

# **Analysis of typical hazards, Study of correction and corrective action**

# Hazard Analysis of Critical Control Points Principles

- Hazard Analysis Critical Control Points (HACCP) is a system which provides the framework for monitoring the total food system, from harvesting to consumption, to reduce the risk of foodborne illness.
- The system is designed to identify and control potential problems before they occur.
- In its Model Food Code, the Food and Drug Administration has recommended the HACCP system “because it is a system of preventive controls that is the most effective and efficient way to assure that food products are safe ” (1999 FDA Model Food Code).
- The application of HACCP is based on technical and scientific principles that assure safe food.

- HACCP consists of seven steps used to monitor food as it flows through the establishment, whether it be a food processing plant or foodservice operation.
- The seven steps of the HACCP system address the analysis and control of biological, chemical and physical hazards.

# HACCP

- Critical Control Point (CCP) – A procedure/practice (control) in food handling/preparation that will reduce, eliminate or prevent hazards. It is a “kill” step that kills microorganisms or a control step that prevents or slows their growth.
- Hazard – Unacceptable contamination, microbial growth, persistence of toxins or survival of microorganisms that are of a concern to food safety.
- Monitoring – Checking to determine if the criteria established by the critical control point(s) (CCP) have been achieved.
- Risk – Probability that a condition(s) will lead to a hazard.
- Severity – Seriousness of the consequences of the results of a hazard.

# HACCP Principles

- Practical HACCP principles adapt the seven HACCP steps into a form that is easily applied in a non commercial setting. The seven steps deal with the issues of thorough cooking and cooling which are the major causes of foodborne illness.
- In order for this simplified, focused application of HACCP principles to be effective in reducing the risk of foodborne illness, [Standard Operating Procedures](#) (SOP's) of personal hygiene, basic sanitation and food storage must be developed.
- The SOP's should be developed, taking into consideration the types of foods that will be prepared, the number of students involved in the food preparation activity and the type of equipment to be used.

# HACCP Seven Steps

## 1. Conduct a hazardous analysis:

The purpose of a hazardous analysis is to develop a list of hazards which are likely to cause injury or illness if they are not controlled.

Points to be remembered in this analysis can include:

- skill level of employees; transport of food; serving elderly, sick, very young children, immune-compromised; volume cooling; thawing of potentially hazardous foods; high degree of food handling and contact; adequacy of preparation and holding equipment available; storage, and method of preparation.

- The next step is to determine if the factors may influence the likely occurrence and severity of the hazard being controlled.
- Finally, the hazards associated with each step in the flow of food should be listed along with the measures necessary to control the hazard.

# 2. Determine Critical Control Points (CCP's)

- A critical control point is any step in which hazards can be prevented, eliminated or reduced to acceptable levels. CCP's are usually practices or procedures which, when not done correctly, are the leading causes of food-borne illness outbreaks.
- Examples of critical control points include: cooking, cooling, re-heating, holding.
- To determine CCP's ask the following questions:
- At this step in preparation can food become contaminated and/or can contamination increase
- Can this hazard be prevented through corrective action(s)
- Can this hazard be prevented, eliminated or reduced by steps taken later in the preparation process
- Can you monitor the CCP
- How will you measure the CCP
- Can you document the CCP



# 3. Establish Critical Limits

- A critical limit ensures that a biological, chemical or physical hazard is controlled by a CCP.
- Each CCP should have at least one critical limit. Critical limits must be something that can be monitored by measurement or observation.
- They must be scientifically and/or regulatory based. Examples include: temperature, time, pH, water activity or available chlorine.

# 4. Establish Monitoring Procedures

- Monitoring is a plan which includes observations or measurements to assess whether the CCP is being met.
- It provides a record of the “flow of food” through the establishment.
- If monitoring indicates that the critical limits are not being met, then an action must be taken to bring the process back into control.
- The monitoring system should be easy to use and meet the needs of the food establishment, as well as the regulatory authority.
- It is important that the job of monitoring be assigned to a specific individual and they be trained on the monitoring technique.

# 5. Establish Corrective Actions

- If the criteria for a CCP is not being met, some type of corrective action must be taken.
- They must meet the standards established in Step 3, must be based on facts for normal working conditions and be measurable. Corrective actions may range, for example, from “continue cooking until the established temperature is reached” to “throw out the product,” depending on the severity of the situation.
- HACCP plans should include the following: who is responsible for implementing the corrective action and what corrective action was taken.
- They should be established in advance as part of the HACCP plan.

# 6. Establish verification procedures

These procedures are activities, other than monitoring, that determine the validity of the HACCP plan and that the system is operating according to the plan.

An important aspect of verification is to determine if the plan is scientifically and technically sound.

Also, that all the hazards have been identified and that, if the HACCP plan is properly implemented, these hazards can be effectively controlled.

Verification can be accomplished by expert advice and scientific studies and observations of the flow of food, measurements and evaluations.

Another means of verification is an on site review of the established critical limits. Each CCP will have one independent authority. This verification step provides an opportunity to make modifications to the plan if necessary.

# **7. Establish record-keeping and documentation procedures**

Record-keeping and documentation procedures should be simple to complete and include information that illustrates that the established standards are being met.

Employees need to be trained on the record-keeping procedures and why it is a critical part of their job.

Examples of records include time/temperature logs, checklists, forms, flowcharts, employee training records, and SOP's.

# Practical HACCP Seven Steps

- 1. Review menu and highlight potentially hazardous foods
- 2. Review recipes that include potentially hazardous foods and highlight problem ingredients.
- 3. Include critical temperatures and times in the recipes/procedures.
- Use critical temperatures established by USDA for consumer use.

- **4. Check food temperatures during preparation, holding, cooking and cooling.**
- Food temperatures should be checked using a bi-metallic food thermometer. Remember, when cooling food, time is critical. The food needs to be cooled to 40° F in no more than two hours.
- **5. Correct if required temperatures are not being met.**
- Specific steps to be taken should be previously established and could be included in SOP's. For example, when roasting a chicken, if at the end of the prescribed cooking time, if the temperature has not reached 180°F, the correction is to continue cooking until that temperature is reached. However, in some cases, the “correction” may involve throwing the food item away because throughout the preparation process, the food may have been mishandled.

- **6. Verify that the previous steps are being followed.**
- Review plan
- Review deviations and corrections
- Visual inspection
- **7. Record time and temperatures.**  
A system for recording temperatures should be developed. This system can be in the form of a notebook or charts that includes the intervals at which the temperatures should be taken and recorded.