Food Safety: Roger Asquith

Background:
Tully's is the main center of Campus Dining on Penn State Berks. Tully's consists of two types of workers professional chefs/servers and students. This can cause issues with serving food because sometimes students are not properly trained when serving food. Since it's the main center of Campus Dining there is a whole process when it relates to serving food. The food arrives from a food distribution company and then gets loaded up by the workers. After that, it gets stored in its proper containers and is prepared by the chiefs. Afterward, the food is then cooked and served to students and faculty. It's very important to make sure that nothing wrong happens within this process because the risk of food poisoning can cause major issues for Tullys. It can lead to a food poisoning outbreak with differing results and at worst a shutdown.

Risk Identification:

The Risk of Food Safety is broken into six parts. Foodborne illnesses, Cross-contamination, Loss of Revenue, Risk of Shutdown, Allergen management, Temperature control issues. The reason why they are picked is because they all relate to each other in some way. Improper handling of food can cause cross-contamination which can lead to food poisoning/illness such as E. coli, Salmonella, Norovirus, and Clostridium perfringens. The inability to properly control the temperature of your food can cause bacteria to grow on the food which can lead to Foodborne illnesses. If an outbreak happens because of cross-contamination or improper temperature control then there's a chance of revenue loss and a shutdown happening. Poor Allergen management can cause illness or death depending on the severity of the allergy or food.

Here is the risk matrix I used to determine the level of risk for each topic. The likelihood of the risk I analyzed is based on Robby's experiences working at Tully's and the experiences of other students who dine at Tully's. The severity is based on real-life examples/effects of restaurants failing to properly mitigate their food safety risk.

Likelihood	Negligible	Minor	Moderate	Major	Disastrous
5	5	10	15	20	25
4	4	8	12	16	20
3	3	6	9	12	15
2	2	4	6	8	10
1	1	2	3	4	5
Severity	1	2	3	4	5

Foodborne illnesses (Likelihood (3) x Severity (3) = 9):

The likelihood of a foodborne illness is a three because of it has happened before at Tully's. One time they served duck and it caused food poisoning. So far we only know two students who were affected by it but it could be more that we don't know about. The severity is 3 because of the effects of food poisoning. The symptoms are fever, nausea/vomiting, dehydration, cramps, upset stomach, and diarrhea.

Cross-contamination (Likelihood (4) x Severity (2) = 8) :

The Likelihood of Cross-contamination is a four because of the type of contamination that happens at Tully's. Based on Robby's experience cross-contamination only happens when workers use non-meat items with the meat fryer. So the vegetables, fries, beans, etc are fried with the meat fryer which can cause issues with people who have certain dietary restrictions such as vegetarianism, pescatarian, and veganism. The reason why the severity is a 2 and not a few numbers higher is because of the meat fryer. They do not result in death or illnesses so it's low.

Loss of Revenue and Risk of Shutdown (Likelihood (1) x Severity (5) = 5):

Normally this should be higher but based on how I rated the risk it's very low. The likelihood of both sections is one because there are no reports of Tullys losing money or shutting down because of a foodborne illness outbreak. The severity is a 5 because the average cost of a dining restaurant shutting down because of an outbreak ranges from $8030 to 2.2 million dollars per year. The loss of revenue is also the same but the money loss is based on alot of factors such as lawsuits, time shutdown, legal fees, fines, etc.

Allergen Management: (Likelihood (2) x Severity (4) = 8):

The reason why the likelihood is a 2 is because of the precautions Tullys has to prevent allergic reactions. There is an online menu and posters at Tully's that indicate if the food item can cause allergies or for people with certain restrictions. Such as meatless, vegan, pork, gluten-friendly, and halal-friendly. The Severity is a 4 because of the effects of an allergic reaction. A bad reaction can lead to hives, vomiting, wheezing, lightheadedness, low blood pressure, and even death.

Temperature control issues: (Likelihood (2) x Severity (1) = 2):

The reason why the likelihood is a 2 with temperature control is because Tullys does a good job of making sure that the food is kept at its right temperature when cooked and kept out. The only issue they have with food is the small kiosk they have with the fries and chicken tenders they serve. There is a tendency for them to be cold when they are left out for too long. It is not properly kept at a warm/hot temperature. The severity is a 1 based on the likelihood. It would be higher because poor temperature control can lead to bacteria growing on the food which can cause food poisoning.

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5	5	10	15	20	25
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Risk Mitigation:

The most critical part of risk mitigation when it relates to food safety is the process of storing, preparing, cooking, and serving food. Since we are talking about Tullys and their food preparation we are not going to include the delivery aspect of mitigation. I have decided to break mitigation into four sections. The first one is the steps to avoid food poisoning, the implantation of the safe quality food code, procedures, and the items used to mitigate the risk of foodborne illnesses.

When serving food to people the preparation of what you are cooking is very important. It will determine if the food you give out is up to code or not. So the first mitigation tactic I propose is the four-step method to preventing food poisoning. I brought this up mostly for students who are new to working in a restaurant or equivalent. A dining hall or restaurant needs to teach their new workers how to properly clean, separate, cook, and chill the food they serve to customers.

4 Steps to Prevent Food Poisoning

- Clean
  - Wash your hands.
  - Wash the utensils, cutting boards, and countertops you are using while cooking your food.
- Separate
  - Separate the food you are going to cook. Do not keep raw meat, poultry,

seafood, and eggs near your ready-to-eat foods in the refrigerator.
    - Use different cutting boards for the food you are going to food.
- Cook
    - Cook food at the right temperature.
    - 145 degrees for Beef, pork, and lamb.
    - 160 for ground meet.
    - 165 for all poultry.
- Chill
    - Make sure you refrigerate your food a 40 degrees or lower. For a freezer make sure it's 0 degrees or lower.
    - Package food in the right containers for storage.

Items used for Mitigation:

Tullys has 5 sinks, 40 Food Thermostats, 6 Freezers, several containers of gloves and disinfectant spray. This fact played a part in my reevaluation of scores after implementing the mitigation techniques.

Safe Quality Food Code:

The third mitigation technique I brought up is the Safe Quality Food Code. The SQF is a food safety standard that is established by the GFSI(Global Food Safety Initiative). It is used to manage food safety systems and help companies demonstrate compliance with global standards. The reason why I picked this for a mitigation technique is because of how it helps create protocols for an outbreak and prevent food poisoning.

Follow the Safe Quality Food Code

- Identifying potential hazards
    - Identify potential hazards that can cause food poisoning.
    - Then create strategies to prevent it.
- Implementing preventative controls
    - Implement preventive controls such as food defense planning and allergen controls.
- Ensuring traceability
    - Create traceable systems (temperature book, logging system, etc) for the

food you cook or distribute so it's easier to identify the source of the outbreak if it happens.

- Improving food safety culture and communication
    - Create an open environment of communication for all levels of the organization. Which includes the management, employees, suppliers, and customers.

Tullys Methods:

Tullys does have a few procedures in place when dealing with food in general and foods that can cause an allergic reaction. I learned about these after talking to Robby about Allergen management. I thought it was very important to put this down in my mitigation section because it highlights how important food safety is for Tullys. It also plays a part in my evaluations of the risk analysis after implementing the mitigation techniques.

1. Workers at Tully's have to wash their hands after dealing with any food that can cause an allergic reaction or gluten intolerance. (food in general)
2. Gloves must be changed when dealing with different food options when you're not serving.
3. If the food can cause an allergic reaction then the worker can only serve that item and nothing more unless they wash their hands and switch their gloves.

After Mitigation:

Allergen Management goes down from 8 to 4 because of the mitigation techniques Tullys uses to make sure that someone doesn't have an allergic reaction. There are also signs at Tullys that indicate what food items can cause allergies and there are indicators on the online menu that can help you if you have any dietary or allergy restrictions.

Foodborne illnesses goes down from 9 to 6 because of the following mitigation techniques such as the four steps to prevent food poisoning stated before and contact tracing if an outbreak happens based on the safe quality food code.

Cross-contamination goes down from an 8 to 6 because of the mitigation techniques stated before such as using different utensils when handling different foods, washing those utensils thoroughly, and using gloves with different items.

Loss of Revenue and Risk of Shutdown does not change because there are no reports of it happening to Tullys. The likelihood cannot go any lower than a 1.

Temperature control Issues goes down to a 1 because of the use of food thermostats and freezers. If food is kept at the right temperature in storage then the risk of batriateria growing on the food decreases. If they continue to use their food thermostats appropriately than can make sure that the food they serve is at the right temperature which will reduce the risk of food poisoning.

Conclusion/Thoughts

In conclusion, the implementation of our mitigations for food safety has brought down the risk of Allergen management and Temperature control by 50%, Cross contamination by 25%, and Foodborne Illnesses by 33%. Loss of Revenue and Risk of Shutdown sadly do not change based on the fact that Tullys hasn't shut down because of a foodborne illness. With the new addition of the Safe Quality Food Code, there will be added protection for the establishment if there is ever an outbreak or contamination of a food item. Tullys will avoid the risk of shutdown and continue to be the main place for students to enjoy campus dining.