Centers for Disease Control and Prevention
National Center for Environmental Health
Vessel Sanitation Program

Health Practices on Cruise Ships: Training for Employees
Transcript

# Integrated Pest Management

The Centers for Disease Control and Prevention's Vessel Sanitation Program is proud to bring to you the following session: Integrated Pest Management. While this presentation is primarily intended for cruise vessels under the jurisdiction of the Vessel Sanitation Program, it may also be used by anyone who is interested in this topic. This session should not be used as a replacement for existing interactive training, but should be used as an adjunct to a comprehensive training program.

Integrated pest management. Learning objectives. At the end of this session, you will be able to list the components of a good integrated pest management plan; you will list some of the conditions that are favorable for pest infestation, list acceptable forms of training staff in integrated pest management, list the types of inspections to be conducted for pests and the acceptable inspection times, list the considerations for passengers and crewmembers with respect to health and safety when using pesticides.

Integrated pest management plan. The best approach when developing an integrated pest management plan is a team approach. The integrated pest management plan should cover the entire vessel, and this makes it extremely important to have members from each department on the integrated pest management team and to have members from each department on the vessel also trained in integrated pest management. The integrated pest management plan should be simple and easy to understand.

IPM plan. Monitoring, logs, passive surveillance, training, and pesticides. These are all components of an integrated pest management plan, and will be covered in this presentation.

Monitoring. It is important to set adequate schedules for monitoring, and the schedule is depending on the area to be inspected. Areas where pests typically are attracted to contain food and water, and these areas of the vessel should be inspected more frequently than areas that do not contain food and water. So this would include galley spaces, pantries, bars, passenger accommodations, and in some cases, crew accommodations. Individuals responsible for the integrated pest management plan should be properly trained on how to identify pests and on log completion. Log completion is the documentation, and proper equipment should be available for conducting inspections.

All incoming shipments should be monitored, not just food items coming onto the vessel. Pests can come into the vessel either with food shipments or with paper shipments or any other item that might come onto the vessel.

Logs and record keeping. It's important to document inspections and to document the presence or absence of vermin. When using documentation, it's important to indicate whether or not the pests that were identified were alive or dead, the location of the pests. For example, were the pests located in the technical compartment? Were they on the bulkhead? Were they inside a refrigerator? How many were identified? Were there a few, were there a moderate amount, or were there numerous pests identified? And the stage of development. As an example, it would be very important to indicate whether or not juvenile, nymphs, and adult roaches were identified in an area, or whether all the roaches were adults. The stage of development may be an important indication to show that pests are actually multiplying on the vessel, in the case where juvenile, nymphs, and adults were all identified, or perhaps pests came in on a shipment, for example in the provision area, where there is an identification of only adult roaches. This would actually indicate what action should be taken, and actions must be documented and logged in the integrated pest management plan. In the identification log, there should also be a column for identifying the pesticides that were used. And it is also very important to log and document follow-up that's conducted.

Passive surveillance. Passive surveillance typically includes the placement of glue traps, glue boards, bait stations, and with respect to rodents, either snap traps or isolation traps. There are also other passive surveillance methods that are used that are typically forgotten when developing an integrated pest management plan, and these are the fly traps. They should also be included in your IPM plan, and the placement and location of each trap or device should be either put on a map or a list.

Training. Training can either be accomplished in the house or by a contractor. In-house training, as an example, would be someone who is responsible for an integrated pest management plan, training their replacement, or training individuals in various departments on the vessel. If a contractor is hired to do the training, it is important to ensure that the contractor is licensed in the state where the business operates. Documentation must be kept in the integrated pest management plan for all training. The documentation can be a list of individuals trained, or it can be a certificate for each crewmember that has been trained. The documentation at a minimum should include the date, the length of the training, and the topics that were covered. It is also important to keep a listing of individuals from each department that are trained so as individuals leave the vessel, you can identify additional training that might be required for replacements.

Pesticides and effectiveness. It is required to keep a record of the pesticides used within the last 12 months and all pesticides that are currently on the vessel. It's important to assess pesticides for their effectiveness. Pests can become immune to particular

pesticides, and without assessing effectiveness, a vessel may be using pesticides that are no longer capable of killing the pests.

Health and safety procedures. While the VSP does not require material safety data sheets, proper health and safety procedures at a minimum would require that MSDSs be available on the vessel to train employees on first aid and the proper personal protective equipment required for the pesticides used. Pesticides should be stored based on compatibility, and the storage should be out of the food area in a locked cabinet and should be properly organized. It is important to read the label of a pesticide to note when application should occur and how application of the pesticide should occur.

Insect traps. This slide shows an example of a fly trap located near an elevator door. Fly traps typically are glue traps on cruise vessels. However, there are old model flytraps that electrocute the pests. The location or placement of the glue trap or electrocution trap is very important. Electrocution traps, when they electrocute the pests, actually causes the pest to explode-- for example, a fly-- where parts of the fly can actually fly out of the piece of equipment and land on food preparation or surfaces that are located around that electrocution trap. So it is important to place these away from food areas. Glue traps, however, do not do that. And the placement of a glue trap, the consideration should be what is located underneath the glue trap. There should be no food, no food storage, no food preparation or clean equipment storage underneath glue traps. The cleaning and replacement frequency for the glue board is dependent on the manufacturer's specifications.

Plan evaluation. The VSP operations manual requires that the plan be reviewed in its entirety every two years. However, it may be important to do an evaluation of the various components of an integrated pest management plan more frequently. As an example, pesticides that were used in the past may no longer be used, so it may be important to perhaps do a quarterly evaluation of your IPM plan with respect to pesticide use.

Integrated pest management plan-- the basics. We'll be covering the following topics for the remainder of this session: building pests out of the vessel, eliminating food and water sources, preventing harborage, conducting inspections, and pesticide application.

Building them out. During the construction of a vessel, during the planning stages of construction of a vessel, it's important to consider building pests out of the vessel. It is equally important during remodels to also consider this. Additionally, protection of outer openings should be a consideration both in the construction, design, and remodeling of vessels.

Prevent harborage. To prevent harborage conditions on a vessel, it is important to both store items off the deck and away from bulkheads. Unused items should be removed and discarded. It is important to seal cracks and crevices to prevent access for roaches behind

bulkheads, behind profile strips, and in technical spaces. And there should be a limit to the amount of excess storage or spare parts in the galley, and items that are going to be stored as spare parts down in other spaces of the vessel should be stored clean and off the deck.

Eliminate food and water. It is important to eliminate food and water sources for vermin. Food should be properly stored in covered containers that are insect and rodent proof. Cleaning schedules should be maintained to remove food residue from both food and non-food contact surfaces. Improper cleaning can leave sufficient food behind for vermin. It is important to eliminate pooled water and to keep deck drains free of standing water to prevent moist conditions where flies like to breed. Refuse containers should be kept closed when not in use to limit access to food residue and should be cleaned when emptied. Unpacking of cartons should occur down in the provisions area, and a limited amount of unpacking of cartons should occur in other areas. Unpacking cartons in the provision areas allows for a thorough inspection for the presence of vermin and would also allow for pest control to happen down in one area as opposed to various areas throughout the vessel. It's also important to clean up dead insects or dead vermin, which can be a source of food for vermin.

The following slide is an example of the non-food contact surface of a fryer that has been opened. And the grease and food left behind from improper cleaning can be a food source for vermin.

Conduct inspections. These inspections that we're going to speak about now differ from the inspections for actually identifying pests. These inspections are for conditions conducive to pest infestation such as harborage or improper cleaning and leaving food behind, or areas of standing water where vermin would like to breed. The frequency of these inspections depends on the type of area to be inspected. If they are food areas that are being inspected, those inspections should occur frequently-- perhaps weekly or monthly. Open areas, technical spaces, non-food areas, those inspections can occur at a less frequent time frame. Again, the frequency depends on the vessel and the location to be inspected. You want to inspect these areas for harborage conditions, for the cleanliness of the facilities, and actions should be taken when conditions conducive to vermin infestation are noted. This action should be reporting to the supervisor of that area that areas need to be cleaned or harborage conditions need to be removed. These inspections should be documented as well.

Pesticide application and use. Pesticides are pest-specific. There are pesticides called insecticides which can be used for roaches, flies, grain pests, and other insects. There are other pesticides that might be used which are called rodenticides. These pesticides are specific for rodents. It is very important to read the label of a pesticide to ensure that it is being used appropriately.

Pesticide use and application. The toxicity and the ability of a pesticide to leave behind a residual is very important to consider, especially when the pesticide is to be used in a food area. Training of the applicator is essential. If it's a non-restricted use pesticide, the MSDS should be available, and the label should be read, and the pesticide should be used in accordance with the manufacturer's specifications. Restricted use pesticides requires certification. No one on a vessel should use a restricted-use pesticide unless they have been certified as an applicator for a restricted-use pesticide. If an outside contractor is hired, and a restricted-use pesticide is applied, that contractor should show certification for that use. The areas to use the pesticides must also be considered. In some cases, pesticides are used in food areas, and in some cases, they're used in non-food areas. Again, it is very important to read the manufacturer's labels on all pesticides when considering how these are to be used.

Knowledge of life cycles and behavior. During training for integrated pest management, it is important to train individuals on the appearance of pests, the species of various pests, and the stages of development. It is also important to train individuals on pest reproduction, the frequency of reproduction, and the age when a particular pest becomes an adult and is capable of reproducing. It is also important to train individuals on the behavior of individual pests, their likes and dislikes, and the neighborhoods in which they travel.

This concludes the session Integrated Pest Management. For resources and reference on this topic, please visit www.cdc.gov. For information on the Vessel Sanitation Program, please visit www.cdc.gov./nceh/vsp. For further information on pesticides, please visit www.epa.gov. Additional information can also be located by visiting www.usda.gov or www.fda.gov.