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Protecting Residents From Foodborne Illnesses

By

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Protecting residents from foodborne illnesses
A well-planned, formal foodservice and enteral feeding program can keep residents safe and prevent survey deficiencies
Doesn't every resident deserve safe food and nourishment? Every year, 76 million people get sick in the United States as a result of foodborne pathogens and viruses; of this number, 5,000 die a preventable death.[1] This problem is exacerbated by the global nature of our food supply, as foodservice providers in the United States obtain more products from outside our borders. A major foodborne illness outbreak in a long-term care (LTC) facility can be catastrophic to all involved. Not only does it jeopardize the health of residents, but it also can damage a facility's reputation, devalue the organization's stock, and cause community alarm.

Residents of LTC facilities tend to be more vulnerable to foodborne illnesses than the general population. This is because of (1) age-related changes in their gastric pH, (2) the overuse of antibiotics that kill beneficial bacteria normally present in the body that provide protection against harmful microorganisms, and (3) the weakening of their immune systems by diseases and conditions (e.g., AIDS, diabetes, liver disease, and malnutrition), as well as medications and treatments that destroy or suppress immune cells (e.g., chemotherapy and radiation therapy). In confined environments such as nursing homes and other LTC facilities where these vulnerable residents live, foodborne pathogens can spread easily. Residents eat the same food from the same kitchen, share food, eat food brought in by visitors, eat during activities and special events, and save food from mealtimes-all factors that allow the chain of infection to flourish.

While anyone can get sick from foodborne pathogens, 20% of the U.S. population (including the elderly) is even more susceptible to opportunistic pathogens than the general population.[1] These "invaders" are more problematic for elderly nursing home residents because these individuals may become ill from exposure to a lower infective dose, and they may develop more severe symptoms or even die. In fact, according to FoodNet, the Centers for Disease Control and Prevention's Foodborne Diseases Active Surveillance Network (www.cdc.gov/foodnet), fatality from foodborne illness among nursing home residents is 10 to 100 times greater than for the general population.

Food safety in the LTC setting is not exclusively the responsibility of foodservice professionals; it extends to all medical and nutrition therapy staff, as well, including nurses and physical/occupational therapists. For example, food safety is equally important when foods are used by therapists to evaluate swallowing, when food is eaten during social activities, and when it is prepared to assess activities-of-daily-living skills.

Foods to Avoid
To reduce the risks of foodborne illness, nursing home residents are advised not to eat the following foods:

- Raw finfish and shellfish (e.g., sushi or oysters)
- Hot dogs and luncheon or deli meats, unless reheated until steaming hot
- Raw or unpasteurized milk or soft cheeses
- Refrigerated pGtTs or meat spreads
- Refrigerated smoked seafood, unless contained in a cooked dish
- Raw, lightly cooked, or unpasteurized eggs (e.g., sunny-side up)
- Raw or undercooked meat or poultry (e.g., a rare or medium hamburger)
- Raw bean and seed sprouts
- Unpasteurized/untreated fruit or vegetable juice

Enteral Feeding, Nutritional Supplements
Another variable that can create potentially hazardous food safety conditions in LTC settings is the misuse of enteral formulas and supplemental shakes. Enteral formulas, for example, must be handled properly to avoid potential hazards, including:

- Dangers associated with pouring a new tube-feeding formula into the bedside administration set before emptying the previous product;
- Touch contamination (from unwashed hands) associated with both open and closed systems; and
- Dangers associated with prolonged hang times of products and administration sets.

HACCP Program for Food Safety
A formal program for promoting and maintaining food safety is essential to protecting residents and meeting regulatory requirements. A Hazard Analysis Critical Control Points (HACCP) program is an ideal, proactive approach to ensuring food safety (see sidebar, "The Seven HACCP Principles"). The good news for LTC facilities planning to implement an HACCP program is that they may be farther along in the process than they realize because many of its components are likely already in place.

HACCP program foundations. The overall goals of an HACCP program are twofold: to ensure the safety of food and nutrition products and to create a process for corrective action and continuous improvement. Before implementing an HACCP program, it is important to complete several foundational steps. Most likely, these foundations are already part of your facility's Standard Operating Procedures (SOPs) and Sanitation Standard Operating Procedures (SSOPs).

An important requirement of SOPs, SSOPs, and HACCP programs is having all procedures in writing-as required by state and federal regulatory agencies and by JCAHO)-and accurately documenting the execution of those procedures. This is the best way to ensure consistent training of employees regarding food-handling procedures and the only way to validate whether those procedures are working correctly. From a food safety standpoint, this includes areas such as:

- Food safety training for employees in all areas of food handling. At a minimum, one manager per shift should have certified HACCP training, and *all* employees should have basic training in proper food handling. This training, including competency assessment, should be documented.
- Vendor certification procedures for choosing foodservice suppliers and distributors, including written quality and safety specifications for food, to be verified at receiving. *(Note: Since canned enteral formulas are sterile from the manufacturer, a facility may opt to bypass this step for these products.)*
- Step-by-step instructions for receiving, storing, preparing (recipe cards), serving, and discarding foods safely (including enteral products). Quality-improvement and allergen-control procedures should also be established.
- Cleaning and sanitation procedures for food-prep and dining areas. These procedures need to be written, as well, and checklists and master cleaning schedules are recommended.
- A crisis management plan to address a suspected or confirmed foodborne illness outbreak. Included in this plan should be contact information for local health officials, pharmacists, nurses and dietitians; internal communications plans/training; and step-by-step practices to follow when a product is recalled by a national manufacturer.

The goal of these foundational steps is to exercise "reasonable care" in maintaining equipment, controlling the contamination of food, and controlling bacterial growth.

The Seven HACCP Principles*

1. Perform a Hazard Analysis. The first principle is about understanding the operation and determining what food safety hazards are likely to occur. The manager needs to understand how the people, equipment, methods, and foods all affect each other. The processes and procedures used to prepare the food are also considered. This usually involves defining the operational steps (receiving, storage, preparation, cooking, etc.) that occur as food enters and moves through the operation. Additionally, this step involves determining the control measures that can be used to eliminate, prevent, or reduce food safety hazards. Control measures include such activities as implementation of employee health policies to restrict or exclude ill employees and proper hand washing.

2. Decide on the Critical Control Points (CCPs). Once the control measures in principle #1 are determined, it is necessary to identify which of the control measures are *absolutely essential* to ensuring safe food. An operational step where control can be applied and is essential for ensuring that a food safety hazard is eliminated, prevented, or reduced to an acceptable level is a critical control point (CCP). When determining whether a certain step is a CCP, if there is a later step that will prevent, reduce, or eliminate a hazard to an acceptable level, then the former step is not a CCP. It is important to know that not all steps are CCPs. Generally, there are only a few CCPs in each food preparation process because CCPs involve only those steps that are absolutely essential to food safety.

3. Determine the Critical Limits. Each CCP must have boundaries that define safety. Critical limits are the parameters that must be achieved to control a food safety hazard. For example, when cooking pork chops, the *Food Code* sets the

critical limit at 145¦F for 15 seconds. When critical limits are not met, the food may not be safe. Critical limits are measurable and observable.

4. Establish Procedures to Monitor CCPs. Once CCPs and critical limits have been determined, someone needs to keep track of the CCPs as the food flows through the operation. Monitoring involves making direct observations or measurements to see that the CCPs are kept under control by adhering to the established critical limits.

5. Establish Corrective Actions. While monitoring CCPs, occasionally the process or procedure will fail to meet the established critical limits. This step establishes a plan for what happens when a critical limit has not been met at a CCP. The operator decides what the actions will be, communicates those actions to the employees, and trains them in making the right decisions. This preventive approach is the heart of HACCP. Problems will arise, but you need to find them and correct them before they cause illness or injury.

6. Establish Verification Procedures. This principle is about making sure that the system is scientifically sound to effectively control the hazards. In addition, this step ensures that the system is operating according to what is specified in the plan. Designated individuals like the manager periodically make observations of employees' monitoring activities, calibrate equipment and temperature measuring devices, review records/actions, and discuss procedures with the employees. All of these activities are for the purpose of ensuring that the HACCP plan is addressing the food safety concerns and, if not, checking to see if it needs to be modified or improved.

7. Establish a Record-Keeping System. There are certain written records or kinds of documentation that are needed in order to verify that the system is working. These records will normally involve the HACCP plan itself and any monitoring, corrective action, or calibration records produced in the operation of the HACCP system. Verification records may also be included. Records maintained in an HACCP system serve to document that an ongoing, effective system is in place. Record keeping should be as simple as possible in order to make it more likely that employees will have the time to keep the records.

Reprinted from the U.S. Food and Drug Administration's* Managing Food Safety: A Manual for the Voluntary Use of HACCP Principles for Operators of Food Service and Retail Establishments, *(which can be found at **www.cfsan.fda.gov/~dms/hret2toc.html).*

Implementing an HACCP program. Once the foundation is in place, it's easy for LTC facilities to implement HACCP. The first step should be organization of an HACCP team, which should start by preparing a 12-month strategic plan for HACCP implementation and should then meet regularly to track progress. As mentioned earlier, food safety is everyone's responsibility. Therefore, it's important to add monitoring food safety to employees' job descriptions and to the organization's mission statement.

The focus of the HACCP team should be preventing, eliminating, and/or reducing any significant food safety hazard identified at specific points within the food's flow through the operation, including purchasing, receiving, storing, preparing, cooking, holding, serving, cooling, reheating, assembly, and transport.

Keep in mind that it is better to have a simple HACCP system that everyone understands and can implement than a highly complex system that is confusing or difficult to implement properly. As guidance, LTC facilities should reference the FDA's *Managing Food Safety: A Manual for the Voluntary Use of HACCP Principles for Operators of Food Service and Retail Establishments*, which can be found at **www.cfsan.fda.gov/~dms/hret2toc.html**

The process approach to HACCP for LTC facilities is based on the seven HACCP principles mentioned earlier, but with additional elements specific to the procedural needs of LTC populations and operations, as follows:

- Establish prerequisite programs as discussed above. This includes all standard operating procedures with step-by-step instructions for preventing, eliminating, or reducing food safety hazards to safe levels. Examples could be employee training programs or instructions for receiving foods or cleaning and sanitizing food utensils and equipment.
- Group menu items by preparation process (see sidebar, "Foods Categorized by Preparation Process").
- Conduct hazard analysis for biologic (temperature abuse, cross-contamination), chemical (unsafe use of cleaners and pesticides), and physical (entry of foreign materials such as glass or hair) hazards within the operation.
- Implement observable/measurable critical limits and control measures (Critical Control Points [CCPs] and SOPs) for every step in the flow of food that is essential to ensuring the safety of that food.
- Establish CCP-monitoring procedures for frontline employees, delegating exactly who will do what and when, where, and how it will be done.
- Develop corrective actions to bring food under control, such as discarding food that is sitting out for more than four hours or cooking foods so that they reach a minimum required temperature.
- Conduct routine (daily, weekly) verification that procedures are being executed as designed-a process also known as "management by walking around." *(Tip: Periodically check logbooks and records for instances of "documentation abuse." For example, if the logbook for the temperature of a walk-in freezer is filled out in the same handwriting, with the exact same temperature listed every single shift, every single day, or if the "hot holding"*

temperature of a cooked lunch item is logged at 8 a.m., there's a good chance that somebody isn't documenting accurately.)

- Keep records as required by the regulatory agencies that evaluate the operation. These records will normally involve the HACCP plan and any monitoring, corrective action, or calibration records produced in the operation of an HACCP system.
- Conduct periodic validation. For example, if menu items change seasonally or if new food equipment and/or ingredients are being used, new processes need to be developed, implemented, and documented.

Tube feeding programs also require a process-based approach to HACCP. Here, the two biggest CCPs are touch contamination (from unwashed hands), which occurs when administration sets are being handled, and hang-time abuse. Open systems tend to be more problematic in both of these areas. And even though closed systems typically can sit at room temperature longer than open systems, it's best to follow the recommendations of your enteral formula supplier(s).

JCAHO Safe Food Standards
Some LTC facilities participate in the JCAHO Long-Term Care Accreditation Program. While JCAHO does not formally require that LTC facilities adopt an HACCP program, it does consider documentation of HACCP for food and documentation of enteral tube feeding as "Examples of Evidence of Performance" within certain standards, including:

- TX (Care of Patient Standards), in which an HACCP-based system is a recommended method to prevent, eliminate, or reduce the likelihood of serving contaminated food to a patient;
- PE (Assessment of Patients), in which clinicians use HACCP criteria to assess at-risk individuals for special nutritional care needs;
- PF (Education of Patients), including education on nutrition interventions for selecting and preparing foods;
- IC (Surveillance, Prevention, and Control of Infection), which includes planning standards to prevent or reduce facility-acquired infections (such as a foodborne illness);
- CC (Continuum of Care), in which it is necessary to inform care providers of important clinical concerns and care strategies.

Some of the key food safety issues addressed by JCAHO include:

- Identifying patients at high nutritional risk and those with special diet needs;
- Providing for safe and accurate preparation, storage, distribution, and administration of food and nutrition products; and
- Storing, handling, and controlling food or nutrition products obtained from outside sources.

Conclusions
Managers of LTC facilities and managers of their foodservice operations must educate all personnel and residents about the high risk of foodborne illness. Providing lower-risk menu choices; posting consumer/resident advisories; training all food-handling employees in prevention of time/temperature abuse, cross-contamination, and poor hygiene practices; and monitoring CCPs are essential to ensuring the highest possible level of food safety for your residents.

Don't wait until the regulatory inspector shows up at your front door to find out whether you're doing everything correctly; independent auditors can evaluate your HACCP and food safety training programs and can offer assistance in developing such programs.

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Reference
1. Centers for Disease Control and Prevention. Diagnosis and management of foodborne illnesses: A primer for physicians. MMWR 2001;50(RR-2):1-67. Available at www.cdc.gov/mmwr/pdf/rr/rr5002.pdf. Accessed July 29, 2005.

Foods Categorized by Preparation Process

It is suggested to group menu items into one of three categories, depending on how many times the food "travels" through the temperature danger zone of 41¦F to 135¦F:

1. Ready-to-eat food that is prepared cold and served without a cook step. Examples: cold sandwiches, salads, and canned and powdered enteral products. Here, potential food safety hazards include the personal hygiene of food handlers; temperature abuse during food prep, holding, and service; and cross-contamination with hazardous foods or other materials such as dirty utensils/equipment.

2. Food that is prepared, cooked, and served the same day. Examples: chicken, meatloaf, and cooked vegetables.

Here, in addition to the potential food safety hazards found with ready-to-eat foods, it is important to eliminate hazards associated with temperature abuse (improper thawing, inadequate cooking, and improper holding), cross-contamination (including service utensils), and personal hygiene (bare hand contact).

3. Food that is prepared in advance and then goes through subsequent cooling and/or reheating steps. Examples: soups, stews, made-from-scratch pureed foods, and chicken salad. The food hazards for these complex preparations are similar to those listed above, with the addition of hazards relating to improper cooling and/or reheating as food goes through the temperature danger zone.

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