

**Securing Safe Food During an Emergency:
The Case of Hurricane Michael in the Florida Panhandle**

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Background & Educational Story

Definition of terms and problem under study:

Disasters are defined as a serious disruption in the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources (11, 13). Emergencies can occur at any moment as an isolated event, in consecutiveness, or even in simultaneous combination (10). The damage occasioned by a disaster may depend on the severity and duration of the disaster, and its effects can be magnified if multiple disasters hit the same place. Specific negative effects of a disaster include property damage, loss of basic services, and effects on the physical, mental and social well-being of the population such as life losses, injuries, diseases and worsening of preexisting conditions (13).

When a disaster strikes, people often suffer from a sudden shortage of various resources, including food. Disasters such as Hurricane Michael in 2018 or the current COVID-19 pandemic have left several families facing hunger. The Food and Agriculture Organization (FAO) of the United Nations has defined food security as follows: *“Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life”* (10).

When discussing food insecurity, most people believe it only occurs in developing countries; however, in 2020 about 10.5% of households in the United States faced food insecurity. This means over 38 million people, including 13 million children, experienced a lack of consistent food access to live a healthy life (7, 8, 9). Many circumstances can lead to food insecurity, whether it is a temporary situation or over a longer period of time. Some of the most common causes include poverty, unemployment/under-employment, and emergency situations. For example, the ongoing COVID-19 pandemic has pushed many people to look for food pantries for the first time in their lives due to being laid off from their jobs or other unforeseen financial or economic burdens.

The occurrence of environmental-related disasters poses a serious challenge to agricultural production and food security. Food safety can also be affected; basic conditions needed to ensure safe handling of food may be scarce in the aftermath of a disaster. When an environmental or social disaster occurs, community organizations and institutions, such as schools and churches, mobilize in order to distribute food to the people in need (6). Different methods of distribution are employed by these organizations, such as providing non-perishable food boxes, feeding hot meals, and door-to-door operations (6). However, trying to safely feed a massive amount of people in conditions where clean water is not available and widespread power or communication outages are common creates a big challenge. Therefore, this case study focuses on the impact of Hurricane Michael, which hit the Florida Panhandle, to illustrate the effect of disasters on food safety and security.

Hurricane Michael impact in the Florida Panhandle:

On October 10th, 2018, Hurricane Michael made landfall near Tyndall Air Force Base in the Florida Panhandle as a category 5 hurricane. With sustained wind of 160 mph and wind gust over 200 mph, Michael caused devastating structural and agricultural damage (1, 2, 4). This hurricane is the third most intense Atlantic hurricane to make landfall in the United States (3). The National Centers for Environmental Information estimate the total damage from Michael in the US at approximately \$25 billion, of this total amount, about \$18.4 billion occurred in Florida (4).

Hurricane Michael's wind, storm surge, and rain directly caused the death of 16 people, seven of them in Florida, and the remaining in Virginia, North Carolina, and Georgia. This hurricane is also responsible for the indirect death of at least 43 people in Florida due to post-storm cleaning, traffic accidents, and medical issues intensified by the hurricane (4). Recovery and support activities that follow an event of this magnitude continue for several years due to the extent of the disaster. In the case of Panama City, the recovery process is still ongoing even three years after the hurricane made landfall.

Management/Leadership Considerations

In the aftermath of Hurricane Michael, volunteer organizations secured food provisions for people affected by the hurricane. The testimonials of people affected by the disaster will help us have a more wholesome view of the event and the different challenges they faced while they tried to help others. This case study provides a platform to address different decision-making styles in the aftermath of a natural disaster. A leadership frame approach can be used to analyze each of the testimonies by implementing Bolman and Deal's four leadership frames briefly described below (5).

- **The structural frame** focuses on the organizational structure, including the roles and responsibilities of individuals in the organization.
- **The political frame** focuses on the relationships within and outside the organization. It includes different networks, power dynamics, and distribution of resources between the organization and other local, regional, and national stakeholders.
- **The human resources frame** focuses on the individuals in the organization and their capabilities (knowledge and skills).
- **The symbolic frame** focuses on the culture, values, and symbols of the organization.

By giving us a context, testimonies show the social side of a situation and how people are impacted, providing a better understanding of the situation outside of the scientific lens of our main area of study in this case Food Safety. Two different testimonies where decisions had to be made in the aftermath of Hurricane Michael are presented below.

First testimony: Yacht Club Restaurant/ Helping the community.

Few days after Hurricane Michael hit the Florida panhandle, a yacht club located in Panama City had a surplus of food in their restaurant freezer. The person in charge of the restaurant decided

to help the community by giving this food to people in need and volunteers who came to help restore the community. Some of the food was given to staff and club members who were affected by the storm. Part of the remaining food was provided as part of a buffet set up outside the club, destined to feed people in the community

- *Structural Frame:* The restaurant personnel accustomed to work in a specific space with all the commodities required to prepare safe food had to adjust during the hurricane aftermath. During this emergency, water and power outages occurred, and the people in charge of preparing the food had to adapt to this. The chef in charge of the kitchen, decided to use an outside grill for cooking, also, bottled water was used for preparation and sanitation. For the structural frame, consider how the organizational structure of the restaurant had to change in order to be able to secure safe food for the community, taking into account the chef continued working with his trained kitchen staff.
- *Political Frame:* As the restaurant was located in a yacht club, donations from a network of clubs in the country allowed the organization to help with the aftermath of Hurricane Michael. Donations of food and water, as well as funds to pay employees' salaries, were fundamental to provide service to the community.
- *Human Resource Frame:* Due to the received donations, many of the restaurant staff was able to continue working, which ensured the meals were prepared by people that had been previously trained in food handling and preparation.
- *Symbolic Frame:* This restaurant forms part of a yacht club, which may be seen as a luxury for many people. The mission of the yacht club is to promote and provide support for the sport of sailing, power boating, water safety, and related activities; as well as to provide facilities for its members to share common interests in a social atmosphere of mutual camaraderie, both on and off the water. In the aftermath of Hurricane Michael, the club decided to go beyond its mission in order to help people in the community, including members and non-members of the club.

Second testimony: Trinity Lutheran Church Food Pantry / Food impacts resulting from the hurricane.

The Trinity Lutheran Church Food Pantry is a small food pantry located within the Trinity Lutheran Church in Panama City. This food pantry provides around 250 bags of food to people in need. Each of these bags contains enough food to prepare eight to ten meals. In order to help the community, which is still affected by the aftermath of the hurricane, the food pantry has been working with Feeding the Gulf Coast, a branch of Feeding America, the nation's leading domestic hunger-relief charity for the past two years (12). A few challenges come with running a food pantry. Some of these include how to train volunteers and new workers, how to keep perishable food frozen, specifically meat, and new challenges that came with COVID-19.

In the aftermath of Hurricane Michael, members of the church ministry and other volunteers helped in the food pantry by providing non-perishable food as well as personal hygiene items to people in need, currently the food pantry supplies food items only.

- *Structural Frame:* As part of a church, the food pantry has access to facilities that reunite people; however, the available space is limited because it is shared between multiple activities within the church. In the aftermath of a disaster, thousands of pounds of food and other essentials are donated for disaster relief. This requires large spaces for storage. Mrs. Sarah Risalvato, the coordinator of the Trinity Lutheran Church Food Pantry, adapted her volunteer work with the food pantry to coordinate a full-time operation in the aftermath of Hurricane Michael. She mentioned, “After a few months where the food pantry was functioning as a supermarket where people entered and took whatever they needed, a transition to only give food was made”. After this period, she also had to redesign the way the food pantry works, to adapt to the new challenges resulting from the COVID-19 pandemic, doing a transition from face-to-face delivery to drive through delivery of the food.
- *Political Frame:* The food pantry works together with Feeding the Gulf Coast, a branch of Feeding America. Feeding the Gulf Coast is a food bank that stores and distributes food to different food pantries that then distribute to people in need. While deciding who to partner with, Mrs. Risalvato had to choose an organization that worked well with the food pantry infrastructure, as other institutions required them to have refrigeration and freezing storage that were not feasible to have. Feeding the Gulf Coast makes weekly deliveries to the food pantry, and the volunteers prepare and distribute the food on that same day. This allows the food pantry to distribute food without a big space for storage.
- *Human Resource Frame:* The food pantry works with volunteers that come to help every week, which means the people distributing the food are not always the same. Mrs. Risalvato gives a quick training to the volunteers; however, they do not receive specific training on food safety. Due to different circumstances, specific knowledge important for food safety has reached Mrs. Risalvato, and she transmits that knowledge to volunteers under her supervision. One of the examples Mrs. Risalvato mentioned is to provide food products in the original package in order to minimize food handling. When possible, training from different university extension services was mentioned, Mrs. Risalvato showed great interest, as this would help her train future volunteers.
- *Symbolic Frame:* A church or temple on its own, regardless of the religion, is a symbol of help or where people tend to go in a moment of need. In the aftermath of a disaster, people tend to come together to help each other. Mrs. Risalvato mentioned how a simple action or even the wording used when asking a question can make a great difference when assisting people in need. The term “homeless” is not usually used in this food pantry. When trying to decide what type of food a person will probably need, volunteers will ask the person if he/she has the means to cook. In a case where the person is not able to cook, “ready to roll” bags are provided to this person.

The Problem

In the aftermath of a disaster, such as Hurricane Michael, the sudden scarcity of food can result in extended hunger in the affected population. In these cases, volunteers are often a major asset in the response efforts; however, these volunteers are not necessarily trained in safe food handling. This, coupled with the often-limited access to basic conditions such as clean water and power supply, can create a dilemma. Making it a priority to provide food to the affected people may mean safe cooking practices are not fully implemented. Think through the following questions:

Content

- Describe the difference between food security and food safety. How are the concepts related?
- Describe the difference between Food Bank, Food Pantry, and Soup Kitchen. What are the food safety-related requirements for each?
- Does the magnitude of a hurricane relate to the risk associated with food and water safety available during a disaster?
- What is the risk of food-borne illnesses associated with the aftermath of a natural disaster (hurricane, earthquake, flood, etc.)?
- How can the risk associated with food and water safety be reduced during an emergency?
- How long after a natural emergency (e.g., hurricane, earthquake, flood, etc.) can food security be affected? Consider the different stages of the food production chain (production, harvesting, storage, preparation, and consumption).
- Along the different stages of the food production chain, where and how can you apply the food safety concepts studied in class.
- How a campaign focused on safe food practices at home may impact the approach of people handling food during an emergency.
- What factors would you take into consideration at a food shelter to ensure food safety during an emergency?

Leadership Frame(s)

- How does the symbolic frame associated with a church or school make it a likely candidate to provide food, clothes and/or other resources to the community?
- Relate the following questions to the first testimony:
 - What are the training needs for individuals who will be engaged in food preparation after a hurricane?
 - Are these training needs different or the same as before the hurricane?
 - How do you think the staff responsibilities changed in the aftermath of the hurricane?
 - Are there specific rules or regulations for preparing food in an emergency situation? Who supervises these situations?

- What would be an effective way to communicate the availability of food to the community?
 - Considering the donated resources, how do you think the donations were divided up? Do you think all employees got all their payment?
 - What was the employee's motivation to continue working in the aftermath of the disaster?
 - Who should be responsible to ensure a safe food supply to the affected population?
 - What is the best way a leader or organization can communicate food safety importance to the community?
- What would be an effective way to communicate the availability of food to the community?
 - What knowledge and skills do the individuals in charge of food preparation need to have to make an immediate impact on the food safety response of an emergency?
 - How do different organizations sharing a space impact the structure and communication needed to ensure food safety during an emergency response?

Integrated

- What would be an effective way to include food security and food safety in a disaster preparedness plan?
- How can community leaders promote a food safety culture that allows them to be prepared in case of an emergency?
- Discuss what resources are available in case of an emergency at the University. What would be an effective way to give this information to the community?
- Create an informative Food Safety Emergency Preparedness Plan/Guide/Brochure that can be shared with the community before an emergency.

Summative Assessment

The class will be divided into groups and each group will be assigned one of four food safety-related areas (education, training, safe cooking, and inspection). The groups will be tasked with outlining a plan for their area to include a food security plan (including food safety). Each area should at least address the following issues, proposing alternatives when possible:

1. Proposed procedures.
2. Organization of work and preparation of a food safety plan (structural frame)
 - a. The team
 - b. Obtaining information to make decisions
 - i. What type of information to use?
 - ii. Identify non-reliable sources of information.
 - iii. Methods for conducting their corresponding tasks.
 - iv. Approaching key collaborators and convincing them of the benefits
 - v. Their target audience

3. Human resources frame
 - a. Resources needed
 - i. Human and financial
 - ii. Training
 - iii. Drills
4. Try to add some comments on group awareness
5. Possible challenges
6. Technical information about possible risks and specific hazards associated with this type of operations and resources needed to keep an adequate food hygiene surveillance.
7. Procedures for evaluating activities that prevent food and waterborne diseases on public health, economy, and disaster recovery.

Examples of content:

- Education
 - Media campaigns
 - Incorporation of food safety in school programs
 - Collaborating with retailers
- Training
 - Training programs for volunteers in food safety and hygiene while preparing and serving food.
- Safe cooking
 - Minimal requirements for setting an emergency food serving vehicle or booth to prevent possible foodborne diseases.
- Inspection
 - Need for inspection and inspection personnel.
 - Need for surveillance of foodborne diseases to provide a prompt and adequate response to a food safety incident and prevent dissemination.

After reviewing such information, students will evaluate alternatives and propose the best option.

The case study reports will be evaluated by:

- Quality of the background information included
- How leadership frames are addressed
- Target audience
- Academic quality of the manuscript

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