mandatory and thorough, if it cannot be used and is not used, it is of little value in preventing foodborne illnesses.

A Different Approach: HARPC

Thankfully, there is a way to overcome some of these complex hurdles that warrants con-

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sideration. When the Food Safety Modernization Act (FSMA) of 2011 became law, its focus shifted from responding to foodborne illnesses to preventing them. In so doing, it gave us an extremely useful tool to prevent foodborne misadventures: HARPC (hazard analysis and risk-based preventive controls). HARPC is a fairly new program with an initiative-taking approach to food safety that addresses concerns beyond critical control points (CCPs).

Instead of looking only at process steps where controls can be applied, HARPC relies on applicable regulations, standards, and guidance documents to develop a comprehensive preventive control plan. In it, food safety assessment is broader and focuses on science-based controls to significantly minimize or prevent identified hazards "known or reasonably foreseeable" for each type of food on a menu. HARPC is an upgraded version of HACCP because it applies to all food establishments across the entire supply chain. It is a science-based risk assessment and preventive control system for all the potential food safety hazards in a restaurant's operations.

The HARPC plan includes risks that are not necessarily considered under HACCP plans. These include natural toxins, radiological hazards, decomposed material, parasites, unapproved food, color additives, and allergens, among others. It considers naturally introduced hazards such as bones or pits, as well as garnishes, both real and artificial, that can harm a customer. It also considers intentionally introduced hazards, such as acts of sabotage, malicious intent, and terrorism. In short, hazards in HACCP plans refer to contaminant agents, whereas HARPC plans refers to hazards as potential risks.

There are seven steps within a HARPC plan:

1. **Assess the hazards:** This step is a hazard analysis/risk assessment that includes normal product-specific hazards, along with a broad range of other hazards, such as the ones previously listed, and facility-specific concerns such as food defense and emergency management issues.
2. **Institute risk-based preventive controls:** These controls include sanitation procedures (particularly for food contact points); staff hygiene training; and environmental monitoring (such as ATP testing for food debris remaining on a surface after cleaning), biofilms, and common-touch (high-touch) surfaces. It also includes supplier verification and any other concern mandated by regulations, including those listed in the Food and Drug Administration (FDA) *Food Code* that are particularly applicable and specific to the establishment.
3. **Monitoring effectiveness of controls:** All preventive controls must be measurable, although not all controls are measurable by critical numbers (both objective and subjective). With this program, if preventive controls are impossible to observe, there is no point in applying them. When routine monitoring is integrated into the restaurant's operation, patterns that could indicate potential hazards begin to emerge by analyzing the collected data. These variants can easily be corrected before they become serious issues. Monitoring activities include maintaining logs and conducting routine inspections, using the FDA *Food Code* as a reference.
4. **Establish corrective action measures:** This step would include recognizing that something might be wrong with a food item and removing it from consumption. It also involves identifying and correcting weak spots within controls. The emphasis here is on preventing occurrences of unsafe and nonconforming foods.
5. **Establish verification measures:** Verification processes ensure that the restaurant is consistently and effectively meeting its food safety standards.
6. **Follow proper and required recordkeeping procedures:** The same holds true whether it was a HACCP or street HACCP program—nothing is properly done until it is recorded.
7. **Reanalyze the plan once every 3 years (or when needed):** This step allows for more flexibility, particularly when there are changes in menu items, preparation and cooking equipment, food vendors, staff turnover, or changes in hours of operation that would affect preparation times or any administrative policy or physical plant condition or change in infrastructure that could potentially contribute to increased risk.

A HARPC plan has one additional requirement that is not included in a HACCP plan. For food plants regulated by the U.S. Department of Agriculture (USDA) and FDA: A HARPC plan requires a trained team as defined by FSMA. The teams are made up of "preventive controls qualified individuals." This group of employees works together interdependently, consisting of members with complementary skills who collaborate to develop, implement, and maintain the plan. This requirement is quite similar to the FDA *Food Code* requirement for a food service manager certification that demonstrates a manager's knowledge of food safety practices and regulations. The concept recognizes the need for direct interaction with restaurant staff to ensure work practices are consistent with FDA *Food Code* requirements. This same concept holds true with the HARPC team.

Because HARPC is risk-based, it has already been seamlessly integrated into full-service facility operations without impairing or stifling necessary changes and innovations in operations and food preparation. Most importantly, the entire staff understands its implementation and their role in food safety. For more information on HARPC, do an online search. There is a wealth of information to determine the suitability of the HARPC program for any food service operation. There is also assistance from both government and industry in developing and implementing practicable, functional HARPC programs specific to the targeted businesses.

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Did You Know?

National Public Health Week is April 6–12. This celebration provides a chance to recognize how public health has improved our daily lives, safeguarded our families, and strengthened our communities. This week is also a chance to honor the public health workers who show up every day—and to advocate for policies and practices that promote good health for all. Learn more at www.nphw.org.