Health Practices on Cruise Ships: Training for Employees
Transcript

Food Protection

The Centers for Disease Control and Prevention's Vessel Sanitation Program is proud to bring to you the following session: Food Protection: Source to Service. While this session is primarily intended for cruise vessels under the jurisdiction of the Vessel Sanitation Program, it may be used by anyone interested in this topic. It should replace existing interactive training, but should be used as an adjunct to a comprehensive training program. Food Protection: Source to Service.

Learning objectives. At the end of this session, you will be able to list the proper temperatures of foods from source to service, list reasons to reject provisions, list ways to protect food during preparation and service, list records that must be maintained and why they must be maintained, demonstrate proper hand washing.

Person in charge. On a cruise vessel, there must be a person in charge of the food operation. This individual must be knowledgeable in foodborne diseases and food safety and in sanitation. Additionally, this individual has duties that they are responsible for in the food operations of the vessel. These duties include ensuring that foods are prepared to prevent foodborne illness and that the food operation is in compliance with the VSP operational guidelines. Food protection during sourcing and delivery. We will be discussing vendors, source, receipt, and storage.

Vendor selection. When selecting a vendor to provide provisions to a vessel, it is important to both consider food safety and food quality. While these two terms can be interchangeable at times, it is important to remember that there are some slight differences. For example, if a beefsteak has been frozen, it can be thawed under refrigeration so long as it does not reach above 41 degrees Fahrenheit, and can be refrozen and thawed multiple times. While this would not affect food safety, it would affect food quality. You need to ensure that vendors are delivering foods in a timely manner. If the vessel is arriving in port at 7:00 AM, it would not make sense for the foods to arrive at 4:00 AM or 10:00 AM. In addition to that, vendors should be selected that are licensed, that are under an inspection program, and that are open to inspections by representatives of the cruise vessel and make inspection reports available.

Food sources. All foods must be from approved sources, and for this slide we will be discussing several examples. Wild mushrooms must be commercially cultivated. Shellstock, such as clams, oysters, mussels, or scallops, must be from certified shippers.
Fish served on a cruise vessel must be commercially caught, and dairy products must come from approved dairies.

Shellstock tags. Again, shellstock are clams, oysters, mussels, or scallops. The term "shellstocks" describes these items that come raw, in the shell, both shells attached, whether fresh or frozen. It is a requirement of the operational guidelines to maintain shellstock tags for 90 days. During inspections of provisions, it is important to ensure that shellstock tags are completely filled out. These tags must be kept for 90 days with a record correlation system that correlates the shellstock to the date the meal was served.

Deliveries. During deliveries, it is important to inspect delivery vehicles as well as the food being delivered. The vehicles should be clean, and if they are delivering potentially hazardous or perishable foods, it is very important to ensure that proper temperatures are being maintained. It is also important to ensure that proper storage is maintained on the vehicle as well.

Provisions inspections. It is important to ensure that individuals receiving provisions are properly trained and that they have the authority to reject shipments. For example, if raw chicken is delivered on the vessel at 60 degrees Fahrenheit, individuals accepting those provisions should have the authority to reject that shipment, which of course may mean a change in menu. So this should be coordinated with the chef or the person in charge of the food operation. It is important to ensure that individuals accepting provision shipments are properly equipped. At a minimum, a clean uniform, a clipboard, and a flashlight would be a good idea. Also proper thermometers to check food temperatures.

Receiving fresh meats, poultry, and fish. While the VSP manual requires that these items be maintained at 41 degrees Fahrenheit or below on the cruise vessel, a cruise vessel is allowed to receive these items at seven degrees Centigrade or 45 degrees Fahrenheit. Once they are received, they must be rapidly cooled within four hours to 41 degrees Fahrenheit. There are reasons to reject shipments of meat, poultry, and fish. They primarily deal with spoilage. These items should be rejected if there is evidence of temperature abuse, if there is an off odor or off color to the item, if the item has a poor texture, if these items are sticky or slimy.

Frozen products. Frozen products can be non-potentially hazardous foods, perishable foods, or potentially hazardous foods. For some of these items, temperature abuse may more be a factor of quality and not safety. For potentially hazardous foods, however, we are primarily concerned with food safety. These shipments should be rejected if there is evidence of temperature abuse. Evidence of present temperature abuse would be a frozen product delivered where the box is wet or the product is not frozen. Evidence of past temperature abuse may be freezer burn, ice crystals, or a box... while the product is frozen, the box is stained, which could be an indication that the product thawed, juices
were released, wet the box, and then the product was refrozen. Again, this is evidence of past temperature abuse, and these products should be rejected.

Receiving eggs and dairy products. These products should be checked for temperature and appearance. For example, shell eggs. Shell eggs that are old and perhaps of poor quality when broken out onto a plate would run flat, with the yolk flat and the white separated away from the yolk. A fresher egg would have a higher yolk, and the whites would be closer to the yolk. So you may want to break out eggs just to give an indication of food quality, but temperature is very important to check, which would be a factor, perhaps, for food safety and quality.

Packaged and canned goods. These items need to be inspected for damage and package integrity. Damaged packaging should be rejected, or if there's evidence of contamination, wet, or stained packaging. For canned goods, canned goods should be rejected if there are dents on the top seam, the bottom seam, or the side seam. Additionally, if these cans are rusted or bloated, they should be rejected. If this is found after the product has been brought onto the vessel, there should be an area away from regular storage where these items are isolated for either return to the shipper or for discarding.

Produce delivery. Produce should be inspected for spoilage and vermin. This should be done on the dock. It is very difficult to get rid of fruit flies once they are on the vessel, so if you have a delivery where the produce is infested with fruit flies or other vermin, this should be rejected immediately.

First in first out. This involves stock rotation. While the VSP does not require first in first out or stock rotation to be used, it is a good idea to use this system. This would prevent problems with spoilage and problems with grain pests. Prohibited storage areas. There are many areas on the vessel where foods can be stored. However, there are areas where food should not be stored. These include toilet rooms, underneath unprotected wastewater lines, in lockers or dressing rooms, in garbage rooms, in mechanical rooms, underneath leaking water lines, under open stairwells. Food should not be stored in any of these areas or anywhere where they are subject to contamination.

Food storage. Food should be stored in a clean, dry location that is protected, with foods at least 15 centimeters or six inches off the deck.

Cold holding. On this slide, we'll see a food safety icon. This icon was produced by the International Association of Food Protection and is meant to be language neutral. You will find additional icons throughout this presentation, and a Web source at the end of the presentation where these icons can be obtained. Cold holding should be at 41 degrees Fahrenheit or below. This can be accomplished by placing foods in various refrigeration units, including walk-in refrigerators, pass-through refrigerators, under-counter refrigerators, reach-in refrigerators. Additionally, non-mechanical means for keeping
foods cold can be employed, such as ice baths. Foods can also be stored cold in a freezer. If food is stored in a compartment such as a refrigeration unit or a holding cabinet, an ambient air temperature thermometer must be provided. The thermometer must be placed in the warmest part of the unit where food is normally stored.

Hot holding. Hot holding is at 140 degrees Fahrenheit or above. Again, hot holding can be accomplished by using various pieces of equipment, including buffets, bain maries, holding cabinets, ovens, or non-mechanical means such as double boilers. If the food is stored in a cabinet such as a hot holding cabinet or an oven, an ambient air temperature thermometer must be provided. This thermometer should be placed in the coldest part of the unit where food is normally stored.

Refrigerated storage requirements. Proper air circulation must be maintained to keep potentially hazardous foods at or below 41 degrees Fahrenheit, five degrees Centigrade. Food should be stored covered and in some cases must be labeled. We will discuss labeling requirements later during this session. All food items must be stored 15 centimeters-- six inches-- off the deck.

Date marking requirement. This requirement was put into place for pathogenic microorganisms that grow well under refrigeration temperatures. These include Yersinia enterocolitica and Listeria monocytogenes. Both of these pathogenic microorganisms can cause illness if consumed in high enough numbers and grow well under refrigeration temperatures up till freezing. Date marking is required for refrigerated ready-to-eat foods that are potentially hazardous that are either prepared on the vessel or commercially prepared. If these foods are prepared on the vessel and used past 24 hours, or a commercially prepared product that is opened and used past 24 hours, they must be date marked. And just to stop for a moment to explain what a ready-to-eat food is. A ready-to-eat food is a food that requires no further heat treatment for safety. This may include a food that would normally be reheated for service, however it does not require reheating for safety. This is considered to be a ready-to-eat food. For example, meatballs that have already been cooked-- while they would be reheated for service, they do not need to be reheated for safety. We will describe also what a potentially hazardous food is. A potentially hazardous food is a food that is capable of supporting the rapid growth of bacteria.

Date marking requirement. The maximum time allowed for these items-- ready-to-eat potentially hazardous foods held refrigerated-- is seven days. Day one is the day the food is prepared, or day one is the day the commercially prepared product is opened. When deciding what date to put on your packaging, you must put the discard or use-by date. A preparation or opening date may also be placed on the label, but it is the requirement to put the discard date. Foods not used by that date must be discarded.
Day stores. The day stores requirement was put into place in 2000, the 2000 version of the manual. From 1989 up to that point, foods were required to be stored at 45 degrees Fahrenheit or below. When the change came into being for the foods to be kept at 41 degrees Fahrenheit, five degrees Centigrade, or below, there were some existing older refrigeration units that were not capable of maintaining this new temperature of 41 degrees Fahrenheit. This requirement was put into place to allow these refrigeration units to continue to be used. However, the use is limited. Foods must go into the unit at 41 degrees Fahrenheit or below, and can only be left in the unit for 24 hours. The refrigeration unit must be permanently labeled "24 hours maximum time, 45 degrees Fahrenheit maximum temperature," and the foods that are placed in this unit must be labeled 24 hours from the time and the date that they were put in there. So for example, in a cold storage unit, if a tray of cold cuts are placed in this unit on the first of the month at 7:00 AM, the label that's on that tray must be the second of the month at 7:00 AM. Foods not used by this date and time must be discarded.

Contamination by employees. While foods may come into the facility already contaminated, food employees can also contaminate food. From this slide, you can see that a food handler is handling a ready-to-eat food, lettuce, with bare hands. This is prohibited in the manual. This individual should be wearing single-use gloves. Additionally, we allow for tasting of foods. It's very important to ensure that utensils used for tasting foods are only used once. We do not require that the utensil be a single-use utensil. They may be, for example plastic utensils, or they may be reusable utensils. As long as it is only used once and then sent to the warewash area to be cleaned, reusable utensils are allowed for tasting.

Poor hygienic practices. Poor hygienic practices include eating, drinking, or smoking in areas that are not designated for these activities. Not bathing. It is very important for food handlers to bathe on a daily basis. Bathing removes dead hair, dead skin, and bacteria from body surfaces. Wearing soiled uniforms during food preparation is poor hygiene. Additionally, wearing solid aprons or any type of garment that is soiled. Poor hand washing, inadequate hand washing, or hand washing that is not frequent enough is also an indication of poor hygiene. And additionally, wearing excessive jewelry. Food handlers are not allowed to wear jewelry on hands or wrists while preparing food, with the exception of a plain wedding band.

Gloves. Gloves used on a vessel can either be single-use gloves or multiuse gloves. Single-use gloves are primarily used for preparation of food. They provide a barrier between the food handler and the food being prepared. It is very important to remember to change gloves between preparations of different foods. For example, if a food handler is handling raw poultry, and now wishes to go prepare a ready-to-eat food, or even another raw animal product that is not poultry, this food handler in addition to changing all the equipment must change gloves, wash hands, and put on a new set of gloves. Multiuse gloves are primarily used for warewashing and cleaning purposes.
When should you wash your hands? Well, there are many times that hands should be washed. These include when reporting to work, after handling raw foods, in between glove changes, after eating, smoking, drinking, or returning from a break, after handling soiled items, after using the bathroom, and after any potential contamination of your hands. There may be other times you should wash your hands that are not listed on this slide.

Personal appearance. It's very important for supervisors and managers to set a good example. This includes having natural nails that are short and trimmed and clean, not wearing excessive jewelry, wearing a clean uniform, and wearing effective hair restraints.

Cross-contamination. Cross-contamination can occur from hands not being properly washed, gloves not being changed, equipment and utensils not being washed, rinsed, and sanitized between various items. For example, the slide depicting the fish and the carrot indicates that the same knife used to cut raw fish was used to cut carrots. Carrots are considered to be a ready-to-eat food, and the knife should have been washed, rinsed, and sanitized and air dried prior to cutting the carrot.

Cross-contamination, raw animal versus ready-to-eat foods. On this slide, we can see that raw hamburger meat is stored directly above a raw ready-to-eat food, lettuce. To correct this, in addition to placing the hamburger meat in a container that is covered and covering the lettuce, these items should be reversed so that the lettuce is stored on the top shelf and the raw hamburger meat is stored on the bottom shelf.

Cross-contamination, raw animal versus cooked or processed ready-to-eat foods. From this slide, we can see that raw shell eggs are stored over a prepared salad and dairy products, cheese. To correct this, the ready-to-eat foods should be placed on the top shelf, and the raw shell eggs should be placed on the bottom shelf.

Cross-contamination, raw animal versus raw animal food. While we generally consider cross-contamination to be a raw animal food contaminating a ready-to-eat food, one raw animal food can contaminate another. For example, raw poultry, which has a heavy bacterial load and must be cooked to 165 degrees Fahrenheit for pathogen destruction, can contaminate a product such as raw pork. Raw pork does not have a very heavy bacterial load and would only require cooking to 145 degrees Fahrenheit. When considering how these products should be stored in a refrigeration unit, we would always want to store raw poultry on the bottom shelf and the raw pork above the raw poultry on a different shelf.

Refrigerated storage sequence. From this slide, we can see two different sequences for storing foods in a refrigeration unit, Sequence A and Sequence B. Let us begin with Sequence B. We can see from Sequence B that raw poultry is stored on the top shelf, and
cold cuts, a ready-to-eat food, is stored on the bottom shelf. This sequence is incorrect. Raw poultry, which has a very heavy bacterial load and requires a cooking temperature of 165 degrees Fahrenheit, can potentially contaminate all the foods below if it were to drip. Let's move on to Sequence A. Cold cuts and ready-to-eat food are stored on the top shelf, and raw poultry, the food requiring the highest cooking temperature of 165 degrees Fahrenheit for 15 seconds, is stored on the bottom shelf. This appears to be correct. Let's move on and look at the other foods in this storage sequence. Beef roast that can be cooked to 130 degrees Fahrenheit or 140 degrees Fahrenheit for different times is stored on the second shelf. This is also correct. We must examine, however, the storage of the ground beef and the pork. Ground beef requires cooking temperatures of 155 degrees Fahrenheit for 15 seconds to eliminate pathogenic bacteria, primarily E. Coli 0157H7. Pork only requires a cooking temperature of 145 degrees Fahrenheit for 15 seconds. While this sequence is also incorrect, it is very easy to correct. The ground beef should be placed on the shelf storing the pork, and the pork should be moved to the ground beef shelf. This would correct this sequence.

Thawing. Thawing can occur under refrigeration, under running water, during the cooking process, and in a microwave. The method used for thawing depends on the foods to be thawed. For example, while thawing under running water is allowed, you would not want to thaw a 25-pound turkey under running water. Similarly, you would not want to thaw large pieces of meat or large products during the cooking process or in a microwave. However, if we take the example of frozen hamburger patties, this is a good example of a food item that can be thawed during the cooking process. And also, under running water, this method might be used to thaw out small portions of food during an emergency. For example, shrimp cocktail is being served in a buffet line, and you run out of shrimp cocktail, and you have a small party that is returning late. It is okay to thaw an item such as shrimp under running water, because it will thaw very rapidly. It's very important to remember that the running water should not be above 70 degrees Fahrenheit and must be continuously flowing to flush off loose food particles.

Destruction of organisms. Microorganisms such as bacteria, viruses, and parasites can be destroyed by various processes. These include cooking, freezing, and reheating. It is important to remember when using freezing to destroy parasites, the freezing process must be done to a specific time and temperature which we will discuss later, but does not destroy bacteria or viruses.

Cooking temperatures. Poultry, which has a heavy bacterial load, primary campylobacter and salmonella, must be cooked to 74 degrees Centigrade or 165 degrees Fahrenheit for 15 seconds. Ground beef. We are primarily concerned with E. Coli 0157H7 in ground beef. This product must be cooked to 68 degrees Centigrade, 155 degrees Fahrenheit, for 15 seconds. Pork can be cooked to 63 degrees Centigrade, 145 degrees Fahrenheit, for 15 seconds. Beef and pork roast may be cooked to 54 degrees Centigrade, 130 degrees Fahrenheit, for 121 minutes, or 63 degrees Centigrade, 145 degrees Fahrenheit, for 15
seconds. Stuffed meats should be cooked to 74 degrees Centigrade, 165 degrees Fahrenheit, for 15 seconds. Eggs and vegetables--what temperatures should they be cooked to? Well, eggs can either come onto the vessel in a pasteurized form or in a raw shell egg form. Pasteurized eggs have no cooking minimum requirement. These pathogenic microorganisms which may have been present in the egg at one time have been destroyed during the pasteurization process. Pasteurized eggs are considered just like pasteurized milk--they can be consumed in the ready-to-eat form. Additionally, if the vessel is preparing products that require raw eggs, and this product is not going to be cooked, such as Hollandaise sauce, Caesar salad dressing, or some custards or desserts, pasteurized eggs must be used. If raw shell eggs are used, and the eggs are prepared for immediate service in response to a customer's order, they should be cooked to 145 degrees Fahrenheit for 15 seconds. If the eggs are not cooked for immediate service, they should be cooked to 155 degrees Fahrenheit for 15 seconds. While the VSP manual has no minimum cooking temperature requirement for vegetables, there is a requirement if vegetables are cooked for hot holding. These vegetables should be cooked to a minimum of 140 degrees Fahrenheit for 15 seconds. And the simple explanation is hot holding is at 140 or above. Hot holding units are not designed to cook or heat foods. Therefore, foods placed in a hot holding units should, at a minimum, be 145 degrees Fahrenheit.

Monitoring temperatures. Temperatures can be monitored by using thermometers or temperature measuring devices. I will describe from left to right the thermometers on the slide. The first thermometer is a laser thermometer. This thermometer has limitations. It is primarily intended for checking surface temperatures. It is a good thermometer to use checking temperatures on a buffet line. But it's very important to ensure that the foods are thoroughly mixed to get a proper temperature. The next thermometer has both the capability of doing a laser temperature check or a probe temperature check. The third thermometer is a bimetallic metal stem thermometer. This thermometer can be used to check various foods. However, it is not a good thermometer to use to check thin products. This thermometer additionally can be calibrated, and should be calibrated at least once a week or anytime the thermometer is dropped. The next thermometer is primarily used for checking warewashing temperatures in machines. This has a minimum and maximum registering capability. It can also be used to check food temperatures. The last thermometer on the slide is a mercury-based thermometer that has a glass shell. This thermometer is used for checking warewashing temperatures and should never be used to check food temperatures.

This slide displays a thermocouple, another type of temperature measuring device. This device has multiple probes. We will go over the probes from left to right. The first probe is intended for checking thin meats or thin products. The next probe is intended for checking surface temperatures such as the temperatures of a grill surface. The third probe is intended for checking ambient air temperatures, for example in a warewashing area or in a refrigeration unit. The final probe, which is connected to the device, is intended for
Parasites and fish. There are various species of fish where we are concerned with parasites. These fish may be served raw, partially cooked, raw marinated, or partially cooked marinated. If these fish are served in those forms, they must be frozen to the time and temperature required for parasite destruction. The time and temperature required is minus 20 degrees Centigrade, minus four degrees Fahrenheit, for 168 hours, or seven days. They can be frozen to colder temperatures for less time, such as minus 35 degrees Centigrade, minus 31 degrees Fahrenheit, for 15 hours. There are various species of tuna which are exempt from this freezing requirement because the parasites normally found on haddock, fluke, flounder, and various other fish are not present in these species of tuna. For a listing of the species of tuna exempt from the freezing requirement, please review the VSP operational manual 2005. It is important to remember that freezing will only destroy parasites and will not destroy bacteria or viruses. Additionally, documentation is required to show evidence of the freezing time and temperature. If a vessel freezes the fish on board, they must maintain a log of the time and temperature to which the fish was frozen. If the fish is frozen by a supplier, the vessel must have adequate documentation to include the delivery vessel, the species of fish, the time and temperature to which the fish was frozen.

Consumer advisory. A consumer advisory must be available on any vessel that serves foods of animal origin that are not cooked to the time and temperatures required for pathogen destruction. As an example, we can see from this slide raw shell eggs were broken out onto a grill for cooking. If these eggs are cooked for immediate service based on a consumer's order, the manual requires that these eggs be cooked to 145 degrees Fahrenheit for 15 seconds. Generally, raw shell eggs are not cooked to this temperature. Vessels serving eggs that are not cooked to 145 degrees Fahrenheit for 15 seconds would require consumer advisory. Additionally, there are other foods which may require a consumer advisory-- for example, hamburger patties not cooked to 155 degrees Fahrenheit for 15 seconds or tuna steaks not cooked to 145 degrees Fahrenheit for 15 seconds. Again, any foods of animal origins not cooked to the time and temperatures required for pathogen destruction would necessitate a consumer advisory on the vessel. The consumer advisory must be available for passengers and crew members and should have wording indicating that there's an increased risk from consuming foods of animal origin that are not thoroughly cooked. There are various locations where the consumer advisory can be placed. But at a minimum, it should be placed in a brochure available to all passengers, on table placards, on signs, or on menus. There are various options for placement of the consumer advisory.

Cooling methods. Hot foods are required to be cooled from 60 degrees Centigrade, 140 degrees Fahrenheit, to 21 degrees Centigrade, 70 degrees Fahrenheit, in two hours. Foods must then be cooled to five degrees Centigrade, 41 degrees Fahrenheit, in four hours. It's
very important to do this two-stage cooling in the time allotted and not to exceed the times. Ambient temperature foods such as tuna salad or cold cuts, dairy products, or foods that are refrigerated that have been prepared, must be cooled to 41 degrees Fahrenheit, five degrees Centigrade, in four hours. Cooling logs are required for foods that are being cooled on a vessel. These are not to be confused with what is normally called blast chiller logs. Cooling logs are required regardless of where cooling is performed. If food is cooled in an ice bath, a cooling log is required. If foods are cooled in refrigeration units or freezers, cooling logs are required. They should be available for inspection, and 30 days worth of cooling logs must be present on the vessel during an inspection.

Reheating. Reheating for immediate service can be to any temperature. Reheating for hot holding from foods prepared on the vessel should be to 165 degrees Fahrenheit, 74 degrees Centigrade, for 15 seconds. If foods that are commercially prepared from an intact container are reheated, they can be reheated to 60 degrees Centigrade or 140 degrees Fahrenheit for 15 seconds. All foods must be reheated within two hours, and reheating can only occur one time.

Protection during service. The danger zone is from 41 degrees Fahrenheit to 140 degrees Fahrenheit. It is very important during service that we either maintain foods out of the danger zone, or if we are going to use time control, that foods are kept in the danger zone for no more than four hours. We will discuss both of these options in the upcoming slides.

Holding foods, temperature control. Hot holding. Hot holding for foods must be 60 degrees Centigrade, 140 degrees Fahrenheit or above. In the 2005 FDA food code, the temperature has been lowered to 135 degrees Fahrenheit. However, the VSP requirements are 140 degrees Fahrenheit or above. Cold holding. Cold holding is at five degrees Centigrade, 41 degrees Fahrenheit, or below. This keeps food out of the danger zone, both the hot holding and the cold holding.

Time as a control. Time as a control can be used for holding foods. If time as a control is used, a plan is required. The plan must show the flow of the food, the setup times, and the discard times of the outlets where time control is used. The time control plan should at a minimum either list the foods where time control is used or should state all potentially hazardous foods. It is very important to understand that a time control plan is required for all outlets where time control is used. While logs are not required in the operational manual for time control, if logs are part of a time control plan, they must be filled out, and they will be evaluated during an inspection. Buffets or outlets that are open for more than four hours have a different requirement for those open less than four hours. They must have foods labeled that are on time control with the discard time. This only applies to potentially hazardous foods.
Food-dispensing utensils. There are various ways of storing in-use food-dispensing utensils. These include in the food with the handle out of the food, on a clean surface. If the food-dispensing utensil is used for potentially hazardous foods, the surface and the utensil must be washed, rinsed, and sanitized or changed every four hours. Additionally, in-use utensils can be stored under running water— for example, ice cream scoops in a dipper well. Additionally, in-use utensils may be stored in standing water if that water is at or above 140 degrees Fahrenheit. This applies for potentially hazardous foods.

Self-service buffet. There are various requirements for self-service buffets. They include having an effective sneeze guard to prevent potential contamination, having a serving utensil for each food item on the serving buffet, and ensuring that customer plates are not reused and customer eating utensils are not brought to the buffet.

Beverage dispensing. When is refilling of glasses or cups allowed? Well, this depends on the type of dispensing unit provided on the vessel. From this slide, we can see when a glass is filled or refilled, the lip contact portion of the glass touches the activation lever of the dispensing unit. Refilling would not be allowed in this type of equipment. A modification can be made on this equipment where the paddle that activates the filling is extended so that it only touches the bottom of the glass. Then refilling of glasses would be allowed.

This slide shows a water and ice dispenser where refilling of glasses would be allowed, because the glass would be placed down on a surface, a button would be depressed to fill the glass. This would not contaminate the glass or any portion of the dispensing unit.

Linen use. Linen can be used to line baskets holding non-potentially hazardous foods such as breads, pastries, and rolls. The linen must be changed between each customer.

This slide shows a photo of an omelet station where the ingredients for the omelets are kept in an ice bath. The ingredients include ham, cheese, and pasteurized egg product. At this station, there is an attempt to keep these products at or below 41 degrees Fahrenheit, five degrees Centigrade. However, it is very clear from the photo that there is an insufficient amount of ice around the pans to maintain proper temperatures. This can be corrected by either reducing the size of the food pan or increasing the size of the container holding the ice. It is important to ensure that ice is placed all around the container up to the level of food.

This slide is an example of a vessel that uses a color coding system for cutting boards to prevent cross contamination. We can see that the food handler is wearing gloves, not touching the ready-to-eat food with bare hands. He is slicing a cooked meat product on a brown cutting board. And according to the color coding scheme, this would be correct. However, there is a green cutting board and a white cutting board in this location. And
the questions to be asked are whether or not these cutting boards are clean, and why are
they in this location? They should not be here whether clean or soiled.

This food handler is dressed to handle food, is wearing single-use gloves, and appears to
be discarding refuse. If this is the end of the food handler's shift, this would be
acceptable. However, if this is at a middle point or some point in between his handling
food, this should not be done. Discarding of garbage has a potential of contaminating this
worker's uniform, and this individual should not go back to work after handling refuse.

This slide displays a food handler touching a ready-to-eat food, smoked salmon, with
bare hands, his thumb. This is not allowed.

This slide shows food stored stacked on one another. The top food is raw chicken. While
we would not be concerned with this in a freezer, because the product is frozen with no
opportunity for dripping, this storage sequence would be improper in a refrigeration unit
or a thawing unit where there is the potential for dripping from the raw chicken down to
the product store below.

This slide shows two improper practices-- excessive jewelry and touching ready-to-eat
foods with bare hands. This food handler should not be wearing any jewelry and should
also be wearing gloves, single-use gloves, or using utensils to handle the grapes, which
are considered a ready-to-eat food. For this example, we can also see that color coding is
used for cutting boards.

This individual is cutting lettuce, a ready-to-eat food, on a red cutting board. Under the
color coding system, a red cutting board would be used for cutting raw meats. While this
practice is not correct, it may not be a problem in relation to food safety. If this cutting
board was obtained from the clean side and has been washed, rinsed, sanitized, and air
dried, this would be acceptable to VSP. However, a supervisor should discuss this poor
practice which does not comply with company policy with this individual. Let us
examine also the use of gloves. This individual is wearing one glove on the hand holding
the ready-to-eat food and is not wearing a glove on the hand holding the knife. To the
VSP, this would be acceptable. There is no requirement for wearing gloves when holding
utensils. Additionally, this may be used as a safety measure to make sure that the knife
does not slip out of this individual's hands.

This slide depicts a three-compartment sink that runs from right to left. We can see on the
slide the word "wash" indicating that the food pans are on the soiled ramp of the three-
compartment sink. Foods should not be prepared on the soiled ramp of a three-
compartment sink.

While this individual in the slide is wearing gloves, it is apparent that the gloves are not
long enough. There are various ways to correct this. One would be to use longer gloves.
This may not be easy. It may not be easy to obtain longer gloves, so there are other ways this can be corrected. This individual could work in smaller batches or can use a large receptacle and use utensils. Additionally, this product, coleslaw, can be placed in a mixer bowl, and the mixer can be set at "stir." Again, there are various ways to correct this deficiency.

From this slide, we can see that we have baking pans stacked on a refuse or garbage receptacle. An individual in this slide was using the garbage receptacle as a trolley to transfer clean baking pans from one location to another. This is not allowed.

Here is a buffet station that has been set up in an area that has not been designed for food service. While the VSP does allow this, the requirements in the food area would also apply to this. Namely, a sneeze guard should be provided to protect the foods from potential contamination, a serving utensil should be provided for each tray, and if potentially hazardous foods are served on this buffet, either temperature control or time control should be used. If time control is used in this location, a plan must be provided and available for the VSP during inspections.

From this slide, we can see that the serving utensils are placed in the holder with the eating or lip contact surface exposed to potential contamination. This is very easy to correct. All we would have to do is reverse the storage so the handles are pointing up.

From this slide, there are a few things that are incorrect. First we'll start with the serving trays. The serving trays are placed so that they are partially forward of the sneeze guard, subjecting the foods to potential contamination from coughing or sneezing. Additionally, the portion of the tray that is forward of the sneeze guard is not in contact with the cold top, potentially causing problems with temperature control. Additionally, we can see that there are some scallop-shaped bowls that are used for holding potentially hazardous foods. These bowls would not be able to keep temperatures. This cold top is designed for flat storage. If time control were used on this buffet, then the scallop-shaped bowls would not be an issue.

Cross-contamination activity.
We will now take time from the lecture portion of this session to show two examples of how cross-contamination can occur. One example will display cross-contamination occurring from hands not being washed properly, and cross-contamination occurring from a piece of equipment.

We will now demonstrate how cross-contamination can occur when hands are not properly washed in between cutting a raw animal food, fish, and cutting a ready-to-eat food, tomatoes. We will start by cutting the raw fish. Raw fish are loaded with bacteria. We have cut the raw fish and sent it off for preparation. The cutting board will be removed, and the knife, to be washed, rinsed, and sanitized. We have returned with a
cutting board that has been washed, rinsed, sanitized, and air dried. We will now proceed to cut tomatoes or ready-to-eat foods. Remember, the food handler's hands have not been washed. We will cut the tomato with a clean, sanitized knife on a clean, sanitized cutting board. We will now demonstrate how cross-contamination can occur because hands were not properly washed. We will demonstrate using fluorescence. As we can see, there is a slight fluorescence on the sponge, which is depicting potential pathogenic bacteria on a ready-to-eat food. Tomatoes are not likely to be cooked. The pathogenic microorganisms on this tomato, transferred from the raw fish, can cause illness. Additionally, we can see fluorescence on the hands that have not been washed between handling the raw fish and handling the tomatoes.

We will now demonstrate how cross-contamination can occur when a cutting board is not washed, rinsed, and sanitized in between preparing a raw animal product, fish, and a ready-to-eat food, tomatoes. We will begin by cutting the raw fish on the cutting board. We will send the fish off for preparation. We will now change gloves. We will wash, rinse, sanitize, and air-dry the knife. As we can see, there is some contamination on the cutting board which potentially can harbor pathogenic microorganisms. We will now cut the tomato, a ready-to-eat food, on the same cutting board that we cut raw fish. Remember, this cutting board has not been washed, rinsed, sanitized, and air-dried. We are using new gloves, we have washed our hands, and we are using a washed, rinsed, and sanitized knife. We will begin to cut the raw tomato, which is a ready-to-eat food, on the same contaminated cutting board. We will demonstrate how cross-contamination occurred by showing fluorescence. As we can see, the cutting board fluoresces, indicating contamination, and we can see how the tomato is fluorescing as well. Additionally, we can have contamination on the gloves, and we generally may not have contamination on the knife, but we also may have contamination of the knife. This could be remedied by ensuring that all equipment is washed, rinsed, and sanitized in between handling raw animal products, and gloves are changed, hands are washed, and new gloves are put on prior to handling a ready-to-eat food.

For information on the Vessel Sanitation Program, please visit www.cdc.gov/nceh/vsp. For information on the Food and Drug Administration, please visit www.fda.gov or www.cfsan.fda.gov. For information on the United States Department of Agriculture, please visit www.usda.gov or www.fsis.usda.gov. For information on the International Association of Food Protection and for information on the food safety icons used in this presentation, please visit www.iafp.org.