



Understanding the Root Cause of an Outbreak

E. Coli
Answer Key

Identifying contributing
factors and environmental antecedents



Integrated Food Safety
Centers of Excellence



Exercise 1: Answer Key

What practices would investigators want to observe?

- Preparation and handling of implicated food
- Cook temperatures of foods
- Hand hygiene practices
- Cross-contamination potential

What records would investigators want to review?

- Employee illness logs
- Credit card receipts
- Cooking temperature logs
- Invoices for products
- Cleaning and sanitizing schedules

What might be some questions investigators would ask manager and/or food worker?

- Illness history (customers and employees)
- Cleaning and sanitization practices
- Information to understand food flow for implicated food item
- Employee health policies
- Employee food safety knowledge
- Unusual circumstances (loss of power, sewage back-up, equipment failure)

Exercise 2A: Answer Key

Follow-up Questions:

- Why are separate grinders not used for the raw meat and garbanzo beans?

A: The establishment only owns 1 grinder. There have not been any time constraints by using the grinder for all the necessary recipes.

- How often are all the grinder parts cleaned and sanitized?

A: All the grinder parts have not been cleaned and sanitized yet since they are only doing small soft openings. A quick cleaning process is employed between grinding different types of food and when it is put away.

- Are gloves worn when working with the raw meat?

A: Employees state that there is not a consistent supply of gloves, so they are worn if they are available.

- Can you walk through the food flow of the raw meat and falafel dishes?

A: The grinder is used for the raw meat, then immediately for the falafel since the grinder is large and needs to be stored to allow for prep space. The grinder is wiped down of visible debris between the raw meat and falafel. The raw meat is then cooked on the stove while the falafel is cooked in the fryer.

- Do employees eat restaurant food while at work?

A: Employees always sample the food at work because the restaurant is piloting many food items for their final menu.

- Are employees familiar with how to cook and prepare food items?

A: No. Some employees were friends of the owner while more permanent staff was being secured.

- What is your employee illness policy?

A: Employees must stay home if they feel symptomatic with vomiting, diarrhea, fever, or flu-like symptoms. However, the manager has been strict about employees coming to work since everyone is new to the restaurant's operation.

Exercise 2B: Answer Key

Contributing Factors:

C8 - Cross-contamination of foods (does not include ill food workers): The pathogen was transferred to the food source from contaminated surfaces, foods, and/or fomites to include, but not limited to, food worker's hands, cutting boards, preparation tables, utensils, processing lines, etc.

Note: Pathogen transferred to the vehicle by contact with contaminated worker hands, equipment, or utensils or by drippage or spillage. If worker hands were the mode of contamination, the worker was not infected with or a carrier of the pathogen.

S1 - Inadequate time and temperature control during initial cooking/thermal processing of food: The time and temperature during initial cooking/thermal processing (e.g., pasteurizing, blanching, drying, dry roasting, frying, infrared, microwave, oil roasting, steaming) was inadequate to kill or reduce the pathogen population to below an infectious dose.

Environmental Antecedents:

People: Lack of employee training on specific processes: Employees weren't taking final cook temperatures of falafel and were using the same grinder for falafel mix and raw meat. This was a new restaurant; employees were likely untrained and unfamiliar with the prep of menu items.

People: Lack of oversight of employees: Management did not have oversight on the falafel preparation process. Management was likely more focused on the business practices of opening a new restaurant and not as focused on oversight of employees.

Process: Insufficient process to mitigate the hazard: Falafel needed to be cooked to higher temperatures due to shared blender, process was insufficient to eliminate *E.coli*.



Exercise 3: Answer Key

Corrective Actions:

Short-term

- Purchase a second grinder
- Change process to cook falafel to temperature to control bacterial hazards
- Train staff to clean and sanitize equipment
- Employee illness screenings before work shifts
- On-the-job training, focusing on main risks in the establishment

Long-term

- Provide written policies for cleaning and sanitizing equipment, including when switching between raw and ready-to-eat products
- Conduct new employee orientation, which covers illness policy and other food safety practices
- Create recipes for falafel, which includes specifics on which grinder to use



Contributing Factor Video



Environmental
Antecedent Resources