

Disaster Planning and Management, 2008

Association of Nutrition and Foodservice Professionals (formerly Dietary Managers Association)

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Are you ready for a disaster in your foodservice operation? A disaster or crisis occurs usually with little or no warning. Often the ability to think rapidly and decisively is diminished. Foodservice operators need a well thought out plan based on a proactive, risk-based management approach. The overall goals should focus on personal safety, reducing response time to the event, quickly establishing control over operations, minimizing the loss of revenue, and minimizing the impact on daily operations. This master track booklet focuses on using hazard vulnerability analysis, building a disaster plan, forming an emergency readiness team, and creating standard operating procedures. Included are sample menus, procedures, and checklists.



Master Track Booklet: Disaster Planning and Management

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1. Introduction: Defining a Disaster

A crisis has been defined by Dr. Vincent Covello, founder and Director of the Center for Risk Communication, as “an unplanned event that triggers a real, perceived, or possible threat to safety, health, or environment, or to the organizations reputation or credibility.”¹ A disaster or crisis occurs usually with little or no warning. Often the ability to think rapidly and decisively is diminished in times of crisis, disaster and adversity. It is unacceptable and negligent to an organization’s clients to wait for an emergency to occur before beginning to plan an appropriate response. In a crisis, foodservice operators need a well thought out plan based on a proactive, risk-based management approach. The overall goals should focus on personal safety, reducing response time to the event, quickly establishing control over operations, minimizing the loss of revenue, and minimizing the impact on daily operations. This master track booklet will focus on the use of hazard analysis and operational risk management procedures and controls for identifying plausible crisis situations and responding appropriately within the foodservice operation.

Master Track Booklet Objectives:

- Perform a hazard vulnerability analysis for the foodservice operation
- Identify members of an Emergency Readiness Team and the components of a disaster plan
- Develop standard operating procedures for interruption of foodservice operations
- Train for and evaluate the effectiveness of a disaster plan

1.1 The Purpose of a Plan

On the outskirts of “Tornado Alley”, where the highest percentages of violent tornadoes occur, sits Mt. Vernon, Missouri. Mt. Vernon is located in the intersecting borders of Oklahoma, Kansas, Arkansas and Missouri in the Ozark Mountains. Here, residents are familiar with weather-related disasters. However the community of just over 4,000 residents was taken by surprise on January 12, 2007 when it was hit by what the National Weather Service called an “historic ice storm.”²

News reports state that over the two-day period of January 12-14 one to five inches of ice, sleet, and snow fell resulting in widespread downed trees and powerlines. The worst of the outages occurred in Mt. Vernon where, at the height of the problem, twenty thousand of the thirty thousand members of the local electric cooperative were without power. Most community residents remained without power for over two weeks.^{2,3} “We have dealt with tornadoes, but this was the most crippling event to ever hit our community,” stated Debbie Padilla, Assistant Manager Nutrition Services for University of Missouri Healthcare’s Missouri Rehabilitation Center.⁴

Disasters can happen at any time and in any place. Fires, flood, blizzards, tornadoes, hurricanes, rolling blackouts, terrorism, computer crashes, labor disputes and foodborne illness outbreaks - All of these situations would meet the definition as “an unplanned event that triggers a real, perceived, or possible threat to safety, health, or environment, or to the organizations reputation or credibility.” Regardless of the crisis, each has the potential to significantly impact the organization’s ability to operate normally in the following ways:

- the ability to have normal or adequate staffing of personnel;
- the ability to purchase and receive food, water and other vital resources;
- the ability to store, produce and serve food safely;
- the ability to meet clients quality of life or quality of care needs; and
- impact the operations revenue and profitability.

On a more personal note, in times of disaster there are significant and emotional impacts on the personal lives and well-being of foodservice managers, staff, their families, friends, and their community.

The disaster or emergency readiness plan requires a great deal of thought and effort, but should not be viewed as a separate food management system. It is an extension and enhancement of the facility's current standard operating procedures. Planning for unforeseen disruptions should be a continual process that is preventive, rather than reactive.

One such approach to emergency planning takes into account a four-step course of action: Crisis prevention, crisis preparation, reaction during a crisis and a post-crisis review. (see Figure 1)

Figure 1: Four Steps for Emergency Planning



2. Preventing a Disaster

It has been said that “the best defense is a good offense.” There is no better way to avoid a crisis than by preventing one. The keys to prevention lie in hiring and building a well trained staff and in establishing and monitoring the implementation of foodservice operational procedures and food safety management systems. Preventing disaster also starts with a committed team dedicated to evaluating, anticipating and preventing issues before they become a crisis. With better awareness of the operation and its likely hazards, planned solutions can be implemented to reduce the number of “unplanned” or unknown events from occurring.

Take, for example, the Missouri town discussed in section 1. The Missouri Rehabilitation Center in Mt. Vernon, Missouri is a 124-bed Joint Commission Accredited facility. They were prepared for the

January 2007 ice storm in many ways. While the community was without power, the healthcare facility experienced no power outages because they had back-up generator power. While the majority of homes and businesses were without electricity “we had full power,” Debbie Padilla shared, and the facility was able to operate without an electrical interruption.⁴

Discussion Point: Discuss with your staff the types of “preventive steps” that are already in place in your operation. In addition to the items listed below, what other procedures are in use to prevent hazards or minimize the impact of crisis events?

- Weather band and storm alert radios
- Fire drills and extinguisher training
- Routine equipment maintenance and inspection
- Material Safety Data Sheets (MSDS) and chemical training programs
- A food safety management system (such as Hazard Analysis Critical Control Point⁵) and food safety training programs
- Training on equipment safety, personal safety, and work place safety
- Routine backup of computer databases and vital files
- Employee screening and background checks
- Emergency generators and emergency outlet “red” plugs.

2.1 Emergency Readiness Team

In selecting the members of an Emergency Readiness Team, consider individuals who instinctively convey solutions to identified problems instead of just complaining or voicing problems. These individuals should be able to think clearly and calmly under stress and adapt well to change. Individuals with these qualities may be better suited to think “outside of the box” and be flexible when called upon to develop creative and adaptive solutions used in times of crisis.

Select core members of the Emergency Readiness Team who will be the immediate responders. These team members should represent the perspectives from each area or department and key skills from

throughout the organization. This could include the department director, purchasing and inventory managers, production manager, chefs, shift supervisors, sanitation crew, and a clinical dietitian. In addition, seek individuals with special abilities such as persons trained in first aid, food safety management and individuals with bilingual skills appropriate to the local community. Depending on the facility type, members of the community and volunteer organizations may wish to offer their services and expertise.

Outside of the immediate response team, include facility-based consultants on the team including the building maintenance foreman, transportation specialists, an information technology (IT) representative, an infection control team member, a representative of human resources and risk management, a trained media or public relations spokesperson, and (if unionized) a labor union steward.

External consultants from the city, county, and state as well as national agency representatives can also provide their experience and knowledge in emergency planning. The following organizations may be able to lend a unique insight into the development and implementation of a disaster management plan. Developing partnerships with these fundamental agencies before a crisis is crucial:

- Fire department
- Police and sheriff departments
- Emergency management and rescue services
- Health department officials
- American Red Cross and other community relief organizations and resources
- Federal Emergency Management Agency (FEMA)
- Utility company representatives
- Air and Army National Guard Units
- City emergency managers and local Homeland Security representatives
- Insurance providers, for discussions of policies, coverage and documentation tools

- Foodservice distributors, back-up vendors and suppliers of dairy, bread, chemicals, water, and ice should be consulted for their role in the emergency planning process
- Refrigerated truck rental services for the foodservice department
- Network with professionals from organizations and operators that have recently experienced emergencies to identify best-practices in crisis prevention, preparation and management

The role of the Emergency Readiness Team is to perform:

- a department or facility hazard analysis,
- develop a crisis prevention and preparation plan,
- establish a chain-of-command for the immediate response team
- develop step-by-step standard operating procedures for contingency plans,
- train staff on their role in emergency response and
- perform periodic reviews and revise disaster management plans.

The overall goals of the team should be to focus on reducing response time to a crisis or disaster event, establishing quick control over operations, minimizing liability, reduce the loss of revenue and the impact on daily operations, as well as the protection and safety of employees and clients, and compliance with regulations.

2.2 Facility Assessment & Hazard Analysis

Those familiar with food safety management systems probably have used Hazard Analysis Critical Control Point (HACCP)⁵ to prevent, eliminate, or reduce foodborne hazards to safe levels. This same type of a hazard-analysis approach can be used to analyze an operation's vulnerability to situations that can interrupt routine operations. However, beyond the typical biological, chemical and physical hazards, disaster hazard analysis extends to any event that could interrupt the ability to operate under normal conditions. After all potential hazards are identified, processes and procedures can be implemented through preventative control measures and quick response protocols in order to prevent, eliminate or reduce the impact of each hazard. The first HACCP principle (Table 1) is hazard analysis.

Table 1: What are the Seven HACCP Principles? ⁵

1. Perform a Hazard Analysis
2. Determine Critical Control Points (CCPs)
3. Determine the Critical Limits
4. Establish Procedures to Monitor CCPs
5. Establish Corrective Actions
6. Establish Verification Procedures
7. Establish a Record Keeping System

Many federal, state and accrediting agencies responsible for food safety and public protection have developed relevant guidelines for facilities to use in analyzing potential hazards from internal and external sources. Following September 11, 2001 the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) urged all healthcare facilities to perform a “hazard vulnerability analysis.” According to the American Hospital Association, JCAHO defines hazard vulnerability analysis as the identification of hazards and the direct and indirect effect these hazards may have on the hospital. The hazards that have occurred or could occur must be balanced against the population that is at risk to determine the vulnerability to the given hazard. ⁶

Likewise the Food and Drug Administration (FDA) has recommended an initial assessment using an analytical framework called “operational risk management.” ⁷ This process considers many of the basic causes for a facility disruption focused specifically on the five M's: “man, machine, mission, management and media.” After identifying hazards, operational risk management requires analysis of the three components of hazards:

- the probability of the event happening,
- the severity of the hazard's impact, and
- the risk of exposure placed on the staff, facility, clients or community.

As well, operational risk management uses a framework (standard operating procedure) to rapidly respond to and recover from an emergency. In both hazard vulnerability analysis and operational risk management models, facilities are asked to assess the likelihood of an unplanned event, prioritize preventive measures and implement practical controls that will have the greatest impact. In hazard analysis, one must review the operation and determine what hazards are likely to occur. This usually involves analyzing each of the operational steps (such as purchasing, receiving, storage, preparation, cooking, etc.), and the resources (human, mechanical and material) needed to complete each task.

Your Emergency Readiness Team should begin by performing a thorough disaster or hazard analysis of all possible crisis scenarios. The list may include (at a minimum):

- **Internal** (*crises isolated to just the immediate facility*): fire, sewage back-up, utility failure, equipment failure, computer failure, foodborne illness outbreak, internal flood, personnel shortage, labor disputes or strikes, facility lockdown, bomb threats, sabotage or intentional contamination, media or reputation crisis, hazardous material release, burglary or armed assailant
- **External** (*crises that directly or indirectly impact the facility*): weather related (tornado, hurricane, flood, ice storm or blizzard), environmental (earthquake, volcano, landslides, tsunamis, extreme heat or cold), social or political (riots, terrorism including biological, chemical or nuclear threats or explosions), rolling power blackouts, illness epidemic or pandemic, foodservice distributor delivery interruption, food recall (intentional or unintentional contamination)
- **Proximity**: (*Disasters related to a business, company or venue in close proximity that could impact the facility*): nuclear plant emergency, chemical plant accident or explosion, airport emergency, railroad derailment, and events related to nearby hydroelectric dams, sport stadiums, coastal regions, government facilities, or prominent buildings and agencies

Operational risk management suggests that identified hazards may be related to past experience or typical and seasonal weather for the area. They could also be related to a review of incident reports, inspection findings, and based on the type of operation. Consider hazards related to unique

technologies in the facility, the social and political climate of the community and nation, and risks associated with human error. In addition, operational risk management recommends brainstorming for the unimaginable “what if” scenarios. While it is easier to plan for events that might logically happen, it is more difficult to plan for inconceivable and unlikely events, like an attack on the World Trade Center, intentional contamination of the food supply or a large airline disaster. As an example, “what if” your hospital kitchen is significantly damaged, however the remainder of the building is unharmed. How will patients be fed?

After completing this comprehensive analysis of the potential events that could disrupt or alter operations, the team’s next step should be to consider the operational impact of each crisis. As in Table 2, list all potential disasters and determine what aspects of the operation will be inclined to disruption. It may be interesting to note as these are categorized that uncommon or unrelated events can have similar disruptions to the foodservice department: risk of personal injury, lack of adequate staffing, lack of functioning equipment, lack of sufficient food and supplies, risk of food contamination, and inability to provide adequate care for clients.

Discussion Point:

What are your organization’s responsibilities during a disaster? The following is a list of possible responsibilities.

- Close or evacuate until it is safe to resume operations
- With continuous care (healthcare or corrections) operations, remain on site and continue operations
- Serve as a community relief shelter and increase operations related to an influx of customers

Table 2 Possible Impacts from Identified Hazards

Potential Impact on Operations	Hazards		
	Ice Storm	Hood fire	Open Emergency Shelter
Adequate personnel	✓		✓
Increased production, demand exceeds current			✓
Adequate food and water for increased demand			✓
Contamination of food		✓	
Contamination of food contact surfaces		✓	
Contamination of potable water			
Lack of potable water			
Loss of power or other utilities	✓		
Inoperable equipment	✓	✓	
Inability to adequately sanitize	✓		
Temperature abuse and food loss	✓		
No access to computer data	✓		
Damage to building, structure integrity		✓	
Downsizing of staff and resources			
Disposal or quarantine of contaminated food		✓	
Containment from hazardous waste		✓	
Need for additional pest control			
Evacuate building		✓ (temporary)	
Loss of customers, revenue	✓		
Other:			
Other:			

South Dakota State University's Department of Nutrition, Food Science and Hospitality⁸ provides an online video that demonstrates the use of risk assessment in prioritizing crisis preparation strategies and focusing plans on the areas with the greatest impact and risk to the foodservice operation first. (Figure 2) The Emergency Readiness Team should categorize all possible external and internal scenarios based on the probability of each event occurring. This is called a probability rating. South Dakota State uses a scale of frequent, likely, occasional, seldom or unlikely. The team then classifies these events based the operational impact that each occurrence would have on the operation. This is called on the severity rating. The scale used is catastrophic, critical, moderate or negligible. While all crises should be addressed, those scenarios with the greatest risk and highest impact should have the highest priority for response planning.

Figure 2.⁸ **Prioritizing Crisis Preparation**

		Probability Rating				
		Frequent	Likely	Occasional	Seldom	Unlikely
Severity Rating	Catastrophic	Extremely High	High	Medium	Low	Very Low
	Critical	High	Medium	Low	Very Low	Extremely Low
	Moderate	Medium	Low	Very Low	Extremely Low	Very Very Low
	Negligible	Low	Very Low	Extremely Low	Very Very Low	Extremely Extremely Low
		Risk Level				

Example #1: A healthcare foodservice department in the Midwest routinely has harsh winter weather. The probability or likelihood of this event occurring in the future is frequent to likely. When winter weather hits the community, it usually results in widespread power outages and road closures that prevent staff and food deliveries from reaching the facility for several days. The severity of impact on the operation is also catastrophic to critical. Therefore, this situation has an extremely high risk level and response planning for this scenario should be at the top of the list.

Example #2: A school foodservice department in the same Midwest town also faces harsh winter weather. The risk or likelihood of this event occurring in the future is also frequent to likely. However, when this winter weather hits the community, the school is closed and does not serve as an emergency shelter. The severity of impact on the operation is negligible. The risk is medium to low, so response planning for this situation should take place only after other more critical items have been addresses. Only potential losses of cold-held food from prolonged power outages would be of concern.

Example #3: A correctional facility's foodservice department has successfully implemented a carefully planned HACCP system to monitor and prevent foodborne hazards from occurring. The probability of a foodborne illness outbreak has been significantly reduced (unlikely). However, if contaminated food is accidentally served to the 11,000 inmates at this facility, there would be a critical to catastrophic impact from the result of widespread illness. Therefore, this situation is medium risk and response planning should be placed above most other items.

Discussion Point:

What steps can be taken within your facility to lessen the risk, severity or probability of each hazard?

2.3 Standard Operating Procedures

With such a vast list of hazards, it may seem overwhelming to plan for all possible events. However, in reviewing the operational impact, many hazards may have common effects on the facility: lack of adequate staffing, lack of functioning equipment, lack of sufficient food and supplies, or risk of food contamination. For instance, many weather-related events, rolling blackouts as well as a local transportation disaster could result in a shared situation of electrical failure that will impact equipment operation. In other words, the Emergency Readiness Team may be able to apply a single solution to several different scenarios.

Developing, training on and implementing standard operating procedures can help avert disaster or lessen the impact through prior planning and preparation. As the Emergency Readiness Team begins initial planning, it is recommended that the team review, revise, create and implement standard operating procedures that address routine operations and provision of preventive measures, as well as responding to a disruption in regular service.

Example #1: Current standard operating procedures on cleaning and sanitizing food contact surfaces in a dish machine should be revised to include:

- Normal operational procedures for safety and effective use of the dish machine,
- Daily care and routine or ongoing maintenance to continue its proper function, and
- Alternate procedures for sanitizing items when equipment breaks down, during a power outage, during a water outage or during a boil-only water order.

Example #2: Current standard operating procedure on approved vendors should be revised to include:

- Primary vendors or foodservice distributors agreements for routine orders
- Product specifications, receiving practices, and rejection criteria
- Secondary or alternate approved vendors
- Service agreements for inclement weather or disruption of service.

A standard operating procedure is, at a minimum, a set of instructions to ensure a procedure is performed correctly and consistently. During a disaster, it can be chaotic, overwhelming and disorganized. The standard operating procedure is prepared in advance of the crisis, when calmer and clearer thinking can properly assess the operational and safety issues. During the crisis, the standard operating procedure thinks for the operational leaders, telling them what to do, when to do it, step-by-step methods for how it is to be done, and the resources needed to complete the task. The language of the standard operating procedure can be expanded to define the purpose and scope of the procedure, list persons involved in the procedure, define unique or uncommon terms, cross-reference related procedures and documents, and identify oversight of the process through monitoring, corrective actions,

verification and record keeping (Figure 3 and Appendix 1). The standard operating procedure should be based on best-practice recommendations of local, state and federal regulations, as well as the recommendations of manufacturers and industry guidelines. Sample standard operating procedures for various aspects of a foodservice operation are available for free download from the National Food Service Management Institute (see Recommended References).

Figure 3 Standard Operating Procedure Template

Operation/Location		DATE ORGINATED	DOCUMENT NUMBER	
Standard Operating Procedure TITLE:		EFFECTIVE DATE	REVISION	PAGE
DEPARTMENT:		AREA:		

1. PURPOSE
2. SCOPE (All persons involved in the process)
3. RESPONSIBILITIES
4. DEFINITIONS (Key Words)
5. WORK INSTRUCTION STEPS (PROCEDURE)
 - a.
 - b.
 - c.
 - d.
 - e.
 - f.
6. ASSOCIATED DOCUMENTS
7. MONITORING
8. CORRECTIVE ACTION(S)
9. VERIFICATION AND RECORD KEEPING
10. DOCUMENT REVISION CHANGE

Rev. #	Section Changed	Change Made	Date

Many standard operating procedures relate not only to operational effectiveness but also to food safety, security and protection systems. It is essential to develop and implement effective standard operating procedures that prevent hazards from occurring or reduce reaction time and confusion during a crisis. The standard operating procedures should address short-term disruptions (like the loss of power for 1-2 hours) as well as sustained or large-scale disruptions which could last days or weeks. As well, the plan should include duplication or redundant operations. The following abbreviated list of standard operating procedure titles should have an emergency prevention and preparedness component added to the written document, process or procedure:

- Vendor Certification and Purchasing Requirements
 - Include provisions for pre-designated alternate sources and back-up suppliers
- Food Receiving and Inspection Specifications
 - Include receive, reject, and storage criteria for commodity, relief and donated foods
- Storage and Access to Food Supplies
 - Include separate storage and rotation procedures for emergency supplies
 - Consider a dry storage system that stores more valuable commodities on higher shelving to protect them in the event of flooding
- Pre-operational Facility Checklist for Food Safety
- Handwashing Procedures
 - List steps for assembly of an alternate handwashing station and handwashing procedures for lack of potable water or hot water
- Employee Illness Reporting Plan and Employee Wellness Policy
- Temperature Control Procedures: Storage, Thawing, Preparation, Cooking, Cooling, Reheating
 - List frequency and documentation procedures for temperature checks for cold-holding equipment during power outages
 - Include procedures for determining when temperature abused food from power outages will be discarded
 - List procedures for using time only as a public health control⁹ if allowed by local food code

- Work with local health department officials to determine safe procedures for all aspects of food storage, preparation, holding and disposal
- Interior and Exterior Building Security and Access
- Include procedures for documentation and redundancy of individuals with keys to building exterior and interior locks (refrigerators, freezers, and storage rooms)
 - Add procedures for securing or proofing the building exterior and interior prior to approaching inclement weather
- Chemical Use and Storage
- Cleaning and Sanitizing Procedures
- Include alternate sanitizing procedures for situations where there is a lack of potable water, hot water or functioning equipment
- Supervision and Staffing: Full-time, Part-time, Contract, Temporary and Volunteer Staff
- Add provisions for a manual time recording system for power failures
 - Include procedures for approval of overtime during crisis events
- Sources of Potable Water and Ice
- Add provisions for storage or procurement of alternate water supplies
- Food Recall Plan
- Include procedures that will be followed to identify, account for, and quarantine suspicious or recalled food.
 - Determine an acceptable procedure, in coordination with the health department, for discarding or denaturing of contaminated foods that might be disposed of on-site.
- Therapeutic and Modified-Consistency Menus
- Add a medical staff approved standing order for liberalized therapeutic diets when emergency menus are implemented
- Communications and Media Procedures
- Identify and retain a public relations firm in the event media responses are needed
- Foodborne Illness Complaint and Incident Reporting Procedures

- Identified a medical clinic that will be used in the event any gamma globulin, other immunizations or testing is ever required

□ Loss Prevention and Documentation Procedures

- Ensure computers are protected by surge protectors and files are routinely backed up
- Identify vital or confidential records and include procedures for preserving these in the event of a building evacuation
- Include procedures for documenting all capitol-expense equipment and resources

In addition to these routine standard operating procedures, specific standard operating procedures should be written to address contingencies for:

- Purchasing, Inventory Control, Storage, and Shelf-Life Rotation
 - Emergency food, water, single-use items, chemical and sanitizing agents, first-aid items and other disaster supplies
- Acceptance Guidelines and Documentation for Emergency Donations
- Alternate Emergency Menus (appendix 2)
 - Procedures that addresses therapeutic and modified-consistency diets, as well as the extent to which the facility will accommodate individuals with food allergies and special diet variations or requests (e.g. vegan)
- Chain-of-Command for Initiating Emergency Readiness and Staff Recall
 - Procedures that identify how and when external (e.g. a foodservice distributor) stakeholders, internal critical decision makers, managers and facility executives are contacted after hours, on weekends, during holidays and on vacations by internal staff
- Job Descriptions and Delegation of Responsibilities for all Emergency Readiness Team members
 - Pre-plan and delegate the completion of essential emergency response tasks
- Procedures for Setting Up an Off Site Foodservice Operation
- Succession Planning

- Procedures for the operation in the event that key managers, Emergency Readiness Team members or facility executives are unable to report to work, are injured or are themselves victims of the disaster
- Schedule for Conducting Emergency Readiness Drills and Training
- Cross-Training of Employees
 - Include procedures to recruit and train employees from other departments or volunteers in the event of staffing shortages
- Routine Maintenance and Testing of Emergency Generators
 - Include procedures for the safe and separate storage of fuel
- Maintenance of Disaster Procedures and Contact Lists
 - Ensure these are stationed in the homes of all Emergency Readiness Team members
- Transportation
 - Identify what will be provided for clients and staff in the event of an evacuation of the facility

3. Proactive Steps for Prevention and Preparation

After an analysis of potential crises and the development of standard operating procedures to address all operational contingencies, the next step for the Emergency Readiness Team is to evaluate the current readiness status of the facility. This should address accounting for levels of emergency supplies compared to a prepared inventory, available equipment, contractor agreements and staff training. The information from this analysis should identify potentially vulnerable areas and the need for corrective plans of action.

3.1 Emergency Supplies

During the historic January 2007 ice storm in Mt. Vernon, the community was without water and power for over two weeks. Local churches opened sleeping shelters and the Missouri Rehabilitation Center opened its doors to “feed an additional 700 people from the neighborhood.” In addition to the community, many essential staff members, without power or water at home, were sheltered in a separate section of the facility. Also, because of business closings, routine child care in the area was

unavailable during the storm. As a result, the Rehabilitation Center opened a temporary day care center so employees would have child care while filling needed positions. According to Debbie Padilla, despite this increased production demand, the foodservice department met the challenge because of the kitchen's large food storage capacity. However, because of treacherous roads, the nutrition department did not receive a foodservice delivery "until the second week" of the disaster.⁴

Emergency and relief organizations may take several days to deploy to disaster-stricken areas. In many cases, flooded or tree-littered roads could be impassable for foodservice distributor trucks. A minimum three-day's supply of food, water, and single-use items should be on hand (Appendix 3). Some states or communities may have regulations for a longer storage length of emergency supplies. Check with local regulations to determine on-hand supply requirements. Amounts should accommodate routine food production levels, and then be adjusted for feeding any additional staff that would be housed in the facility (sheltered-in-place), pre-determined emergency crews and agreed-upon relief shelter bed capacities.

Quantities of water may also be dictated by local, state or federal regulations. The American Red Cross recommends at least one gallon of water per person per day for drinking, cooking and personal hygiene for a minimum of a three-day period.¹¹ Additional water should be purchased and stored for cleaning and sanitizing food contact surfaces, as well as operating alternate hand washing stations.

- Emergency menus should be planned based on worst-case scenarios, the lack of equipment or utilities to cook, reheat, or hold food (Appendix A). Shelf-stable, ready-to-eat foods requiring no cooking or holding source should make up emergency supplies and be routinely replaced based on labeled use-by or expiration dates. Plan emergency menus to include items that can be rotated into the standard menu as the use-by date nears. In-house, potentially-hazardous foods that are not temperature abused or contaminated can be incorporated into the menu first if appropriate utilities remain for preparation and holding.

- Emergency supplies should also include serving utensils and food preparation equipment, disposable aluminum pans, first-aid supplies, appropriate chemicals for cleaning and sanitizing multi-use items, a manual can opener, portable canned heating fuel (e.g. Sterno), flashlights, a battery-operated radio, several sets of 2-way radios or walkie-talkies, batteries, blankets, and emergency documentation forms. Shelf-life for these items, especially batteries and first-aid supplies, should follow a planned monitoring and rotation schedule.
- Store several waterproof disposable cameras for insurance documentation during and after the crisis.
- Blueprints of the building layout should be reviewed with the maintenance foreman to determine actual and alternate evacuation routes, all emergency shut-off locations for electricity, gas, water, and ventilation. Identify foodservice equipment that will be supported by emergency generators, operating procedures and storage plans for fuel. Also note emergency “red” plugs within the department designated for emergency generator power.

3.2 Contractor and Vendor Agreements and Reviews

One preventative measure in place at the Missouri Rehabilitation Center is a cooperative agreement. According to Debbie Padilla the rehabilitation center has “an agreement with three local (skilled) nursing care facilities” for shared services in the event a building evacuation or damage that leaves the nutrition department completely inoperable.⁴

- Establish a cooperative or mutual-aid agreement with other foodservice operations or buildings nearby that could serve as an alternate food preparation site or provide shared services in the event the foodservice department is damaged or evacuated.
- Plan routine business reviews with all primary and back-up foodservice vendors to verify resources and services that are available before and during disasters. Determine if refrigerated trucks can be supplied or rented and the advance procedure required when requesting this service. Discuss each vendor’s plan for provision of alternate services from branch locations away from the foodservice operation’s locale and select back-up vendors from a variety of locations.

- Work with the facility loss prevention department to determine asset documentation needed in advance for insurance purposes and conduct periodic business reviews for coverage related to business interruption, loss of assets and income, and building repair to meet present-day building codes. Include a list of all insurance policy types, coverage and deductibles. Document all equipment for model numbers, serial numbers, purchase dates, and cost. Equipment and food are resources of great value.
- During disasters, financial losses can be significant. Consider videoing or photographing all equipment and supplies in the department for insurance purposes.
- For relief shelters, determine documentation and reimbursement procedures for food and supplies used during the operation of an emergency shelter.
- Establish relationships with building contractors and equipment suppliers that could assist in repair and restoration after a disaster. Also make arrangements with waste management companies to increase garbage collection that may result from the increased use of single-use items and food disposal.

3.3 Staff Training Needs Assessment

- A gap analysis is a method used to compare actual performance and knowledge of standards with expected or needed performance and knowledge. The Emergency Readiness Team should perform a training gap analysis or needs assessment. This consists of determining all emergency training needs including standard operating procedure revisions and identifying gaps in knowledge for emergency procedures.
 - Can employees list situations which could require staff recall procedures and their responsibility to work during emergencies?
 - Is staff familiar with alternate procedures for loss of power, water, equipment failure or staff shortages?

3.4 File Preservation

Consider the vast amount of data that must be maintained within any foodservice department:

Employee phone numbers and addresses, cell phone numbers, pager numbers; therapeutic diet orders and client food preferences; standardized recipes, menu databases and nutrient calculations; inventory and purchasing databases; foodservice production sheets; job descriptions and performance reviews- The list is seemingly endless. In the event of fire, flood, theft or power failure all data may be instantly inaccessible. Every operation should work directly with their organization's information technology department and pre-establish policies to determine an appropriate backup and retrieval solution for irreplaceable data and files. Likewise, a system should be implemented to prevent confidential client information and employee data from being inappropriately accessed or compromised.

For smaller operations without information technology support, a technology specialist consultant can determine a solution that is appropriate based on the value of data to be stored. Using a company that provides online network data backup and recovery services is one solution, allowing for daily, off-site back-up and retrieval of files via a secure-access internet site. External hard drives can also be a consideration. One key point for disk or external hard drive backups is that these must be stored off site and in a secure location to prevent loss or theft. If backup systems remain onsite, they could be subject to the same fate as the original computer files. When purchasing computer equipment for the department, consider its portability. A laptop computer with an extra battery may provide the ability to set-up an alternate office with essential operating information even if a facility's operations must move off site or operate without electricity. As an additional preventive step, always use surge protectors to protect any electrical devices from voltage spikes that can occur during storms or power company problems.

During Missouri Rehabilitation Center's ice storm in January of 2007, the facility was fortunate to have back-up generator power, giving workers access to all automated and computer-generated data. However, as an added precaution, the department also has a standing system for continuous manual back-up of vital information. "Along with our GeriMenu (software) system," said Debbie Padilla, "we

keep a (manual) cardex file of diet orders, allergies and patient likes and dislikes.” The facility also prints out and safely stores a computer patient list with diet orders every day, as a back-up.⁴

For every automated and electronic system in place, a manual backup system should be established. In addition to a manual card-based system or daily print-out of diet orders, plan for assigned message carriers to walk to patient or resident floors as necessary to keep up with diet order changes, admissions, discharges and communications from other departments.

In addition to electronic files, paper records should be prioritized to determine which should be removed to off-site storage locations or scanned into electronic format for storage. Insurance documents and equipment warranties may be among these critical records.

Discussion Point:

List all automated systems within your facility that would be disrupted in the event of a power outage. What current manual back-up procedures currently exist for each of these systems?

3.5 Early Warning Systems

Each operation should have certain early warning systems on-site to identify or prevent imminent hazards. One such device is a National Oceanic and Atmospheric Administration (NOAA) weather-band radio with automatic alarm notification from the National Weather Service or local news agencies to warn of approaching inclement weather. In addition, most local radio and TV stations participate in the Emergency Alert System (EAS) that broadcasts an address to the entire nation on very short notice in case of a grave threat or national emergency.

Early warning systems are in place at Mt. Vernon’s Missouri Rehabilitation Center and are continuously monitored by the facility’s Emergency Management Team. In the event of approaching bad weather, key department members are sent an early status message via e-mail. As National Weather Service warnings and watches emerge, the facility receives “Code Black” alerts through overhead pages.⁴

Other types of theoretical “early warning” devices that may signal the need to take preventative action could include:

- An after-hour automatic alarm or notification systems to alert managers when refrigeration units exceed safe holding temperatures
- An established incident report form for claims of injury or illness incurred at the operation, created in conjunction with loss prevention or legal guidance, to collect vital information and allow appropriate response and corrective action to a potential hazard or conflict
- Inspection and audit reports from internal and external sources that bring to light critical violations in food safety, providing early warning signs that correction action must be taken to prevent a foodborne illness outbreak
- Anonymous or actual threats should be taken seriously and reported up the chain of command

3.6 Communication Planning

During a crisis, clear communication and rapid, two-way distribution of information is crucial in lessening the impact of an event, reducing response time, and establishing quick control. This also reassures staff and clients that the situation is being handled efficiently and with competence. Every organization should have an established communication response plan that outlines how employees will be contacted, who employees should contact with concerns or questions, and establishes designated spokespersons for each department (internally) and for the community and media (externally).

Start with developing a list of community first responders and agencies that should be contacted for crisis events including fire, police, rescue, civil defense, and health department officials. Also include contact information for notification of facility managers and executives. In order to rapidly contact and recall staff, employee telephone numbers, pager numbers and cell phone numbers should be reviewed and updated on a routine basis. A printed copy of relevant contact lists should be readily available within each department and at the homes of each person on the Emergency Readiness Team. To prevent duplication of efforts, the Emergency Readiness Team should have a pre-established phone

tree with assignments of staff contact responsibilities. In the event telephone and cell phone lines are inoperable, the plan should include a consistent local media source, such as a designated local radio or television station, which employees should tune to for information. For on-site communication, consider the use of two-way radios for the Emergency Readiness Team and pre-determined message runners for the facility.

Internally, each department leader should keep lines of communication open. Staff should be provided with routine updates within pre-established standards to contain confidential information and prevent “leaks.” Department leaders should also encourage staff to ask questions and share concerns or rumors. During pre-crisis training the organization’s confidentiality and media communication policy should be reiterated to reinforce who is and is not allowed to make comments to the media to prevent intentional or unintentional information “leaks” within the community. Permanent reminders should be provided in the form of employee communication wallet cards and posters hung by department telephones and time clocks. These should contain approved media contacts, step-by-step procedures and approved responses to use when confronted by the media.

Unfortunately, any crisis will focus media attention on the organization’s brand and community. Only designated and trained media spokespersons should make comments, on or off the record, to any external individual, media contact or public news conference. Even innocent comments can be misinterpreted or taken out of context. A well-trained media spokesperson will formulate concise media and position statements. This spokesperson may request facts from the department or operation to be used to formulate these messages and should rely on the Emergency Readiness Team to anticipate and formulate knowledgeable responses to potential media questions. The team should provide clear and simple facts, not unsupported speculation.

3.7 Training and Drills

The final step in an emergency readiness plan is employee training. It is essential to prepare all employees to identify and respond appropriately to potential disruptions and crises. Any person who

works in the foodservice department should receive ongoing crisis prevention and response training. This includes employees who are full-time, part-time, temporary, contract, seasonal, students, interns and volunteers.

Regularly scheduled training should begin with prevention in mind. Ensure that all standardized employee education topics on food safety, equipment safety, personal safety, physical safety and chemical safety training are routinely conducted and documented. Additional prevention training for crises should encourage employees to have an emergency readiness plan for their homes and families.^{12, 13} When disaster looms, a well-prepared employee will be less likely to miss work or call-in.

Generalized emergency readiness training should cover discussions of the types of emergencies and their impact on the foodservice operation. Refer to the web-based references (see Recommended Resources in Appendix 4) for ready-to-use training materials and videos available for employee training. Emergency standard operating procedures should be in a fully accessible area and employees made aware of their location. Step-by-step procedures should outline the employee's responsibility to the organization during times of crisis, primary and back-up notification plans for employee recall, and media communication procedures. Additionally it should ensure training in usage of general emergency equipment, like fire alarms, extinguishers, hood fire suppression systems, gas shut-off valves and electrical breakers. As well, employees should be trained on the location of emergency telephone numbers and how to initiate simple first aid. More detailed emergency readiness training should be job specific and identify each employee's task-specific responsibilities for preventing hazards and responding during disruptions. Chefs and production staff, for example, should receive advanced training on procedures for responding to equipment fires and equipment shut-down procedures for building evacuations. Add a competence assessment or testing component to readiness training to check retention of key procedures and identify additional gaps or needs in emergency readiness training. Consider regular re-training or testing to keep employees refreshed on emergency procedures.

Cross-training of staff is valuable for disaster preparation. In the event one portion of the department is understaffed, cross-training makes it possible to move staff to other areas of the operation. This is called redundancy. By planning for redundancy through cross-training, a department is provided better coverage, increased flexibility and the ability to cope with unexpected absences, emergencies, or illness.¹⁰ In addition, determine if organizational and human resource policies will support cross-over training from other departments in times of severe staff shortage. In this way, mutual aid can be provided between departments. For example, with prior training housekeeping staff may be able to perform many basic functions within the foodservice department. In return, foodservice employees may be able to perform routine housekeeping tasks.

“An untested plan is an unworkable plan.”¹ Disaster preparation training should also consist of conducting mock drills for practicing each type of operational interruption. In listing the impacts that various hazards could have on the foodservice environment (see Table 1, Possible Impact of Identified Hazards), common operational interruptions are identified.

Drills can consist of:

- table-top “what if” exercises to walk staff through step-by-step emergency procedures;
- role playing to practice, review and recall procedures;
- the performance of actual equipment and utility shut-down;
- and evacuation procedures.

When performing drills, facilitation responsibilities should be rotated to different members of the Emergency Readiness Team. This will help them to prepare for the contingency of other leaders being unable to report to work. As mock drills are conducted, request feedback from staff and identify any weaknesses in the emergency plans. Bring forth identified concerns in Emergency Readiness Team meetings. Correct flaws, revise standard operating procedures and retrain staff as needed to ensure the most effective and reliable plan is in place.

4. Preparation

Because many disasters are unplanned and occur without prior warning, disaster preparedness must be a continuous state. With prepared and tested standard operating procedures for operational interruptions and well-trained and drill-prepared employees in place, the next step in preparation is conducting routinely scheduled audits of emergency supplies. Regular inspections conducted by use of a prepared checklist should evaluate appropriate levels of food, water, and other physical supplies; spot product shelf-life concerns for rotation or discard; and identify purchases that should be made for out-of-date or out-of-stock supplies. In addition, all battery-operated equipment should be checked for proper function. To further the readiness, an exterior and interior building assessment may identify areas for maintenance repair and hazard prevention. Additionally, an inspection should assess the completion of vital functions and routine procedures, such as data back-up, update of contact lists, completion of required employee training, and routine emergency generator maintenance.

In the event of early warning for impending inclement weather, such as tornadoes or hurricanes and winter storms, the Emergency Readiness Team's immediate responders should mobilize as early as possible to prepare. It will be wise to review all emergency readiness standard operating procedures, brief staff and the readiness team and conduct additional checks of on-hand supplies. The team will implement preparation procedures that may include:

- Reviewing emergency menus and ordering additional quantities of non-perishable foods and disposable supplies
- Exterior weather proofing of windows, doors and securing of items that could become dangerous projectiles
- Assembling all vital tools including flashlights, weather radios, two-way radios and installing batteries
- Collecting temperature measuring devices and first aid kits
- If flooding is a concern, move as many objects as possible to above anticipated flood lines. Remove lower file drawers and securely place them on top of file cabinets. Unplug equipment and switch off electrical breakers for all non-essential equipment to prevent shock hazards.

- Contacting primary and back-up foodservice distributors for availability of pre-arranged refrigerated trailers
- Preparing and assembling all emergency documentation forms
- Performing an off-site back-up of computer data and implement plans for preserving vital documents
- If appropriate, recalling staff to address any increase in operation capacity for relief shelters
- As a weather situation or other threat approaches, assembling staff in disaster shelters

5. Disaster Management and Response

Early 1950s civil defense warnings still hold true. “Duck and cover!” First and foremost, safety during the initial crisis should be the overriding concern. Make sure that all staff and clients are protected from immediate danger. All facility employees, clients, and the Emergency Readiness Team should take shelter in designated areas until the immediate danger has passed.

After the situation is judged safe by the department director or Emergency Readiness Team leader, assessment of personal injury should begin. Identify individuals in need of emergency care and contact appropriate first responders. Allow trained individuals to provide first aid as appropriate. Document injuries sustained, names of the injured and initiate incident report forms.

5.1 Damage Assessment

Trained Emergency Readiness Team members should then start the initial damage assessment. Care should be taken to maximize the team’s personal safety. Tasks should be delegated to team members by specialty for rapid evaluation. The team should assess the structural integrity of the building, hazards from electricity, loose “hot wires”, gas lines, glass, metal and debris. Determine if the building should be evacuated or if the structure is safe to occupy. The team should then assess the extent of operational disruption to establish which foodservice operations can still be performed on site. Identify the extent and anticipated length of disruption. Some utilities and services may be restored in minutes

to hours, where other facets of the operation may experience a long-term disruption. Documentation of initial damages should take place using disposable cameras or written forms.

If foodservice operations are possible, implement the appropriate standard operating procedures for the type of altered services. Assemble the Emergency Readiness Team members. Review the plan of action and each member's delegated responsibilities. The team should provide direction, communication and supervision as the operations disaster plan is implemented. The team should also initiate recordkeeping for all forms and documents in the disaster plan. Remember the overall goals: personal safety, reducing response time to the event, establishing quick control over operations, minimizing the impact on daily operations, and minimizing the loss of revenue.

5.2 Immediate Post-Crisis Operations

After the crisis, debris removal, hazards and sanitation of food contact surfaces must take place before food production begins. The impact on the overall operation will determine the extent to which emergency menus will be used. If the impact of the disaster is less disruptive and daily supplies of potentially hazardous food are safe to use and can be prepared and held safely, then these supplies should be used first. "Safe to use" means that foods have not been temperature abused and have not been exposed to potential contamination.

Food safety is even more important to monitor during crisis situations. Ensure proper hand hygiene measures are taken. In the event the municipal water source is contaminated, alternate hand hygiene stations should be set up using a potable water source. If foods can be cooked, ensure that potentially hazardous foods are cooked to required internal temperatures and temperatures are documented. In worst-case scenarios, if no utilities exist, the emergency menus should be designed to use all ready-to-eat, shelf-stable foods. Ensure that all foods are held at safe temperatures. If the local food code allows, implement time (instead of temperature) as the public health control⁹ for holding hot or cold foods and initiate the required monitoring and documentation of procedures. Finally, make certain that

proper sanitation procedures are used for all food contact surfaces prior to use and are completed as planned.

In addition to foodservice operations, the Emergency Readiness Team should routinely report in and share information on the status of employees and the operation. Staff should be briefed with routine status updates and allowed to provide feedback. Initial documentation procedures for labor hours, relief meals provided, and food and equipment losses should start as well.

5.3 Sustained operations

For sustained operations, additional resources will be required.

- Assemble the Emergency Readiness Team for routine updates and for debriefs on the operational status.
- Assess staff availability and schedule staff, taking into consideration time that may be needed to address personal or family issues that may have arisen as a result of a wide-spread disaster.
- Train volunteers and staff from other departments in basic food safety, food preparation and sanitation duties.
- Review and identify equipment that is operational, which utilities are functional, and which approved foodservice distributors are operating and available for service.
- If refrigerated trailers are part of a prior agreement and have been requested, ensure that temperature controlled foods are moved to this unit.
- Review and revise menus as perishable foods are depleted or discarded.
- Perform inventory checks and requisition additional food, water, ice and physical supplies as needed.
- In addition, identify the extent to which relief organizations can provide food, supplies and labor according to pre-established agreements.
- Continue to maintain manual logs and documentation procedures including incident reports of injury or illness, refrigeration and freezer temperatures, food disposal, diet orders, production records and staff time records.

- Request additional garbage pickup to compensate for increased use of single-use items and disposal of contaminated food items.

6. Recovery

Recovery is the process of restoring all portions of the operation to pre-disaster or “normal” function.

- Equipment should be assessed to see if it can be used, should be repaired or replaced.
- Thorough cleaning and sanitizing of food contact surfaces, as well as floors, walls and ceilings should take place under the direction of local health officials using established procedures. Work with health officials to assess water damage and the likelihood of toxic mold growth.
- Documentation should be reviewed and duplicated. Claims should be submitted to insurance providers. Reimbursement invoices should be submitted to relief organizations and the other officials as appropriate.

7. Post-Disaster Review

It is never pleasant to go through a crisis. However, there are always very important lessons learned during each experience. A review of all procedures will identify ways to improve the readiness and response of the operation for the next disaster.

In a post-disaster debrief with Debbie Padilla, Assistant Manager of Nutrition Services at the Missouri Rehabilitation Center, it was determined that the two biggest challenges, because of the treacherous roads, were “some staff could not get to work” and the department did not “receive deliveries of food for over one week.” In addition, the community feeding site and day care center created extra demands on the foodservice department that were not previously planned. “We are fortunate that we have a very dedicated staff”, she said. As many employees as possible eagerly came to work “because they just really care about the department and community.”⁴

After operations have returned to normal, reassemble the Emergency Readiness Team and perform a thorough debrief of the emergency operations. The debrief should include:

- An assessment of the Emergency Readiness Team and the facility's readiness
- A review of employees' knowledge and ability to carry out the planned procedures
- Identification of issues in the employee recall process
- A review of the effectiveness of the operational procedures and ease-of-use for implementation during crisis
- An assessment of staff, food, water and other supply adequacy
- A review of incident reports and time or temperature control logs to identify issues in food safety and personal safety
- An evaluation of the effectiveness of vendor and relief organization agreements and vendor availability pre-crisis, during and post-crisis

With the collected feedback of the Emergency Readiness Team and input from other staff members, standard operation procedures and vendor agreements should be reviewed and revised as necessary. Likewise, training and re-training should occur as identified by knowledge gaps and revision of procedures.

8. Conclusion

Emergencies do arise in most cases without warning. Prevention and preparation for the predictable and the inconceivable are essential. This takes a dedicated team. The team should analyze all potential interruptions that a foodservice operation could face, prioritize these hazards, and establish a well-planned and practiced crisis system for all potential scenarios. Training is vital to plan implementation and quick reaction time.

A well-planned disaster management program will assist foodservice managers and operators in achieving the overall goals of maximizing personal safety, reducing response time to the event, quickly establishing control over operations, minimizing the loss of revenue, and minimizing the impact on daily operations.

9. Competency Assessment Quiz

1. During a crisis or emergency one's ability to think clearly and make decisive plans
 - a. Is increased during the disaster
 - b. Can be both increased or decreased during the disaster
 - c. Is equal to pre-disaster
 - d. Is decreased during the disaster
 - e. None of the above

2. The overall goals of a disaster management plan include all of these except:
 - a. Maximizing personal safety
 - b. Establishing quick control over operations
 - c. Identifying new equipment purchases
 - d. Reducing response time to the event
 - e. Minimizing the loss of revenue

3. During a disaster, what could impact the foodservice operation's ability to operate normally?
 - a. Inadequate staffing levels
 - b. Lack of utilities
 - c. Contaminated food and water
 - d. All of the above
 - e. None of the above

4. Crisis planning takes into account all of the following steps except:
 - a. Crisis prevention
 - b. Eliminate all disruptions or hazards
 - c. Crisis preparation
 - d. Crisis management and response
 - e. Post-crisis review

5. When forming the Emergency Readiness Team, beyond the immediate team members, what other facility representatives should be consulted?

- a. Building maintenance
- b. Human resources
- c. Risk management or loss prevention
- d. Information technology
- e. All of the above

6. What is the first step in a HACCP and a disaster management system?

- a. Hazard analysis
- b. Establishing written control measures
- c. Monitoring
- d. Performing corrective actions
- e. Verification procedures

7. Operational risk management analyzes which component of a hazard?

- a. The probability of the event happening
- b. The severity of the impact
- c. The risk of exposure
- d. All of the above
- e. None of the above

8. Which of the following would be an example of a **internal** crisis that is isolated to just the immediate foodservice operation?

- a. Nuclear plant emergency
- b. Sewage backup
- c. Hurricane
- d. Flu pandemic
- e. Community riot

9. When identifying hazards one should rely on all of these except:

- a. Past experience
- b. Typical or seasonal weather in the area
- c. Reviews of incident and inspection reports
- d. Brainstorming of "what-if" scenarios
- e. All of these should be taken into consideration

10. When assessing the impact of hazards, what common operational impact(s) could result from an ice storm, a flu pandemic and a labor strike?

- a. Contaminated food
- b. Lack of potable water
- c. Inadequate staffing
- d. All of the above
- e. None of the above

11. Written standard operating procedures are essential for disaster preparation because:

- a. They are written before the crisis when calmer, clearer thinking can take place
- b. They provide step-by-step instructions to respond quickly to the interruption
- c. Once written the disaster plan requires no further action
- d. A and B only
- e. B and C only

12. Emergency menus should be written for:

- a. A minimum of a three-day period
- b. Only regular diets
- c. Only for customers or clients
- d. All of the above
- e. None of the above

13. Emergency food should be:

- a. Stored along side daily supplies
- b. Rotated at least once every two years
- c. Stored off site for protection
- d. All of the above
- e. None of the above

14. The Emergency Readiness Team should:

- a. Be composed of individuals with a variety of perspectives in the department
- b. Conduct emergency training during employee orientation only
- c. Have written job descriptions listing of their emergency-related responsibilities
- d. A and C only
- e. B and C only

15. For emergency water supplies the American Red Cross recommends to have at least:
- a. Two quarts per person per day for a minimum three day period
 - b. Two quarts per person per three-day period
 - c. One gallon per person per day for a minimum three-day period
 - d. One gallon per person per three-day period
 - e. The American Red Cross does not have specific recommendations for emergency water
16. To protect food from temperature abuse during a disaster:
- a. Monitor and document the temperatures of food being cold-held or hot-held
 - b. Use time only as a public health control for holding when local food code allows this procedure
 - c. Store shelf-stable foods in their original, unopened packages until needed
 - d. All of the above
 - e. None of the above
17. Which of these documents or forms is **not** needed in an emergency readiness manual?
- a. Forms to manually document staff labor hours
 - b. Health department inspection reports
 - c. Location of emergency shut-offs for electricity, gas, and water
 - d. Incident report forms for injury and illness documentation
 - e. All of these documents are needed in the emergency readiness plan

18. What is a “gap analysis”?
- a. The distance between the faucet and the flood rim of a sink
 - b. The distance from the facility to first responders like fire, police and rescue teams
 - c. The comparison of actual performance or knowledge to expected performance or knowledge.
 - d. All of the above
 - e. None of the above
19. When computer files are backed up they should be:
- a. Stored off-site
 - b. Stored on-site with other emergency supplies
 - c. Stored on-site with other important documents and files
 - d. A or B
 - e. A or C
20. Examples of emergency readiness communication training for employees would include:
- a. Steps for developing a media or position statement
 - b. The facility’s media communication policy
 - c. Employee recall and notification procedures
 - d. A and B
 - e. B and C
21. Cross-training of staff serves what purpose?
- a. Helps the department provide better coverage in the event of staff shortages
 - b. Is detrimental because it decreases flexibility of employee staffing
 - c. Is unnecessary because relief organizations will be available for needed staffing roles
 - d. All of the above
 - e. None of the above

22. What is an example of an early warning device?

- a. A first aid kit
- b. A NOAA weather radio
- c. Disposable cameras
- d. Two-way radios
- e. Three-day emergency menus

23. During immediate emergency response and disaster assessment, which of the following should be a key concern?

- a. Identifying several back-up foodservice distributors
- b. Notifying the media of the disaster and impact
- c. The safety of all employees, clients, and emergency responders
- d. All of the above
- e. None of the above.

24. During a major disaster, such as an earthquake, food safety can be of heightened concern because:

- a. Food could become temperature abused during storage and holding due to lack of power
- b. Shelf-stable foods are less safe to serve than those that require cold or hot holding
- c. Food could become contaminated due to lack of potable water for hand washing or cleaning
- d. A and B
- e. A and C

25. A post-disaster debrief of Emergency Readiness Team members and staff is critical to:
- a. Identify needed revisions and improve the emergency standard operating procedures
 - b. Identify training gaps for future emergency training
 - c. Assess adequacy of planned emergency supplies
 - d. All of the above
 - e. None of the above.

Answer Key:

- | | |
|-------|-------|
| 1. D | 13. E |
| 2. C | 14. D |
| 3. D | 15. C |
| 4. B | 16. D |
| 5. E | 17. B |
| 6. A | 18. C |
| 7. D | 19. A |
| 8. B | 20. E |
| 9. E | 21. A |
| 10. C | 22. B |
| 11. D | 23. C |
| 12. A | 24. E |
| | 25. D |

Appendix 10.1:

Sample Standard Operating Procedure

Operation/Location: SUNNYDALE NURSING HOME		DATE ORGINATED	DOCUMENT NUMBER	
Standard operating procedure: Title		EFFECTIVE DATE	REVISION	PAGE
Cleaning and Sanitizing Food Contact Surfaces in a Dish (Warewashing) Machine				1 of 2
DEPARTMENT:		AREA:		

2. PURPOSE

To ensure the safe and effective operation of the dish machine and to ensure that all food contact surfaces are properly cleaned and sanitized.

8. SCOPE (ALL PERSONS INVOLVED IN THE PROCESS)

This procedure applies to foodservice employees involved in using the dish machine to clean and sanitize food contact surfaces: Managers, shift supervisors, hourly, part-time and temporary staff personnel assigned to operate the dish machine.

4. RESPONSIBILITIES

Managers: Develop safe operation guidelines, guidelines for interruption of service and staff training procedures.

Shift supervisors: Train and document training for all personnel assigned to operate the dish machine. Monitor staff during operation to ensure the safe and effective operation of the dish machine. Implement corrective actions (retraining, rewashing, disciplinary actions, maintenance requests, and implementation of alternate procedures) as appropriate.

Hourly, part-time and temporary staff personnel:
Operate the dish machine in a safe and effective manner following operational guidelines. Notify shift supervisor of issues related to unsafe or ineffective operations.

11. DEFINITIONS (KEY WORDS)

Food contact surface, cleaning, sanitizing, detergent, sanitizer, manifold temperature (add facility-appropriate definitions)

12. WORK INSTRUCTION STEPS (PROCEDURE)

- a. Training requirements, frequency, and documentation: (list procedure)
- b. Manufacturer's operational step-by-step procedures and daily maintenance: (list procedure)
- c. State and local health department requirements (water temperatures, sanitizers and concentrations, frequency of warewashing): (list requirements)
- d. Documentation procedures: (list procedures)

- e. Notification procedures: (list procedures)

13. ASSOCIATED DOCUMENTS

- a. Staff training procedures and documentation for dish machine operation
- b. Manufacturer's operational guidelines
- c. Dish machine temperature log and verification (T-stick)
- d. Dish machine pre-operational check list
- e. Dish machine maintenance request form
- f. Routine maintenance procedures
- g. Alternate procedures for cleaning and sanitizing food contact surfaces
 - Three-compartment sink procedures
 - Single-use item/disposable service procedures
 - Sanitation for boil-only water order

14. MONITORING

- a. Shift supervisor
 - Monitor staff during pre-operation, operation and post-operation to ensure the safe and effective use and maintenance of the dish machine.
 - Visually verify proper operation, water temperatures, detergent and sanitizer levels, removal of food debris, air drying procedures and completion of required documentation.
- b. Hourly, part-time and temporary staff personnel
 - Visually verify proper operation, water temperatures, detergent and sanitizer levels, removal of food debris, air drying procedures and completion of required documentation.

15. CORRECTIVE ACTION(S)

- a. Shift supervisor:
 - Implement retraining, rewashing, disciplinary actions, maintenance requests, and alternate procedures as appropriate.
 - Document corrective actions and outcomes.
- b. Hourly, part-time and temporary staff personnel:
 - Notify shift supervisor of issues related to unsafe or ineffective operations.

16. VERIFICATION AND RECORD KEEPING

- a. Shift supervisor: Daily, review of pre-operational check lists and dish machine temperature logs.
- b. Manager: Monthly, review of corrective procedures, maintenance records and. Quarterly, review of staff training documentation. Yearly, review of written procedures. Maintenance of all logs will be kept on file for 1 year.

17. DOCUMENT REVISION CHANGE

<u>Rev. #</u>	<u>Section Changed</u>	<u>Change Made</u>	<u>Date</u>
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Appendix 10.2

3-Day Emergency Menus

Day 1	Day 2	Day 3
Breakfast	Breakfast	Breakfast
6 oz canned, fortified orange juice	6 oz canned, fortified cranberry juice	6 oz canned, fortified apple juice
8 oz milk (reconstituted or UHT)	8 oz milk (reconstituted or UHT)	8 oz milk (reconstituted or UHT)
1 cup dry or ½ cup cooked cereal	1 cup dry or ½ cup cooked cereal	1 cup dry or ½ cup cooked cereal
1 slice bread or toast	1 slice bread or toast	1 slice bread or toast
1 packet sugar or sugar sub	1 packet sugar or sugar sub	1 packet sugar or sugar sub
1 packet jelly or diet jelly	1 packet jelly or diet jelly	1 packet jelly or diet jelly
1 tsp. margarine	1 tsp. margarine	1 tsp. margarine
8 oz water, coffee, tea or reconstituted drink mix	8 oz water, coffee, tea or reconstituted drink mix	8 oz water, coffee, tea or reconstituted drink mix
Lunch	Lunch	Lunch
½ cup chicken	½ cup canned tuna	3 oz canned, sliced ham
12 saltine crackers	2 slices bread	2 slices bread
1 packet mayonnaise	1 packet mayonnaise	1 packet mayonnaise
½ cup 3-bean salad	½ cup tomato soup or juice	½ cup vegetable soup or juice
½ cup canned applesauce	½ cup canned pears	½ cup canned pineapple
8 oz reconstituted drink mix, juice or tea	8 oz reconstituted drink mix, juice or tea	8 oz reconstituted drink mix, juice or tea
8 oz water	8 oz water	8 oz water
Supper	Supper	Supper
1 cup canned ravioli	1 cup canned chicken & dumplings	1 cup canned beef stew
½ cup canned green peas	½ cup canned green beans	½ cup canned carrots
½ cup canned fruit cocktail	½ cup canned peaches	½ cup canned apple slices
1 slice bread or roll	1 slice bread or roll	1 slice bread or roll
1 tsp margarine	1 tsp margarine	1 tsp margarine
8 oz reconstituted drink mix, juice or tea	8 oz reconstituted drink mix, juice or tea	8 oz reconstituted drink mix, juice or tea
8 oz water	8 oz water	8 oz water
pm & hs snacks	pm & hs snacks	pm & hs snacks
3 graham crackers	5 vanilla wafers	6 saltines
2 tbsp peanut butter	2 tbsp peanut butter	2 tbsp peanut butter
pm: ½ cup canned, fortified juice	pm: ½ cup canned, fortified juice	pm: ½ cup canned, fortified juice
hs: 8 oz milk (reconstituted or UHT) or reconstituted drink mix	hs: 8 oz milk (reconstituted or UHT) or reconstituted drink mix	hs: 8 oz milk (reconstituted or UHT) or reconstituted drink mix

The menus above may be appropriate for liberalized diets including regular, mechanical soft, carbohydrate controlled and cholesterol controlled. Due to the sodium content of canned meats and vegetables, the above menu should be used cautiously with sodium controlled-diets. Comparable pureed foods (like baby food) should be available for infant and pureed diets.

Nutritional analysis performed using Food Processor 8.9 Software: Three day average provide ~2000 calories, 15% protein, 55% carbohydrate, 30% fat; 100% of daily value for Vitamin A, Vitamin C, and Iron, and 90% daily value for calcium. Portion sizes should be adjusted based on the population being served to meet minimum daily needs for calories, protein, fat and daily values for key nutrients.

Water: Store one gallon of water per person per day for drinking, cooking and personal hygiene for a minimum of a three-day period.¹¹ Water purification methods are provided in Appendix 10.4.

Appendix 10.3

Sample Disaster Readiness Checklist

Food (Based on Above Three-Day Menus)

Quantity	Item	Quantity	Item
	Water, bottled		Canned Chicken
	Canned Fortified Juice, Orange		Canned Tuna
	Canned Fortified Juice, Cranberry		Canned Ham
	Canned Fortified Juice, Apple		Canned meat: other
	Canned Fortified Fruit Juice, Other		Canned Ravioli
	Canned Tomato Juice		Canned Chicken & Dumplings
	Canned Vegetable Juice		Canned Beef Stew
	Self-stable UHT or Powdered Milk		Canned Entrée: other
	Powdered Drink Mix		Canned Tomato Soup
	Tea		Canned Vegetable Soup
	Coffee		Canned Three Bean Salad
	Decaffeinated Coffee		Canned Green Peas
	Dry Cereal		Canned Green Beans
	Dry Grits		Canned Carrots
	Dry Oatmeal		Canned Vegetables: other
	Bread		Canned Applesauce
	Saltine Crackers		Canned Pears
	Graham Crackers		Canned Pineapple
	Vanilla Wafer Cookies		Canned Fruit Cocktail
	Assorted Cookies		Canned Peaches
	Cereal or Granola Bars		Canned Apple Slices
	Sugar, individual packets		Dried Fruit, Raisins
	Sugar, bulk		Dried Fruit, other:
	Sugar Substitute, individual packets		Canned or Dried Beans
	Powdered Coffee Creamer		Dried Potato Flakes
	Jelly and Diet Jelly, individual packets		Dried Rice
	Margarine, individual packets		Peanut Butter
	Mayonnaise, individual packets		Shelf-stable Cheese
	Mustard, individual packets		Pureed Meats
	Hot Sauce		Purees Vegetables
	Cooking Oil or Vegetable Spray		Pureed Fruits
	Salt and Pepper Packets		Other:*

*Therapeutic diet items as appropriate to facility type such as canned enteral (tube feeding) formulas, baby formulas, sodium-controlled foods, carbohydrate-controlled foods, modified-consistency foods or other special needs.

Disposable Supplies

Quantity	Item	Quantity	Item
	Disposable Plates		Paper Towels
	Disposable Bowls		Aluminum Foil
	Disposable Cups		Plastic Wrap
	Disposable Napkins		Plastic zipper-type Bags
	Disposable Forks		Aluminum Pans
	Disposable Spoons		Trash Bags
	Disposable Knives		Toilet Tissue
	Single use gloves		Facial Tissue
	Disposable Plastic Aprons		Food Labels
	Hair Nets		Plastic Sheeting or Tarps
			Duct Tape

Chemicals

Quantity	Item	Quantity	Item
	Bleach		Detergent, dish
	Sanitizer: other		Detergent, floor
	Viricide (Virus killing agent)		Alcohol Swaps
	Hand Soap		Sanitizer Test Strips
	Hand Sanitizer		Fire Extinguisher
	Portable Canned Heating Fuel		Dust or Filter Masks
	Water Purification Tablets/Chemicals		

Supplies

Quantity	Item	Quantity	Item
	First Aid Kit		Batteries: Sizes:
	Extra Assorted Bandages		Weather Radio and Extra Batteries
	Rubbing Alcohol		Radio and Extra Batteries
	Cold Packs		Two-Way Radios and Extra Batteries
	Aspirin or Acetaminophen		Flashlights and Extra Batteries
	Anti-diarrhea Medication		Can Opener
	Signal Whistle		Kitchen Knives
	Tool Kit		Cutting Boards
	Blankets		Bi-metallic Thermometers
	Markers		Serving Spoons
	Water Proof Matches		Serving Spoodles
	Disposable Cameras		Serving Scoops, #8
	Emergency Documentation Forms		Building Floor Plan and Utility Shut-Off
	Emergency Readiness Manual		Evaluation Maps
	Emergency Contact lists		Note Pads or Notepaper

For “shelter-in-place” facilities (employees will be living in the facility before, during and after the emergency) and emergency shelters, add additional blankets or sleeping bags and appropriate levels of personal hygiene items such as toothbrushes, tooth paste, personal soap, shampoo, razors, moist towelettes and feminine hygiene items.

It is crucial to use only properly disinfected water for drinking, cooking, preparing food, washing dishes, cleaning, sanitizing, hand washing, making ice, and personal hygiene use such as brushing teeth and bathing. Until the water supply is tested and found to be safe alternate water supplies may need to be used. Safe sources approved by the Centers for Disease Control and Prevention and Environmental Protection Agency include bottled, boiled, or treated water. The recommendations of those two agencies are summarized below.

1. Use bottled water if it is available. However, if bottled water is used, be sure it came from a safe source. Ensure the water has not been exposed to or submerged in flood waters or exposed to other contamination. If the source or exposure is unknown, boil or treat the water before use.
 - Note that treating water with chlorine tablets, iodine tablets, or liquid bleach will not kill many parasitic organisms. Boiling is the best way to kill these organisms.
 - Boiling will not remove chemical contaminants. If you suspect or are notified that water is contaminated with chemicals, seek another source of water.
2. If bottled water is not available, boil water to make it safe. Boiling water will kill most types of disease-causing organisms that may be present. If the water is cloudy, filter it through clean cloths or allow it to settle, and draw off the clear water for boiling.
 - Procedure: Bring the water to a rolling boil for one minute, let it cool, and store it in cleaned and sanitized containers with covers.
3. If water can not be boiled, disinfect it using household bleach (5.25% sodium hypochlorite). Bleach will kill some, but not all, types of disease-causing organisms that may be in the water. If the water is cloudy, filter it through clean cloths or allow it to settle, and draw off the clear water for disinfection.

- Procedure: Add 1/8 teaspoon (or 8 drops) of regular, unscented, liquid household bleach for each gallon of water, stir it well and let it stand for 30 minutes before use. Store disinfected water in clean and sanitized containers with covers.
4. If water purification tablets, such as chlorine tablets or iodine tablets, are used follow the directions provided with the tablets.
 5. If using a well that has been flooded, the water should be tested and disinfected after flood waters recede. If you suspect that the well may be contaminated, contact the local or state health department for specific advice.
 6. Use water storage tanks and other types of containers with caution. For example, fire truck storage tanks and previously used cans or bottles may be contaminated with microbes or chemicals. Water containers should be thoroughly cleaned, then sanitized with a bleach solution before use.
 - Clean surfaces thoroughly with soap and water, then rinse.
 - For gallon- or liter-sized containers, add approximately 1 teaspoon (4.9 mL) household bleach (5.25%) with 1 cup (240 mL) water to make a bleach solution.
 - Cover the container and agitate the bleach solution thoroughly, allowing it to contact all inside surfaces. Cover and let stand for 30 minutes, then rinse with potable water.
 7. Review all equipment that has a water connection, including ice machines. After potable water is restored, ensure that all water lines are properly flushed and equipment is thoroughly cleaned and sanitized before restoring the equipment to service.

Appendix 10.5

Recommended Resources

(all web addresses current as of November 1, 2007)

National Food Service Management Institute Resource Guide:

- Emergency Readiness Guide and Forms Manuals, and Video “When Disaster Strikes”
<http://www.nfsmi.org/Information/e-readiness.html>
- Responding to a Recall
<http://www.nfsmi.org/Information/RespondingFoodRecall.html>
- HACCP-Based Standard Operating Procedures
<http://sop.nfsmi.org/HACCPBasedSOPs.php>

US Department Of Agriculture

- Food Security and Emergency Preparedness
http://healthymeals.nal.usda.gov/nal_display/index.php?info_center=14&tax_level=2&tax_subject=231&topic_id=1194
- Biosecurity Checklist
<http://healthymeals.nal.usda.gov/hsmrs/biosecurity.pdf>

Food Marketing Institute

- HURRICANES Excerpts From FMI Pre-Emergency Planning & Disaster Recovery Manual
<http://www.fmi.org/foodsafety/hurricanes.pdf>

Ready.gov Business

<http://www.ready.gov/business/index.html>

- Insurance Discussion form:
http://www.ready.gov/america/_downloads/insuranceform.pdf

Federal Emergency Management Agency

- Are You Ready? An In-depth Guide to Citizen Preparedness
<http://www.fema.gov/areyouready/index.shtm>
- Protect Your Business From Disasters
<http://www.fema.gov/plan/prevent/howto/index.shtm>
- Emergency Management Guide For Business & Industry
<http://www.fema.gov/pdf/business/guide/bizindst.pdf>
- Standard Checklist Criteria For Business Recovery
<http://www.fema.gov/business/bc.shtm>

Centers for Disease Control and Prevention

- National Institute for Occupational Safety and Health Business Emergency Management Planning
<http://www.cdc.gov/niosh/topics/prepared>

FoodSafety.Gov Disaster Assistance

- Federal Government Websites
<http://www.foodsafety.gov/~fsg/fsgdisas.html>

American Dietetic Association

- Disaster Preparedness Resources
http://www.eatright.org/cps/rde/xchg/ada/hs.xsl/nutrition_6004_ENU_HTML.htm

Florida Division of Emergency Management

- Prepare and Stay Aware
<http://www.floridadisaster.org/disaster.htm>
- Business Disaster Planning Website
<http://www.floridadisaster.org/business/>

North Carolina State University College of Agriculture and Life Science Cooperative Extension

- Disaster Readiness Fact Sheets
<http://www.ces.ncsu.edu/disaster/factsheets/>

National Mass Fatalities

- Online Resource Center
<http://www.nmfi.org/resources.htm>

Institute for Business and Home Safety

- Small Business Protection
http://www.ibhs.org/business_protection/

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