I Nyoman Sudiarta

Was born on 11th May 1966 in Denpasar. He gained his Bachelor degree from the Economy Faculty of Udayana University in 1991, and completed his Postgraduate study in Management in 2012. He began his career as a lecturer in Polytechnic of Udayana University in 1991. Later, he joined the Holland America Cruise Line in Miami as the Food and Beverage Service Staff. He also worked as a Restaurant manager in Bali Festival Park, and as a server in Illinois Restaurant, Chicago. He received professional trainings, such as Boat Course held by Holland America Company Inc., United State Public Health, Training of Assessment, Examination and Certification of Seafarer from the US Ministry of Transportation, Developing HACCP Food Safety Management System from Premysis Consulting, and Training of Internal Quality for ISO 9001:2008 held by Proxis Manajemen Internasional. He is a lecturer in Institut Pariwisata dan Bisnis Internasional, where he productively publishes books about FB Service and Cruise Line. Additionally, he is one of the assessors of LSU and BNSP. Feel free to contact him at *sud.stpbi@gmail.com*.

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SANITATION at SEA

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UU No 28 tahun 2014 tentang Hak Cipta

Fungsi dan sifat hak cipta Pasal 4

Hak Cipta sebagaimana dimaksud dalam Pasal 3 huruf a merupakan hak eksklusif yang terdiri atas hak moral dan hak ekonomi.

Pembatasan Pelindungan Pasal 26

Ketentuan sebagaimana dimaksud dalam Pasal 23, Pasal 24, dan Pasal 25 tidak berlaku terhadap:

i. penggunaan kutipan singkat Ciptaan dan/atau produk Hak Terkait untuk pelaporan peristiwa aktual yang ditujukan hanya untuk keperluan penyediaan informasi aktual;
ii. Penggandaan Ciptaan dan/atau produk Hak Terkait hanya untuk kepentingan penelitian ilmu pengetahuan;
iii. Penggandaan Ciptaan dan/atau produk Hak Terkait hanya untuk keperluan pengajaran, kecuali pertunjukan dan Fonogram yang telah dilakukan Pengumuman sebagai bahan ajar; dan
iv. penggunaan untuk kepentingan pendidikan dan pengembangan ilmu pengetahuan yang memungkinkan suatu Ciptaan dan/atau produk Hak Terkait dapat digunakan tanpa izin Pelaku Pertunjukan, Produser Fonogram, atau Lembaga Penyiaran.

Sanksi Pelanggaran Pasal 113

1. Setiap Orang yang dengan tanpa hak melakukan pelanggaran hak ekonomi sebagaimana dimaksud dalam Pasal 9 ayat (1) huruf i untuk Penggunaan Secara Komersial dipidana dengan pidana penjara paling lama 1 (satu) tahun dan/atau pidana denda paling banyak Rp100.000.000 (seratus juta rupiah).
2. Setiap Orang yang dengan tanpa hak dan/atau tanpa izin Pencipta atau pemegang Hak Cipta melakukan pelanggaran hak ekonomi Pencipta sebagaimana dimaksud dalam Pasal 9 ayat (1) huruf c, huruf d, huruf f, dan/atau huruf h untuk Penggunaan Secara Komersial dipidana dengan pidana penjara paling lama 3 (tiga) tahun dan/atau pidana denda paling banyak Rp500.000.000,00 (lima ratus juta rupiah).

SANITATION AT SEA

I NYOMAN SUDIARTA

2021

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I Nyoman Sudiarta

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PREFACE

This manual course book is written to help the students of Sekolah Perhotelan Bali (SPB) in preparing themselves to work on board cruise line. It is completed with information about the implementation of principles hygiene and sanitation on board ship.

These principles will help maintain good health for passenger and the crew, and prevent outbreaks of food poisoning and food infection on board ship. They are based on the recommendations of the World Health Organization and the United State Public Health Service.

The author wrote this book based on his experience worked on board cruise line. A part from his experience, the author also referred to some of the ship board hand books.

Hopefully this manual course book will give enough information to the students of Sekolah Perhotelan Bali, especially for those who choose cruise line programme in

understanding about the importance of sanitation when working on a cruise ship.

Suggestions, inputs and comments are highly appreciated for improving this manual course book.

Denpasar, March 4th, 2021
I Nyoman Sudiarta

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I n t r o d u c t i o n

Cruise ship are well known for their delicious food, relaxing atmosphere and fine entertainment. Many people take a cruise just to relax and enjoy the food. Therefore you, the person who handle food play a very important part in the success of each cruise.

You must understand the importance of your job and the responsibilities of food service employee. It is always important to serve food that looks and taste good. Your main responsible is to ensure that the food is also safe to be eaten and free from contaminant. This will protect the passenger and crew from food borne illness.

The diseases carry by food can be very serious and must be prevented. Harmful viruses, bacteria or dangerous chemicals can easily get into food that is not properly protected. With only one mistake, an untrained or careless food handler can cause an outbreak of food borne illness.

Preparing food that is safe to eat does not happen by accident. It is the work of well-

trained conscientious food service employees. You as a food service worker, have legal responsibilities when storing, transporting, preparing, or serving food, you must follow the rules of World health Organization and The United State Public Health Service.

This book is based on these guidelines. It is your legal responsibility to follow these requirements at all times when working on a cruise ship. This book will help you meet this responsibility and understand the importance of the rules for keeping food safe and wholesome.

Every vessel that has a foreign itinerary and that carries 13 and more passengers is subject to twice yearly inspections and when necessary to re inspection by Center for Disease Control and Prevention (CDC).

To ensure a clean and healthy environment, cruise ship must meet the criteria established by CDC. The score a ship receives after inspection is published every two weeks in the Summary of Sanitation Inspection of International Cruise Ship commonly referred to as a green sheet. The

ship's level of sanitation is acceptable to CDC if tits score on the inspection is 86% or higher.

All passenger ships arriving at U.S ports are subject to unannounced inspection under the voluntary cooperative inspection program. By following the rules and applying the knowledge learned here, you will feel confident during these inspection and feel pride in knowing you are doing your job right.

CHAPTER 1-THE RELATIONSHIP BETWEEN CRUISING AND SANITATION

The general concept of food safety is expressed by the word: "SANITATION". The word sanitation comes from the Greek word that means "health". We expand on that a bit and say health through cleanliness. Sanitation is the key to controlling the diseases that can be carried by food. Food service sanitation is: Clean and healthy employees preparing safe food in clean galleys with clean equipment.

Cruising holidays first started to become popular back in the early 1970's. At that time there also started to be many reports of cases of illness caused by the food and water served on board those early ships. For example:

- In January, 1970, 10 passengers and 36 crew members on board a Cruise ship became sick with typhoid fever and one of those passengers died.
- In June 1973, 586 passengers became sick with diarrhea, which was caused by the ship's water.

- In August 1974, 36% (274 passengers) were again stricken with a diarrhea illness this from the ship's water system. The water was found to have an abnormally high concentration of Salmonella
- In January 1975, 36% of 703 passengers (252 passengers) became sick with severe diarrhea. The cause of this illness was found to be a bacteria called Vibrio P found in a Seafood Cocktail.
- Then again in February 1975, 445 passengers became sick with the same diarrhea illness. Again the cause was found to be Vibrio P in Lobster and Shrimp.

During that period from 1970 to 1975, The United States Public Health Service started to conduct investigations of these outbreaks of illness and by 1975 had been inspecting regularly all Cruise ships entering American ports.

The purpose of those early inspections was to rate the ships for compliance with certain standards of Sanitation.

The guidelines of the Vessel Sanitation Program were based on scientific knowledge and recognized Sanitation practices of the World Health Organization (WHO) and the Centers for Disease Control.

The start of the inspection program and the attention that Cruise companies gave to the Sanitation conditions on board their ships helped reduce the frequency of these outbreaks of illness.The Cruise companies realized that it made good 'business sense' to have high standards of Sanitation.

After more than ten years of very strict inspections by USPHS, and big investments in equipment time and effort by the Cruise companies, we now have the highest standards and among the lowest frequency of outbreaks of illness in the restaurant and hotel business in the travel and leisure world.

This is a record the Cruise companies can be proud of, and opportunity for you to be part of a program that is the best in the world.

CHAPTER 2 -THE IMPORTANCE OF FOOD SAFETY

We all need to eat and drink to stay alive, so it is important that our food does not harm us in any way. People whose work involves food have special responsibilities for safeguarding the health of consumers. They must ensure that the food they handle does not cause illness, injury or any other problem. There are many laws regulating the production and sale of food but this book concentrates on the basic principles of good practice that are involved in handling food safely at work.

Food safety involves safeguarding food from anything that could harm the health of consumers. While high standards enable everyone to enjoy their food without illness, injury or other problems, poor standards can lead to all kinds of harm and even death. As food safety is so important to everyone, food handlers have legal obligations for keeping food safe to eat. This chapter looks at the

impact of food safety and introduces the part food handler's play in it.

CONSUMER AWARENESS

Outbreaks of food-borne illness and questions about food and health have often been in the headlines in recent years. At the same time, cases of food-borne illness have increased dramatically. In England and Wales, for example, the number has more than quadrupled over a decade.

No single reason has been identified for the increase, but factors may include:

- Changes in eating habits, including a greater reliance on re-heated foods and an increase in the number of meals and snacks eaten away from home.
- The intensive rearing of food crops and animals.
- A reduction in the use of preservatives.
- Changes in the way that official figures are recorded, with a wider range of illnesses now included in the statistics.

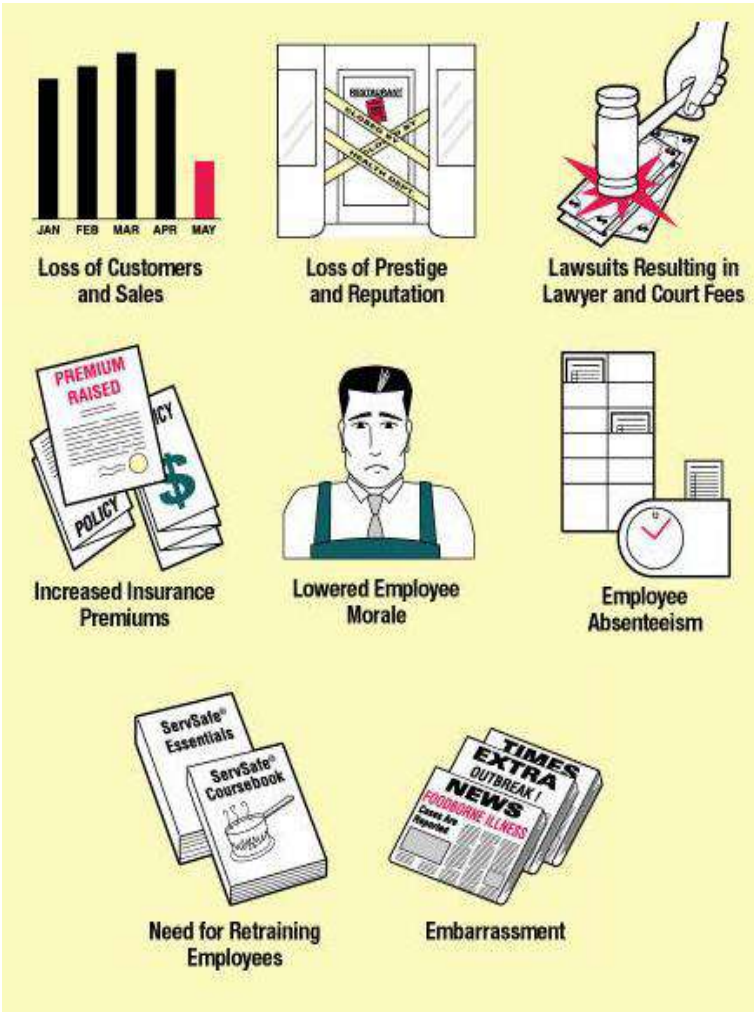
- Increased reporting of cases because of greater public awareness.

It is important to remember that despite better public awareness of illnesses linked to food, the official figures for food-borne illnesses are unlikely to show the true extent of the problem because so many cases go unreported. High standards of food safety bring important benefits to consumers, employees and business proprietors. But there are high costs for poor food hygiene including pain and distress for individuals and the loss of revenue and reputation for businesses.

Benefits of effective food sanitation

- Satisfied customers.
- A good reputation
- Loyal customers
- Less food wastage and controlled running costs.
- A pleasant place to work.
- Compliance with food safety laws.
- Better job security

Costs of poor food sanitation



YOU'RE PART IN FOOD SAFETY

If you handle food as part of your job, you are responsible for ensuring that you do not endanger the safety of food. This is a legal responsibility. You are not expected to memorize every detail of every food safety law, but you do need to understand how current laws affect the way you work and to make sure that you follow good working practices – there is more about this throughout the book. In general, your part in food safety is likely to include:

- Keeping yourself and your workplace clean.
- Protecting food from anything that could cause harm.
- Following good hygiene habits, such as washing your hands before handling food.
- Staying alert to food safety hazards.
- Following the rules for food safety in your workplace and working with care.
- Following the advice on good practice in this course book.

CHAPTER 3 -FOOD CONTAMINANTS

Contamination is the presence of something harmful or objectionable in food or drink which creates a risk of illness, injury or discomfort. No one wants to eat contaminated food and the law says that food handlers must protect food from contamination that is likely to arise and gives advice on prevention.

Causes of contamination

Food contamination is caused by three groups of contaminants which are described as:

- Physical
- Poisons
- Microbial

  Microbial contaminants are the main cause of food-borne illness.

Examples of physical contaminants:

- Stone, pips leaves or stalks from fruit and vegetable.
- Shell fragments from nuts, shellfish and eggs.

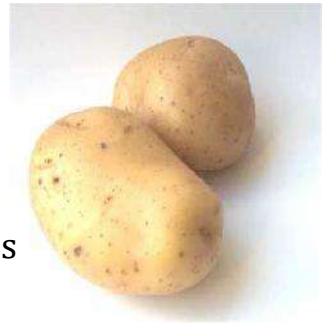
- Scales from fish, bone fragments from poultry and meat, feathers from poultry.
- Paper, string, plastic or staples from food packaging.
- Nuts, bolts and screws from machinery or equipment.
- Fragments of glass or china.
- Jewelry, hair, fingernails, buttons, pen tops and plasters.
- Dust and dirt from the air, rubbish or unclean equipment.
- Insects, their egg and droppings.

Example of chemical poisoning:

- Cleaning chemicals.
- Industrial processing chemicals.
- Agricultural chemicals.
- Pesticides and pest bait.

Example of natural poisoning:

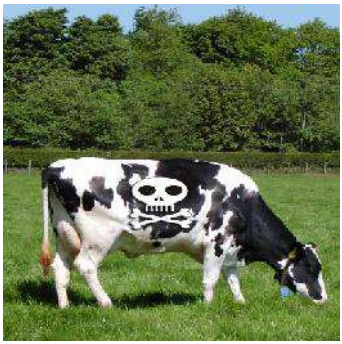
Poisonous mushroom



Green potatoes

Some fish are naturally poisonous.

Some meats are poisonous because the animal ate something poisonous.



Examples of microbial contaminants:

- Molds
- Yeast
- Viruses
- Bacteria

All of these organisms are part of the invisible enemy. In order to control the growth of them and limit the transfer of these organisms to food, we must understand a little biology. We cannot see these organisms so it will help to know where these organisms come from, how they travel and what they need to live and grow. They will usually not cause us a problem if they are kept from growing into large numbers.

MOLDS

Molds are the hairy, fuzzy-looking things you sometimes see growing on bread, cheese, fruit and vegetables. They can grow on almost any food at almost any temperature. Molds can be helpful if grown under controlled situations. They are used in the ripening of some cheeses

and the medicine 'penicillin' is produced from bread mold. Molds, however, are also a common cause of food spoilage and some even produce toxins that can be poisonous to us. We therefore never want to allow conditions that promote the growth of mold on our food. The presence of mold on walls and refrigeration gaskets is also a good sign of improper cleaning and sanitation. Mildew is a type of mold found on walls.

YEAST

Yeast is a very small plant like microbe that loves to grow in the presence of sugar. As it eats or digests the sugars, it gives off the waste products alcohol and the gas carbon dioxide. Because we understand this we can use yeast to our benefit. It is used to ferment beer, wine and sauerkraut for example. It is also used to make bread dough rise from the gas bubbles.

Yeasts help produce some food, but they can spoil others. If it is growing in jam, the vitality juice lines, beer lines, catsup or cottage

cheese it causes spoilage. This can be recognized by gas bubbles and an alcoholic taste. Yeasts can also cause infections in people.

VIRUSES

Viruses are the smallest and the simplest from of life known. This however does not make them easy to understand. They are not complete organisms and thus must live and multiply in living 'hosts'. Viruses can survive in food and on un sanitized surfaces and thus use this method for a free ride from one person to another.

Viruses cause such diseases as the common cold, flu, hepatitis A, measles and Norwalk. Studying a virus is very difficult since they are so small and that is why there is no cure for many of these type diseases. Viruses attack the human body similar to a guerrilla fighter. They infiltrate rather than really attack. They literally invade human cells and turn the cells genetic material from its normal function into producing more viruses. Viruses also invade

fish and seafood that grow in polluted waters. Raw products can store the viruses. Raw vegetables washed in polluted water probably will have viruses on their surfaces.

The most common ways viruses are transferred to people and cause disease is through raw shellfish, polluted water and food-handlers that harbor the virus and pass them on into the food by not carefully washing their hands after going to the bathroom or by coughing and sneezing on food or their hands. By knowing this, it becomes much more easy to control the spread of this germ. All viruses are harmful and only a few are necessary to cause disease. Even though viruses do not grow in food. They can 'sit' in food and wait to attack an unsuspecting person who eats food that is not well cooked.

Since we serve many types of foods that are ready-to-eat such as salads, appetizers, sandwiches and raw fruit and vegetables, it is very important that we are careful not to spread the viruses we carry to food and if we

are ill to seek medical attention from the ship's doctor or nurse. We do not have to be sick ourselves to play 'host' to viruses but if are sick, we are double trouble.

To sum up, viruses are germs that cause disease in small doses and we as food-handlers must not transfer them to food. Our best defenses are: washing hands thoroughly, wearing plastic gloves when handling ready-to-eat foods, protecting against coughs and sneezes. Washing all fruits and vegetables and cooking food well-done as added protection. We must also use sanitized utensils and equipment when preparing and serving food. There are no shortcuts to protecting food from viruses.

BACTERIA

Bacteria are very small living cells. They are a simple form of life and cannot be seen with just the eye. A microscope must be used. It would take 25,000 bacteria in a row to equal one inch. Since we cannot see them, we must accept the fact that bacteria are almost every

where and we must learn to live with them. We can easily do this by understanding a little bit about them.

There are thousands of different types of bacteria. Each type is a little different in its size and shape, in what it needs to live and grow, and how it affects man. Bacteria serve a very important function in the natural world by breaking down organic matter into nutrients that can be reused. They are nature's recyclers.

In this process, bacteria can be grouped by the effect they have on man. They will fall into one of four groups:

1. NEUTRAL bacteria are neither harmful nor helpful to man. Of the thousands of different types, most fall into this group.
2. HELPFUL bacteria are used to produce foods such as cultured milk, yogurt, cheese and aged beef. Some help make medicines or are used to digest oil. We even rely on bacteria in our digestive system to

breakdown food into nutrients that we can absorb and use. We need bacteria.

3. UNDERSIRABLE bacteria spoil food and give it a bad odor or taste. Spoilage of food by bacteria is much different than bacteria that cause disease. We can tell when a food is spoiled because it is obvious.
4. HARMFUL bacteria cause diseases such as typhoid fever, tuberculosis, sexually transmitted diseases, pneumonia and strep throat along with other diseases and infections.

Harm-full bacteria also cause most food-borne illnesses. Whereas all viruses are bad, only a few harmful bacteria cause disease. The eight or ten types of bacteria that do cause illness however, cause most of the food related problems. These bacteria are present almost everywhere! They are in the air, in dirt, on surfaces like floors and tables, on people, utensil and even the food we are trying to protect!

The fact that bacteria are everywhere and we will certainly not eliminate them from our

work areas must not discourage us. We simply must control their spread to food and their growth into high number. We can do this by understanding what bacteria need to multiply.

WHAT DO BACTERIA NEED TO LIVE AND GROW?

Bacteria grow best under the same conditions that you enjoy. They must have the following to live and grow.

a. FOOD

Like all living things, bacteria need nutrients. Although different types of food poisoning bacteria can live on a range of foods, most prefer something that is both moist and high in protein. Such foods include meat, poultry, shellfish, eggs, milk and dairy products, rice and pasta and products made from any of the foods listed.

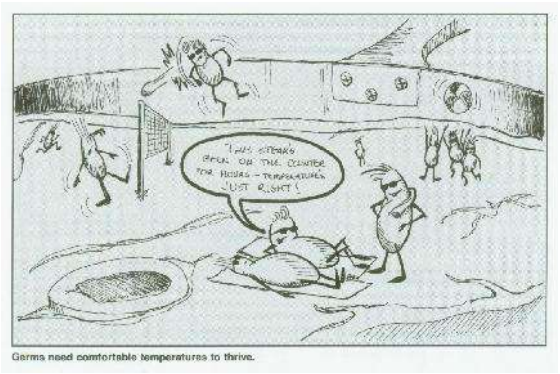
These foods are prone to bacterial growth even if they are cooked and served cold later

– such ready-to-eat items are called high risk foods (Potentially hazardous food)

b. MOISTURE

Food poisoning bacteria need moisture to stay alive. They cannot multiply in dried foods. However as soon is liquid is added to foods such as dried eggs and powdered milk; the reconstituted products provide ideal conditions for bacterial growth. Quantities of salt or sugar (in foods such as savory, biscuits, bacon, confectionery and jam) absorb available moisture in food so that bacteria cannot multiply easily.

c. TEMPERATURE



Germs need comfortable temperatures to thrive.

Most food poisoning bacteria multiply at between 5ºC and 60ºC. This range of temperatures is therefore called the danger zone. Ambient temperatures are generally within the danger zone, and the ideal temperature for bacterial multiplication is about 37ºC, which is average human body temperature.

At temperatures colder than 5ºC and hotter than 60ºC, bacterial growth slow down or stops however, most bacteria can survive cold temperatures and resume multiplication later when conditions are more suitable.

Freezing makes most bacteria dormant, but it does not kill them. When frozen food is thawed, it is susceptible to the same risks as fresh food.

Cooking at high temperatures kill most bacteria, provided that the food is cooked for long enough – for at least two minutes at 70ºC right through to the center or the thickest part of the product.

However, some types of bacteria can survive even higher cooking temperatures and other

harsh conditions such as dehydration and disinfection. They do so by forming spores, a kind of protective coating. Bacteria do not multiply when they are in spore form but, as soon as conditions improve, the bacteria emerge from their spores and are free to resume multiplication.

d. TIME

When food poisoning bacteria are left in warm conditions on the right food with adequate moisture, they reproduce quickly. Most types of food poisoning bacteria take about 10 to 20 minutes to multiply.

e. OTHER BACTERIAL REQUIREMENTS

Levels of acidity and the presence, or lack of oxygen also affect bacteria. Lemon Juice, vinegar and other acidic products make it difficult for most bacteria to multiply and are therefore useful for preserving food for example as pickles. Some bacteria, referred to as aerobes need oxygen to reproduce. Other refereed to as anaerobes thrive without.

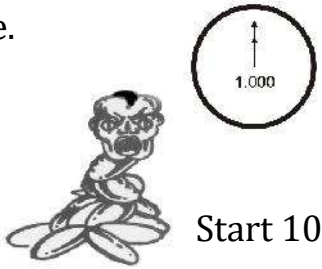
There are also some bacteria that can live either with or without oxygen.

HOW DO BACTERIA GROW

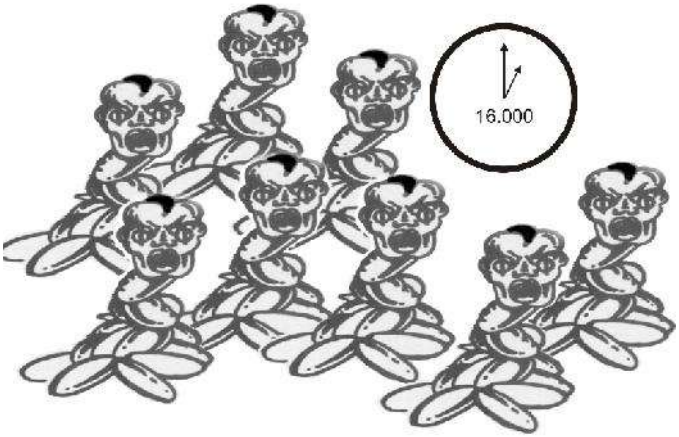
Bacteria, being a simple form of life, have a simple growth process. Each cell divides in half and produces two new cells. Each new cell then divides into two additional cells.

Bacteria divide every 15 – 20 minutes when they have food, moisture and a warm temperature. Large numbers of bacteria in the food are dangerous. Their growth must be controlled to keep food safe.

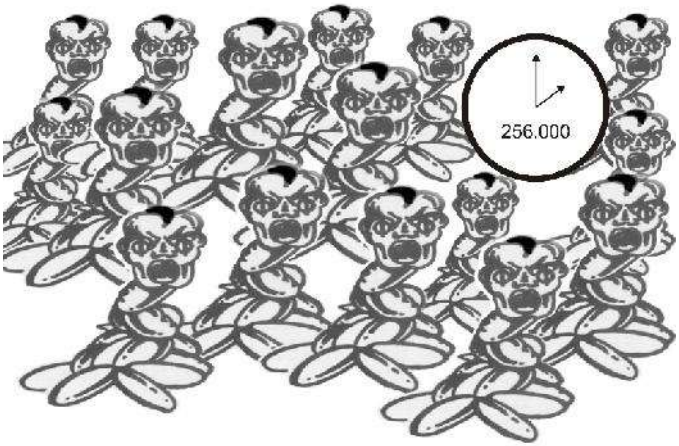
After of two hours, a food item starting with only 1,000 bacteria would have increased to 256,000 under the proper conditions. The bacteria would have continued to increase in number as long as all conditions remain the same.



Start 1000 bacteria



One hour later 16,000 bacteria



2 hours later 256,000 bacteria or more than enough to make you sick

HOW DO BACTERIA GET INTO THE FOOD

Bacteria cannot walk, run, fly, jump or crawl. They do not have legs or wings so they must be carried from place to place. Although they wiggle a bit, bacteria must have some way of traveling to the places where they can grow and multiply. This presents no problem for them because they get into the food through the following:

- Dirty hands and fingernails
- Hair falling into the food
- Unprotected coughs and sneezes
- Dirty uniforms and work clothes
- Dirty utensils and equipment
- Pests like flies, roaches and rats
- Naturally occurring in raw food

Bacteria are not slowed down by the fact that they do not have legs or wings. Food services employees do a good job of putting them into the food by using poor work habits.

SOURCES OF MICROBIAL CONTAMINATION

Raw food

- For example, meat, poultry, fish, shellfish, egg and vegetables
- When animals are slaughtered, the skin and flesh may be contaminated by pathogenic bacteria which are naturally present in the gut. If the flesh is then minced, for instance for burgers, the bacteria can be spread throughout the food.
- Shellfish filter water as they feed. If their water is polluted for instance by incorrectly treated sewage, the shellfish may absorb harmful bacteria and other micro-organisms.

People

- Pathogenic bacteria can be found on hands and in ears, the throat and hair. They are also in cuts, spots and boils. You can spread bacteria by touching your face, hair

or other parts of your body before handling food.

- Even clean, perfectly healthy people may carry pathogenic bacteria and viruses which can be spread to food by poor personal hygiene habits.
- Coughing and sneezing can spread pathogenic micro-organisms over a wide area.
- Poor personal hygiene habits, such as not washing hands after going to the toilet, can spread food-borne illness. This is often referred to as the faecal-oral route of contamination.

Pests and pets

- Insects, such as flies and cockroaches, and animals, including mice, dogs, cats, hamsters, amphibians and reptiles all carry harmful bacteria on and in their bodies.
- Fur, feathers, droppings eggs and nest materials can contaminate food.

Air and dust

- Air and dust carry millions of microscopic particles of dead skin. Food and other debris that carry pathogenic micro-organisms which can settle on uncovered food.

Water

- Untreated and incorrectly treated sources of drinking water, such as rivers, lakes and reservoirs can carry the pathogenic micro-organisms that cause food-borne diseases.

Soil

- Unwashed fruit, vegetable, grain (such as rice) and pulses (such as chick peas and lentils) usually carry soil and dirt that can contaminate food.

Food waste

- Bacteria from food waste and from the pests that the scraps attract can contaminate food if the waste is not disposed of properly.

HOW CONTAMINATION OCCURS

Even the simplest or least processed food could go through several stages before reaching the consumer's plate and some products go through many stages before they are sold. Among the stages could be growing, slaughtering, harvesting or catching, processing, packing, delivering, storing, preparing, cooking, displaying, selling and serving.

It is easy to see how physical and chemical contamination could arise during one or several of these stages – for instance, a screw from a badly maintained piece of food machinery could drop into food. But microbial contamination is an invisible problem that occurs when:

- Raw food, such as poultry and vegetables, are contaminated by bacteria found in the natural environment.
- Pathogenic bacteria are transferred from raw food to a high risk food at any stage of food handling by:

- Direct contamination, when raw food touches a high risk food.
- Indirect contamination, when liquid or juices from raw food drip onto a high risk food.
- Cross-contamination, when bacteria are carried, for instance by hands or utensils, from raw food to a high risk food.

VEHICLES OF CONTAMINATION

Bacteria can move, but they cannot travel far on their own. Anything that enables bacteria to travel is referred to as a vehicle of contamination. People, animals, equipment and utensils are the most usual vehicles of contamination, in particular:

- Hands
- Work surfaces, containers, crockery and cutlery.
- Utensils and equipment, such as chopping board and dish cloths.
- Any food contact surface that has not been cleaned properly between uses.

Vehicles of contamination move pathogenic bacteria from a contaminated source, such as raw meat, to a place with ideal conditions for multiplication such as food which is high in protein and moisture, with sufficient warmth and time to multiply.

PREVENTING BACTERIAL CONTAMINATION

Bacterial contamination leads to most cases of food poisoning and food-borne disease and it take only a small number of pathogenic bacteria, such as Campylobacter jejuni and E coli 0157, to cause food-borne diseases. It is therefore particularly important to ensure that:

- Raw and high risk foods are kept apart at all times including periods of storage, transport, preparation and display or point of sale.
- All surfaces that come into contact with raw food are thoroughly cleaned and disinfected after use.

Food companies use a number of methods to help to prevent cross-contamination. Some use color-coded preparation equipment such as chopping boards and knives.

PREVENTION CHECKLIST

The list below summaries ways to prevent physical, poison and microbial contamination. As you will see, some measures safeguard against two or even three types of contamination. You may not be involved in all the actions needed to prevent contamination at your workplace – for instance, you may not be responsible for choosing reputable suppliers. However, as every food handler has a legal responsibility to safeguard food from harm, it is important to understand the general principles involved:

- Keep food covered until use.
- Use utensils, such as forks, tongs and slices to move food. Don't touch food with your hands unless absolutely necessary.

- Ensure that fastenings and name labels are properly secured to clothing and do not wear jewelry or keep pens or other items. In pockets, hats or behind your ears.
- Follow strict personal hygiene habits, including :
  - Keeping yourself clean and wearing suitable clean clothing.
  - Washing your hands frequently
  - Keeping any cuts, boils or similar skin problems covered.
- Resist any temptation to smoke, eat, drink or chew gum in food area. You could transfer bacteria from your mouth to your hands then to food.
- Separate raw and cooked food at all times, including storage, transport, preparation and point of sale (such as a chilled display counter).
- Use separate equipment and utensils for the preparation of raw meats and poultry and other foods if possible.
- Undo packaging in an area away from food.

- Wash all raw vegetables, fruit and rice before use.
- Keep food areas clean. Clean and disinfect all equipment, utensils and other food contact surfaces after every task involving food.
- Maintain food areas and food equipment in good condition. Report any signs of problems to your supervisor immediately.
- Remove food waste and rubbish frequently throughout the day and dispose of it safely and hygienically.
- Report any signs of food pests to your supervisor immediately.
- Store cleaning chemicals in secure, clearly labeled containers well away from food.
- Follow manufacturer's instructions for cleaning chemicals, Use the correct chemical for the job and follow the methods and quantities specified.

COURSE 4 – FOOD BORNE ILLNESS

Has this happened to you?
You start feeling sick
Your stomach hurts
Your intestines are upset
You think that you are getting the flu

More likely than the “Flu” is that your illness was caused by something that you ate or drink.

When contaminated food or drink causes a person to become sick, that is called food-borne illness.

Food-borne illness occurs millions of times each year. Often the poisoning is a result of food or drink being contaminated because someone did not follow proper sanitation procedures in handling, preparation or service.The effects of Food-borne illness can be very bad. Symptoms may include:

Diarrhea, Fever, Weakness, Headaches, Vomiting, Chills, and others.

Many people are hospitalized because their symptoms are so bad. Some will suffer for years from their illness. Others will suffer a lifetime with side effects, like arthritis, caused by a food-borne illness. Other will die from what they have eaten or drank. Through this program you will learn more about Food-borne illness and how you can prevent it.

You are important in preventing Food-borne illness.

You as a Sea chest crew member are responsible to protect the public health and safety.

Each crew member and every job is important in making the ship a safe and healthy place to be.

Most Food-borne Illness can be avoided, when crew members are aware. This does not mean the other guy, this means you.

Each person that handles a food product from the ingredient stage (delivery, storage, transportation, preparation) to service contributes to the product's quality. That is,

whether it is a safe enjoyable item or a source of food-borne Illness.

The fact is that each person is a possible source of contamination. We carry in us, on us and on our clothing all sorts of contamination. When a healthy crew member works, there are many times he could contaminate food if he does not follow correct sanitation procedures. A sick crew member has even MORE times where he could contaminate food. So that you do not cause yourself or others to be sick, learn and follow all sanitation procedures that are in this course book.

Type of food-borne illness

There are two basic types of food-borne illnesses:

Food-borne infection

Food-borne intoxication

Food borne infection

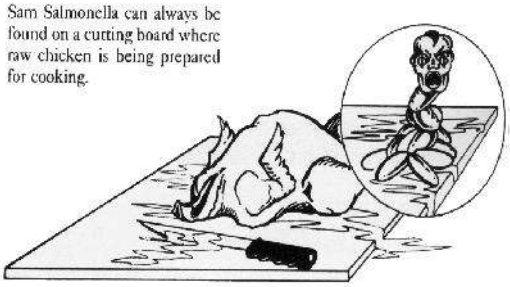
A food-borne infection is an illness that results from food that contains large numbers of harmful bacteria. Only live bacteria can cause a food-borne infection. Salmonella is an example of a food infection. These bacteria cause many food-borne illnesses each year. Salmonella is an average looking salmonella bacteria and should be considered harmful and dangerous. He can always be found on animal products such as raw chicken, turkey, pork, veal, shellfish, eggs and unpasteurized milk and dairy products.

The infection cause by these bacteria produces a headache along with vomiting, diarrhea stomach cramps, and fever. Although Sam Salmonella is not deadly, he is a special danger to people who are very old, very young or poor in health.

Control Measures

Salmonella can be destroyed by high temperatures. Cooking a food item to internal temperature of 165°F (74ºC) will kill most of the bacteria. Once an item is cooked, you must not let Sam Salmonella contaminate it again. This can happen to cooked food either through contact with raw food or the equipment and utensils used to process raw food. Always watch out for contaminated food supplies. Milk, dry milk and unshelled eggs must be pasteurized. Remember to use only whole eggs, certified salmonella free in food items that do not receive through additional cooking. Some examples of these foods are meringues, custard, béarnaise sauce and hollandaise sauce. Leftovers should be handled carefully. All leftover cooked food which is to be served hot must be reheated rapidly to an internal temperature of 165ºF (74ºC) or greater.

SAM SALMONELLA



Food-borne Intoxication

A food borne intoxication is an illness caused by toxins or poisons produced by bacteria as they grow and multiply. Some toxins are not destroyed by cooking temperatures and do not change the flavor, appearance or odor of the food. In some cases the toxins may still be present in the food long after the bacteria have been killed by cooking. The only way to stop the toxin from forming is to keep bacteria out of the food. Remember, you cannot tell if the toxin is present.

STEVE STAPH

Staphylococcus food intoxications is one of the most common types of food-borne illnesses. Staph bacteria produce toxin as they grow and multiply. These bacteria can be found on the skin and the nose and throat of healthy people. Staph bacteria are also commonly found in boils and infected pimples, cuts and burns.

Steve Staph loves to get into food items such as cooked meat products, especially ham, stews, gravies, custard, pastry fillings, potato salads, and other moist, high protein foods. Once he gets into the food, he will grow and produce toxins that have no odor or taste. You will never know he is in the food until it is eaten and then it is too late. The symptoms of

staph food intoxication are nausea, vomiting, cramps and diarrhea.

Control Measures

Food service employees are the number one source of staph bacteria. Do not give Steve Staph an easy ride into the food. Follow these control measures and keep him out.

- Avoid hand contact with cooked or ready to serve food. Use the proper utensils or disposable plastic gloves. Change gloves when they get contaminated
- Never cough or sneeze around food. Turn your head away and cover your mouth and nose.
- Always wash your hands after covering a cough or sneeze, after touching your face, nose, mouth any part of your body. Hands spread germs!

Some staph bacteria will always find a way to get into the food. However, you must not give them a chance to grow and multiply into large

number. Control their growth by keeping hot foods hot and cold foods cold. Keep hot foods at 140°F (60ºC) or below.

Poor Work Habits Often Give Steve Staph An Easy Ride Into The Food.

A man looks at an uncovered container of gravy at room temperature.

Steve Staph is waiting in his nose for a chance to contaminate the food.

A few seconds later, an unguarded sneeze gives Steve Staph an easy ride into the gravy.

Botulism, another food intoxication, is one of the most deadly types of food borne illnesses. The botulism bacteria can grow without air inside cans of low acid foods such as string beans, peas, salsa, corn, beets, spinach, mushrooms, garlic in oil, peppers and fish. They grow only in jars or cans that have not been properly preserved at temperatures high enough to kill the botulism bacteria and the spores. This requires pressure cooking at temperatures above the boiling point of

water. The water bath method of heating jars in an open pan of boiling water is only safe. Method for high acid foods such as jams, jellies, pickles, tomatoes and other fruits.

Butch Botulism represents one of the most dangerous types of bacteria. The toxin that he produces when growing in food is deadly. It is so dangerous that death can result from a single taste of the contaminated food.

The toxin is dangerous, but it can be destroyed by high temperatures. Boiling a contaminated food item for 15 minutes will destroy it. The symptoms of botulism intoxication are vomiting, stomach pain, headache, weakness in muscles, double vision, difficulty in speaking and breathing.

BUTCH BOTULISM

Butch Botulism
In A Swollen Can Of Peas.

Control Measures

Botulism can be prevented by following these two basic rules:

Never use home canned foods at any time in the galleys or in any other food preparation area. Home canned foods are the most common source of botulism. The bacteria can grow and produce the toxin inside of cans that have not been properly preserved.

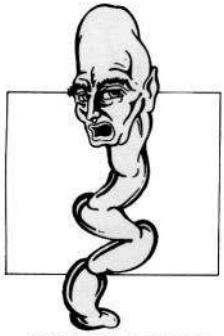
Never use canned foods if they are swollen or if the contents are foamy, smell bad or give some other sign of being contaminated. Do not even taste food that you think is contaminated. Death can result from a single taste of food contaminated with the botulism toxin.

The bacteria that now causes more food borne illnesses each year is Pete Perfringens. As you can see, Pete is not a very friendly looking guy. He can cause a food intoxication just like Steve Staph and Butch Botulism.

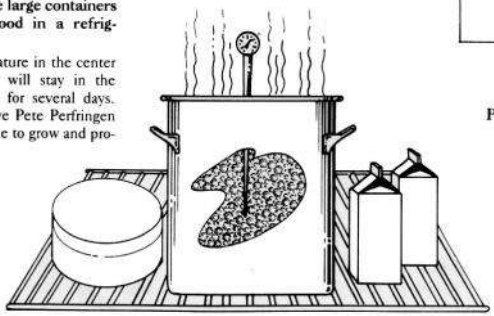
Pete Perfringen lives in the soil, on dust that floats in the air, and in the intestines of humans and animals. Since he lives in the soil, he can ride into the galley on raw fruits and vegetables, dirty boxes and other items that have been on the ground. It is easy for Pete Perfringen to find his way into food items that are not covered. This is because he floats around in the air on small pieces of dust.

Pete Perfringen grows quickly in cooked meats, particularly beef and poultry that sit at room temperature for several hours. He loves to find pieces of beef or turkey that have been cooked and placed uncovered around the galley to cool slowly at room temperature.

Large containers or cooked food items, particularly soups and gravies, are another of his favorite places to live and grow.



Never place large containers of warm food in a refrigerator.
The temperature in the center of the food will stay in the danger zone for several days. This will give Pete Perfringen plenty of time to grow and produce toxins.



Pete Perfringen produces a toxin as he grows just as Steve Staph and Butch Botulism. The symptoms that develop after the contaminated food is eaten are diarrhea, nausea and vomiting.

Control Measures

Pete Perfringens can be controlled by following these rules of food preparation:

Serve meat and poultry dishes hot, or as soon as they are cooked. If possible avoid preparing food a day in advance.

Warm meat dishes that will be eaten later should be refrigerated within 30 minutes. Never let food cool at room temperature.

Do not allow frozen food to thaw at room temperature. Thaw all frozen food in a refrigerator at 40°F – 45ºF (4°C – 7ºC).

Do not place cooked items on a surface or in container where raw items were prepared, unless it has been thoroughly washed, rinsed and sanitized.

Reheat food that has been cooked and refrigerated to a temperature of 165°F (74ºC) or greater before serving. When food is placed on the steam table, never let the temperature drop below 140°F (60ºC).

Divide large amounts of food into smaller amounts so they will cool faster in the refrigerator.

STUDY QUESTIONS FOR CHAPTERS 1-4

1. What is the meaning of sanitation in food service?
2. What is Contamination?
3. Name three types of contamination.
4. What is Food-borne Illness?
5. What are the common symptoms of Food-borne Illness?
6. Name the four microbes.
7. Are all bacteria bad?
8. Are all viruses bad?
9. What are the four requirements needed by bacteria to allow them to grow into large numbers?
10. Mention some source of microbial contamination.
11. Why do we wash all fruits and vegetable before use?
12. What is Potentially Hazardous food?
13. Give 5 examples of Potentially Hazardous food.
14. Is a potentially Hazardous food always contaminated?

15. How fast do bacteria grow at room temperature?
16. How do bacteria and viruses normally get into food? Give four examples!
17. Name three types of bacteria that can cause food borne infection.
18. Name three types of bacteria that can cause food borne intoxication.
19. Why are chemicals not allowed on a table with food?
20. What is the difference between food infection and food intoxication?

COURSE 5 -THE FOOD PROTECTION PLAN

Preparing food that is safe to eat is one of the main responsibilities of all food service employees. To meet this responsibility, food must be protected and properly handled from the time it arrives on the ship until it is served to the passengers and crew. The invisible enemy can attack at any time during the storage, preparation or serving of food. You must always be alert and ready to stop them.
To stop the Invisible Enemy, you must follow the Food Protection Plan. This plan is based on four simple and important rules.

Food Protection Plan

Rule 1. Start with food that is clean and wholesome.
Rule 2. Protect food from contamination.
Rule 3. Control the growth of bacteria.
Rule 4. Use proper cleaning methods to destroy bacteria.

Following the Food Protection Plan will help you to prepare food that is safe to eat. The rules of this plan can only be carried out through using good sanitation work habits. This chapter and the ones to follow will be describing the work habits that can put the Food Protection Plan into action.

STORING FOOD SAFELY

Only clean and wholesome food should be used in a foodservice operation. Food supplies should be in good condition when they arrive on the ship. To protect them from contamination and spoilage, they must be properly stored until needed in the galleys.

The three main places used for storing food on the ship are dry food storage areas, refrigerators and freezers. These areas must always be kept clean and used only for storing food. Special storage practices have been developed for each of these areas. It is important for you to use these practices every day when working in a food service operation.

DRY FOOD STORAGE PRACTICES

THE RULE	THE REASON
Do not store food items under exposed sewer or water lines, or next to sweating bulkheads.	Leaking pipes and dripping water can contaminate dry items such as flour, sugar, rice, crackers and cereals. Always look up to see what is above the area where food is to be stored.
Store all food items at least 6 inches (15 cm) above the deck.	Food stored on the deck can be contaminated by dirt, grease, insects and flooding caused by blocked drains, damaged pipes and cleaning water. To prevent contamination, keep food items off the deck by using the shelves and racks provided in the storage area.
Keep shelving and decks clean and dry at all	Bacteria need moisture to grow and they love to hide in dirt and grease. Keeping

times.	these areas clean and dry prevents bacteria from growing.
Transfer all open packages of food into labeled containers with tight fitting lids	Insects, rodents and other types of contamination can easily get into open packages of food. Storing food in closed containers keeps it fresh and safe from contamination. Remember to always label the container. Mistakes such as putting white cleaning powder into a container of flour must be prevented.
Use the first in, first out method to rotate all food items.	Food items should be used in the order in which they are received. The supplies that are the First in the storage area should be the first out. Create a rotating system such as the

	following: Date new items when they arrive. Pull the old stock to the front of the shelf and place the new items behind the old stock.
Keep chemicals, insecticides and other dangerous materials away from dry food storage areas.	Only food items should be placed in dry food storage areas. Chemicals should always be stored away from food

REFRIGERATOR STORAGE PRACTICES

THE RULE	THE REASON
The inside temperature of refrigerator should be 40ºF (4ºC) or less at all times!	Bacteria grow very slowly at 40ºF (4ºC). This temperature will keep food safe for a short period of time.

Check the temperature in each refrigerator often. A thermometer must be inside all refrigerators for this purpose.	A warm refrigerator is dangerous! The temperature of food must stay out of the danger zone 45ºF to 140ºF (7ºC to 60ºC). Report a refrigerator that is not working properly immediately.
Open the refrigerator doors only when necessary.	The warm air in the galley rushes into the refrigerator each time the door is opened. This makes the temperature rise above 40ºF (4ºC) very quickly. Open the door after you have decided what food you need not before.
Do not overload refrigerators or stack containers of	Overloading refrigerators and stacking pans and

food on top of others.	containers on top of each other prevents cold air from properly reaching all parts of the food. This slows down the cooling of the food which in turn gives bacteria more time to grow.
Sore cooked food and raw food in different fridge or in separate sections of the same frigerator.	This storage practices prevents the transfer of bacteria from raw food to food that has been cooked or thoroughly washed.
Keep food covered while in storage	Covering food protects it from contamination and keeps it from drying out.
Refrigerator shelves should not be covered with paper,	Covering the shelves slows down the movement of the cold

foil, cardboard or plastic.	air in the refrigerator. This will slow down the cooling of the food.
Do not store containers of food on the bottom shelf in refrigerators.	Storing food on the bottom of these refrigerators will also slow down the movement of cold air. Refrigerator shelves should never be placed directly on the bottom of the in refrigerator.
Store buffet show pieces away from all food items.	To protect food from contamination store all buffet show pieces in different refrigerators or in separate sections of the same refrigerator. The area for storing them should be clearly labeled.

Do not store open tin cans of food in refrigerators.	Open tin cans are not acceptable storage containers. All food must be placed in either approved plastic or stainless steel containers. Tin, Galvanized and other metal containers are dangerous.

FREEZER STORAGE PRACTICES

THE RULE	THE REASON
The temperature of all freezers must be 0ºF (-18ºC) or less at all times.	Bacteria are not killed by freezing, but their growth does stop. Therefore, food can be stored in a freezer much longer than in a refrigerator. The food must be stored at 0ºF (-18ºC) at all times to

	maintain the quality of the food.
Check the temperature in each freezer often. A thermometer must be inside all freezers for this purpose.	Ice on the freezing unit or other problems can cause the temperature to rise quickly. Check the temperature whenever you are in the freezer. Report a freezer that is not working properly immediately.
Cover all food containers	Covering the containers protects the food from any type of contamination that may fall or drip onto it.
Wrap food well to prevent freezer burn.	The cold air in the freezer will dry out food if it is not properly wrapped.

	This is called freezer burn and it can cause a loss of quality in the food.
Rotate frozen foods on a first in, first out basis.	The first food in the freezer should be the first out. This rotating system will work if you label each package with the following : • The date it was placed in the freezer. • And the type of food in the package.
Open the freezer door only when necessary.	The temperature will rise inside the freezer each time the door is opened. To keep the food safe, the temperature should

	always be 0ºF (-18ºC) or lower.
Store all frozen foods in their proper place.	Raw, ready-to-eat and cooked frozen food items should not be stored on the same shelf. Ready-to-eat, cooked and raw foods should be stored in different freezers or in separate sections of the same freezer. The different sections should be clearly labeled.
Check the safety device on the door before entering a walk in freezer.	A freezer door can easily close behind you, especially on a moving ship. Do not take a chance. Know how to operate this safety device.

INSPECTING FOOD SUPPLIES

Before you actually start preparing and cooking food, you must first receive the supplies you will need and check them for spoilage or contamination. Remember rule 1 of the Food Protection Plan and start with food that is clean and wholesome.

Below you will find a list of items to check.

Milk and milk products must be pasteurized and fresh. Always check the expiration date on products such as milk, cream, yogurt, cottage cheese and sour cream. Do not use dairy products after the expiration date.

Fresh eggs should be clean and the shells should not be cracked or damaged in any way. Sam Salmonella lives on the outside of the egg and the inside may become contaminated when the shell is broken or if the chicken was infected.

Other egg products, such as frozen or dried eggs, must be pasteurized before they are frozen or dried. This provides protection against contamination by Sam Salmonella.

Do not use fish that has been thawed and refrozen. Refrozen fish will have soft flesh, a sour odor and an off color. The carton may be in poor condition with ice formed at the bottom. The edges of fillets may be brown and the paper wrapped around the fish may be slimy and discolored.

Check the packaging on dry foods for holes where insects or rodents may have chewed into the package. Check for tiny insects or insect eggs in cereal or flour before using it.

Check boxes of food items for damage and for insects. Cockroaches and their eggs are brought into the galley in boxes and crates of food. Check supplies when they are delivered to help control these insects.

Check canned products for signs of damage and contamination. The illnesses that can be caused by contaminated food are so dangerous that you must check all cans. Look for these signs of damage and contamination:

SWELLED TOP OR BOTTOM. One or both ends of a can may bulge outward as a result of the gas produced by bacteria. Do not use these cans!

DENTS ALONG THE SEAM OF THE CAN. Damage to the seam may allow air to enter the can and spoil the food. Dented cans must be rejected. Rust spots and leakage. Check to see if the rust has cut through to the inside of the can. Any can that is leaking or has small holes in it must not be used. To check for possible pinholes, empty the can and hold it up to a strong light. Throw away any canned food that is foamy, smells bad, or shows some other sign of being contaminated.

Remember :

Do not even taste food that you think is contaminated. Death can result from a single taste of food contaminated with botulism toxin.

Double check this list every time you receive your supplies.

At this point the food has been delivered to the ship. It has been stored properly and inspected when delivered to the galleys. A clean and wholesome food supply is now ready for the next step preparation.

In the next chapter you will learn how to protect the food throughout all the stages of food preparation. This information will help you to meet your job responsibility of preparing food that is safe to eat.

CHAPTER 6 -SAFE FOOD PREPARATION

The Invisible Enemy has the greatest chance to attack during the preparation of food. To stop them you must always use the information and work practices outlined in this chapter. These will be your main weapons against the bacteria that cause food borne illnesses.

Rule 3 of the Food Protection Plan requires you to control the growth of bacteria. As stated in an earlier chapter, the four most important things bacteria need to live and grow are food, moisture, temperature and time. You must make it as difficult as possible for bacteria to grow by controlling one or more of these requirements. The easiest to control are time and temperature.

Bacteria grow best in a temperature range of 45ºF to 140ºF (7ºC to 60ºC). This range is called the danger zone.

The time and temperature rule will help you to stop the Invisible Enemy. This rule means

you must not give bacteria the time nor the proper temperature they need to grow. All potentially hazardous food must be kept at an internal temperature below 45ºF (7ºC) or above 140ºF (60ºC). When food is being prepared, it should be at room temperature for as little time as possible.

Cold temperature slows down the growth of bacteria. By keeping food at a temperature of 45ºF or below, bacteria will grow very slowly. This temperature will keep food safe for a short period of time. The colder the temperature the slower the growth. We keep our refrigerators set below 40ºF (4ºC).

High temperature destroys bacteria. When cooking a food item, a few bacteria will be killed when the temperature reaches 140ºF (60ºC). However, most bacteria are not killed until an internal temperature of 165°F (74°C) is reached. Internal temperature refers to the temperature at the middle or center of the food item. This temperature should be measured with a metal stem-type thermometer.

SPECIAL COOKING TEMPERATURES

Poultry, stuffed poultry, stuffed meats, and stuffing containing meats should be cooked to an internal temperature of 165ºF (74ºC).

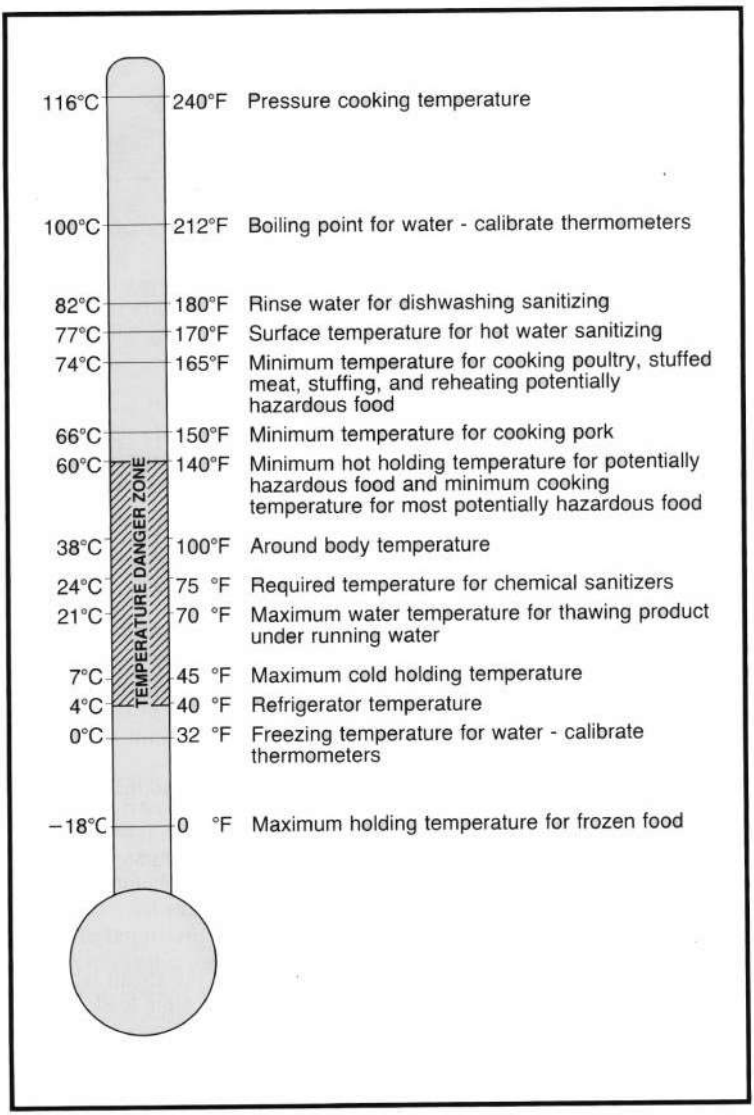
Pork and any food containing pork should be cooked to an internal temperature of at least 150ºF (66ºC).

Potentially hazardous food, that has been cooked and refrigerated, should be reheated rapidly to an internal temperature of 165ºF (74ºC) or higher before being served hot. This will destroy Sam Salmonella or other bacteria that might have contaminated the food during storage.

Please Remember

Cold food should be placed on the steam table only after it has been rapidly heated.

Never use the steam table for heating food. It does not have the ability to raise the temperature out of the danger zone fast enough. It must be used only for holding hot foods at 140ºF (60ºC) or greater.


116°C
240°F
Pressure cooking temperature
100°C
212°F
Boiling point for water - calibrate thermometers
82°C
180°F
Rinse water for dishwashing sanitizing
77°C
170°F
Surface temperature for hot water sanitizing
74°C
165°F
Minimum temperature for cooking poultry, stuffed meat, stuffing, and reheating potentially hazardous food
66°C
150°F
Minimum temperature for cooking pork
60°C
140°F
Minimum hot holding temperature for potentially hazardous food and minimum cooking temperature for most potentially hazardous food
TEMPERATURE DANGER ZONE
38°C
100°F
Around body temperature
24°C
75 °F
Required temperature for chemical sanitizers
21°C
70 °F
Maximum water temperature for thawing product under running water
7°C
45 °F
Maximum cold holding temperature
4°C
40 °F
Refrigerator temperature
0°C
32 °F
Freezing temperature for water - calibrate thermometers
−18°C
0 °F
Maximum holding temperature for frozen food

HANDLING AND STORING FOOD IN THE GALLEYS

Cooking at high temperature will not destroy the toxins that are produced by the bad guys such as Steve Staph and Pete Perfringen. Therefore, food must be handled with care at every stage of preparation to prevent this type of contamination.

As you start preparing food, you should always do the following :

- Wash your hands thoroughly before starting to work.

  Your hands can be the NUMBER ONE source of contamination if they are not properly washed. Always wash your hands before starting to work, after visiting the toilet, smoking, touching raw meat, poultry, fish or anything that will contaminate your most valuable work tool – Your Hands.
- Use only knives, spoons, cutting boards, pots and pans that have been properly washed, rinsed and sanitized.

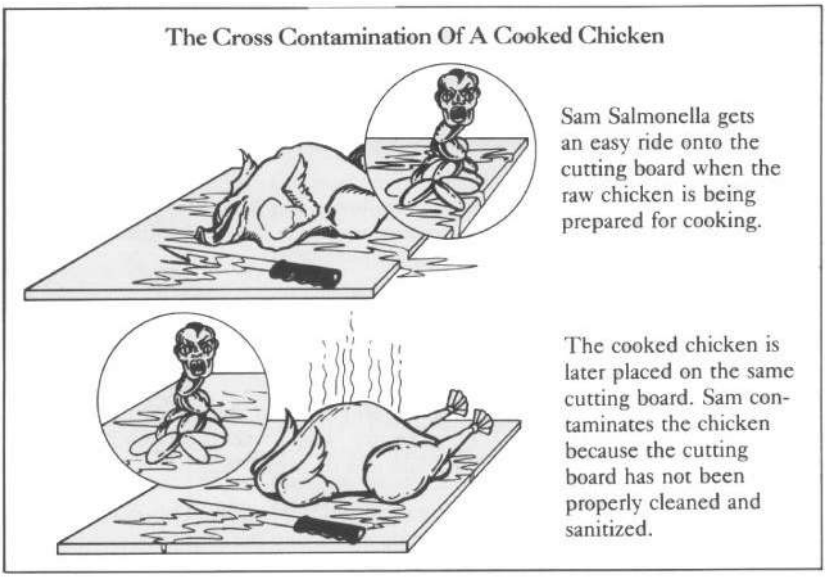
Dirty and contaminated equipment and utensils can give bacteria a free ride into the food. Do not make it easy for them to contaminate the food you prepare.

- Use Only Clean Equipment And Utensils
  Thoroughly wash all fruits and vegetables to remove the dirt, insects, chemicals, pesticides and some of the bacteria.
- Properly thaw all frozen foods.
  Frozen food items should be thawed in a refrigerator so that no part of the product reaches a temperature of 45ºF (7ºC) or greater. This prevents the temperature of the food from going into the danger zone while it is thawing.
- NEVER thaw food at room temperature or in a sink of water. This is very dangerous because it gives bacteria both the warm temperature and the time they need to grow rapidly.
- Keep all potentially hazardous food refrigerated and covered until it is needed for preparation.

Do not leave potentially hazardous food sitting out at room temperature. The Outer edge of the food will warm up to 45ºF (7ºC) or greater in a very short time.

- Bacteria can start growing as soon as the temperature enters the danger zone.
  During the time when you are preparing food, follow these important work practices:
  - Prevent the spread of bacteria from raw food to cook and ready- to–serve food items.
  - Raw foods, especially meat, poultry, fish and seafood can be heavily contaminated with large amounts of bacteria. Properly cooking the food will destroy most of the bacteria. Once an item is cooked, it must not be contaminated by harmful bacteria again. This can happen to cooked food either through contact with raw food or with the equipment and utensil used to process raw food.

The cross contamination of a cooked chicken



Cross contamination is the transfer of harmful bacteria from one food to another by means of utensils, equipment, human hands or through food not being stored properly.

- All equipment and utensils used in the preparation of raw food must be properly cleaned and sanitized before being used in the preparation of cooked foods.
- A thorough washing, rinsing and sanitizing will destroy the harmful

bacteria left on the utensils and equipment used to prepare raw food. Do not forget to thoroughly wash your hands after handling raw meat, poultry or fish. Washing your hands will prevent the spread of harmful bacteria to everything you touch.

- Disposable plastic gloves should be worn when handling cooked or ready-to-serve food items. Clean disposable plastic gloves protect food from the bacteria on your hands. They should be worn only once and changed immediately if they become contaminated. If you touch your face, your hair, a dirty uniform, a dirty box, a garbage can, dirty utensils or dirty equipment with plastic gloves on your hands, then you must change them before touching any food.
- Carefully read the labels on all containers of items used in the preparation of food. Workmen making repairs in the galleys may accidentally leave an open

container of drain opener or some other poisonous chemical around your work station. Always check the label on a container before adding the contents to the food. Chemical food poisoning can be very serious and even cause death in some cases. Always keep your containers of seasoning, spices and other cooking additives covered and properly labeled.

Follow the rules of personal hygiene at all times when working in the galleys. People are the single most common source of food contamination. Do not be the one to contaminate the food with an unguarded cough, sneeze or a cut on your finger. Follow the rules of personal hygiene as discussed in the next chapter.

Use a clean spoon or testing dish when sampling or tasting a food item.

Using a clean spoon prevents you from spreading bacteria into the food. Do not taste or sample with your finger or with any utensil used to mix or stir the food. This bad habit

simply gives the bacteria a free ride into the food.

Rapidly cool potentially hazardous food that will be refrigerated after cooking. The temperature of potentially hazardous cooked food should be quickly lowered to 45ºF (7ºC) or less by using proper cooling procedures. Food must be cooled quickly to keep the temperature out of the danger zone.

COOLING PROCEDURES FOR WARM FOODS

Every year a large number of food-borne illness are caused by potentially hazardous cooked food that were not properly refrigerated. The food items were either left out at room temperature too long or not properly stored when placed in the refrigerator.

POTENTIALLY HAZARDOUS FOOD MUST BE COOLED AS FAST AS POSSIBLE

A potentially hazardous cooked food item should not stand at room temperature for more than 30 minutes before it is

refrigerated. Once it is refrigerated the temperature of the entire food item should be lowered to 45ºF (7ºC) or less as quickly as possible.

Small amounts food cool faster than large amount. Food stored in shallow pans will cool faster than food stored in deep or large containers. In shallow pans, heat is removed from the food faster and the food temperature is quickly lowered to the proper temperature of 45ºF (7ºC).

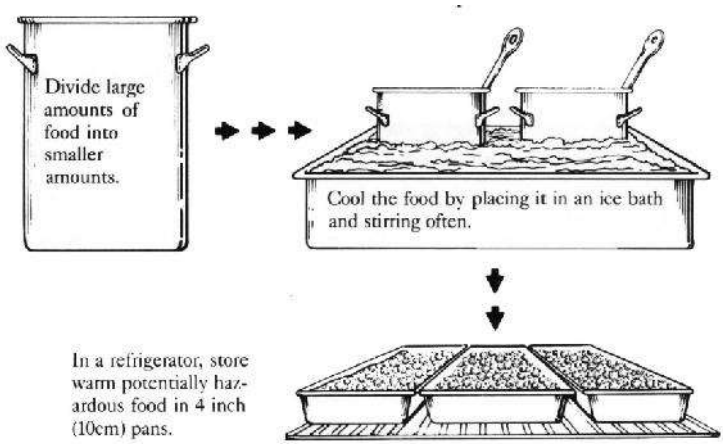
Food takes much longer to cool when stored in containers such as large stock pots. In large amounts of food, the center cools much slower than the outer part. The center of a stock containing 12 gallons of beef will take 36 hours to cool down to 45ºF (7ºC). That is too long! This gives bacteria both the warm temperature and the time they need to grow.

The following practices should be used when cooling and storing warm potentially hazardous food:

1. Store the food in shallow pans that are no more than 4 inches (10 cm) deep. Items

such as turkey, chicken and roast should be sliced and placed in the shallow pan.

2. Divide large amounts of stews, gravies and sauces into smaller amounts and cool in an ice bath. Stirring the food often will evenly cool all parts of it. Next put the food into 4 inch (10 cm) shallow pans and place in a refrigerator. Stirring the food occasionally under refrigeration will help cool the temperature down to 45ºF (7ºC) even faster.
3. Leftover food that will be served hot should be reheated quickly to 165ºF (74ºC).
4. Remember, do not mix leftovers with fresh portions of food.



Food can be contaminated at any time during preparation. Below you will find a few simple but important common sense practices that will help you to prepare food that is always clean and wholesome.

Properly store all food items in your work area.

- Do not place cartons or boxes on top surfaces used for food preparation.
- Do not place containers of food on the deck (not even to slide them across the galley)
- Keep everything stored at least 6 inches (15 cm) above the deck.
- Keep all containers of food covered to protect them from contamination.
- Keep your work area clean.
- Food contact surfaces must be washed, rinsed and sanitized after each use.
- Do not bring personal items into the galley such as laundry bags, fishing equipment, life jackets or newspapers.

- Place food scraps, empty cans, paper etc in garbage containers with tight-fitting lids.

CONTROL MEASURES

The Invisible Enemy has the greatest chance to contaminate food when it is being prepared. However their final attack can occur either when the food is being held for service or when it is being served.

Use the following work practices to stop the final attack.

The motto for keeping foods during preparation also applies to food being held for display and serving.

Keep Hot Food Hot

Hot food on a serving line must be maintained at 140ºF (60°C). Use a thermometer to check the internal temperature. Remember to keep the food covered to protect it from contamination.

Keep Cold Food Cold

Cold foods on a serving line must be maintained at a temperature of 45ºF (7ºC) or

below. This should be the temperature of the food and not the temperature of the ice or cold plate on which the food is placed. After each use Cold Keepers must be properly stored in freezers. They should be placed in a rack so that there is space left between each one. This storage practice allows the cold air to reach all sides of the Cold Keeper and freeze it much faster.

Serve all foods including bread and butter with tongs, ladles or forks. You should wear clean plastic gloves when preparing sandwiches or handling other cooked or ready-to-serve items. Any foodservice employee with a cut or sore on his/her finger should have it covered with a clean bandage and always wear gloves when working with food.

The temperature of butter patties and individual creamers (half and half) must always be 45ºF (7ºC) or below. They must be served with ice in double-bottomed, self-draining containers. These containers allow the water to drain away from the butter and

creamers which protects them from contamination.

Milk, a potentially hazardous food, must be kept cold 45ºF (7ºC) or below and handled as little as possible. Milk should be served from refrigerated bulk-milk dispensers or from individual half-pint containers.

Ice should be handled so that it is protected against contamination. Place the ice in a clean container and always handle it with a clean scoop or tongs. When not in use do not store the scoop or tongs in the ice bin. A place to store them should be provided on each ice machine. Never store anything in the ice. Items such as fruit, bottles of beer and canned drinks can contaminate the ice and should not be stored in the ice bin.

When working on a serving line, if you touch your face or nose, handle your hair or scratch your body. You must thoroughly wash your hands before continuing to serve the food.

When handling clean glasses, cups, plates and silverware do not touch the part that will make contact with the person's mouth.

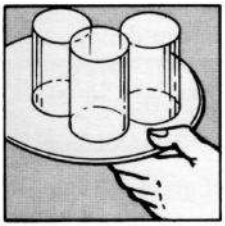
Item	How to handle
Clean plates	Touch only the bottom or the edge of the plate
Clean glasses	Hold the glass by the bottom. Do not touch the rim of the glass
Clean cups	Hold the cup by the handle or the bottom
Silverware	Store silverware with the handles up. When removing silverware from storage containers, touch only the handle

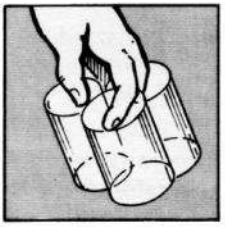
Food can be contaminated at any time during storage, thawing, preparation, cooking and serving by bacteria and other members of the Invisible Enemy. They will contaminate the food only if you give them the chance.

Right

Wrong

Handle Clean Plates By The Bottom Or Edge.

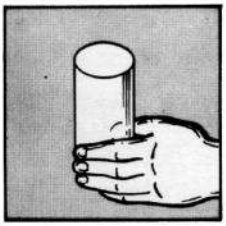




Carry Clean Glasses On A Tray.

Do Not Put Your Fingers Inside The Glasses.

Touch Only The Handle Of Clean Silverware.



Handle Clean Glasses By The Bottom.

Never Touch The Rim Of A Glass.

Always Handle Ice With A Scoop.

Never With Your Bare Hands.

STUDY QUESTIONS for chapters 5 and 6

1. Name foods that can be safety stored at room temperature.
2. How could these foods become contaminated or potentially hazardous?
3. What does the danger zone mean?
4. What are the temperatures of danger zone?
5. How long is it safe to keep potentially hazardous food in the danger zone?
6. Does refrigeration kill bacteria? What does it do?
7. Does freezing kill bacteria?
8. To what temperature do we cook food to kill bacteria?
9. What is hot holding temperature for food?
10. Why is the hot holding temperature different from the cooking temperature?
11. What are we trying to accomplish by not keeping potentially hazardous food in the danger zone too long?

12. Why is it safest to prepare fresh food and serve it immediately either hot or cold?
13. List two approved methods for thawing food.
14. List two dangerous methods for thawing food.
15. Why are leftovers of potentially hazardous foods so dangerous?
16. How can the cooling process be speeded up?
17. What is a cold top used for?
18. Can a steam table be used to heat food up?
19. Why do we use shallow containers for cold storage?
20. Name three types of containers not approved for food storage.

CHAPTER 7 - CLEANING AND SANITIZING

Consumers expect food premises to be clean and they assume that you handle their food hygienically. Clean and tidy workplaces create a good impression as well as helping to make a safe, pleasant environment for everyone. However it is important to remember that even when something looks perfectly clean it could be contaminated.

THE AIM OF CLEANING

Cleaning is the process of making something free from dirt and contamination. It involves the use of energy-your effort, a machine, such as a dishwasher or floor scrubber. Activities include wiping, rubbing, scrubbing, scouring, brushing and sweeping. Cleaning is intended to keep food and workplace safe.

In particular, cleaning aims to:

- Protect food from microbial contamination.

- Reduce opportunities for bacterial multiplication, by removing food particles.
- Protect food from physical and chemical contamination.
- Avoid attracting pests.
- Maintain a safe environment, for example to stop someone from slipping on a greasy floor.
- Create a good impression for customers.

DETERGENTS

Detergents help to dissolve grease and remove dirt. The use of energy, a detergent and hot water may kill some pathogenic bacteria, but most will survive. To prevent the bacteria from causing food-borne illness, some items and equipment must be disinfected after they have been cleaned.

Example of cleaning

- Cleaning a work surface
- Protect food from contamination
- Remove any loose dirt

- Wash surface with hot water and appropriate detergent, using cloth or a scourer.
- Rinse with hot water and a clean cloth.
- Use a chemical disinfectant, follow the manufacturer's instructions.
- Don't forget the contact time.
- Rinse with clean water.
- Air dry or use a disposable paper towel.
- Washing up

  Dishwashers provide an effective way to clean and disinfect items used in the preparation of food. Rinse cycles usually run at 82ºC to 89ºC. Always follow manufacturer's instructions, making sure that the machine is stacked without blocking the cleaning jets and is filled with the right amount of the correct chemicals.
- Washing by hand

  Many food activities involve washing some items by hand. Wherever possible, use two sinks side by side.

- Wear rubber gloves to protect your hands from the hot water and chemicals.
- Remove particles of food-scrape and rinse if necessary.
- Wash the items, ideally in the first sink with hot water (at about 55ºC) and detergent, using a cloth or a brush. Replace the water if it becomes cool or greasy. Rinse in very hot water at 82ºC is ideal using a second sink if possible. Leave the items to soak for 30 seconds. If possible use a purpose designed basket to lower and lift the items out of the water.
- Dry the items preferably by leaving them to air dry, in a clean, dry area safe from contamination.

SIMPLE SAFETY PRECAUTIONS

Before you start cleaning, make sure that food is safely stored out of the way and cannot be contaminated. If you are cleaning a refrigerator, cold room or freezer, ensure that

the food is kept at a safe temperature outside the danger zone.

Switch off and isolate electrical equipment – such as slicers, refrigerators, vending machines, processing machines and production belts with dry hands before you start to clean.

Ensure that you understand how to use a cleaning chemical safely and always follow the manufacturer's instructions. Wear protective clothing, such as rubber gloves and goggles, appropriate to the task. If you are in any doubt about the safe use of a chemical ask your supervisor for advice before you start work. Use only the chemicals approved by your employer for the task. Never mix chemicals together, they could explode, cause toxic fumes or could burn someone's skin.

Work through the stages of cleaning in a way that does not spread dust or dirt. Avoid being distracted in a way that puts you, other people or food at risk.

Clean and disinfect mops and cloths soon after use and leave them do dry in the air. Do not leave them to soak in disinfectant for longer than the manufacturer's recommended contact time because bacteria may become resistant to the chemicals. Always store chemicals, cleaning equipment and protective equipment away from food. Store chemicals only in the labeled containers designed for that purpose.

Always wash your hands before starting another task.

RUBBISH DISPOSAL

Food waste and other rubbish, such as food packaging can be a source of bacteria and physical contamination and can attract pests if it is not disposed of properly.

There needs to be two types of bins at food premises: inside bins near food preparation areas and large bins in special refuse areas outside. The indoor bins need to be within the food handler's easy reach. However they must

not be so close to food as to create a risk of contamination.

A bin or bin stand indoors should have a well fitting lid and be lined with a disposable polythene sack. Food operated bins are best because you do not have to touch any part of the bin by hand. Leave bin lids closed, unless you are throwing something away. A bin in constant use such as one used for the waste from plates before they go in the dishwasher may be used without a lid provided that it is emptied as soon as the task is finished.

Remove rubbish throughout the day as soon each bag becomes full. Tie the bag securely and take it outside. Put it into a dust bin with a tight fitting lid or into a waste skip with a lid.

Never let a bin overflow nor leave rubbish inside food premises overnight it will attract pests.

Keep bins, their lids and the area around them clean and dirty at all times. Always empty and clean bins and their lids at the end of the work period.

Always wash your hands after dealing with refuse and waste food.

REFUSE AREAS

Keep bin and refuse areas clean. Always put the rubbish bags in the bins, making sure that the bin lids are on securely to protect the rubbish from scavengers such as cats, dogs, foxes and birds. Tell your employer if bins become full. Additional bins or collections may be needed.

WASH, RINSE AND SANITIZE

To prevent the spread of bacteria, utensils and food-contact surfaces of equipment must be washed, rinsed and sanitized after each use. Food service employees usually do a good job of washing and rinsing. However, they often forget to sanitize the utensils and the food-contact surfaces of equipment.

Sanitizing is the step that destroys the harmful bacteria. The cleaning job is never finished until all food contact surfaces have been properly sanitized.

Sanitizing can be done in two ways:
Heat Sanitizing uses hot water to kill bacteria and other members of the Invisible Enemy. The water must be 170ºF (77ºC) or greater to properly sanitize an item. The hot water must always be given enough time to kill all bacteria. You must carefully watch the time and temperature when sanitizing with hot water.
Chemical Sanitizing uses a chemical to kill the bacteria. The most common chemical sanitizer is chlorine bleach. The bleach is always mixed with warm water before it is used. To be sanitized, an object must be covered with a mixture of 100 p.p.m chlorine. The chlorine must be given enough time to kill bacteria and other members of the Invisible Enemy.

PROPER CLEANING METHODS

Three different methods of cleaning and sanitizing are used in food service operations. It is very important that you understand each method and how to use it. If asked, you must

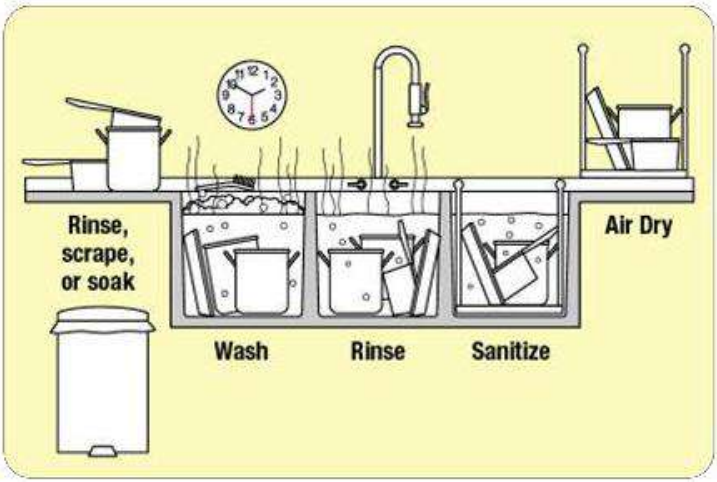
be always ready to answer question on each of these methods.

a. Three sink method
b. Three bucket system
c. Dishwashing machines

THREE SINK METHOD

The three sink method is used to clean and sanitize all galley utensils and equipment that can be put into a sink. Follow these steps each time you use this method.

The illustration on the following page shows some of the equipment used in these different cleaning and sanitizing methods.



1. Clean all sinks, drain boards and storage racks before filling the sinks with water.
2. Scrape items to be washed to remove heavy soil and burned food. Throw the food scraping into either a garbage disposal or garbage can. Store all the utensils and equipment to be washed on the soiled end of the drain-board.
3. Wash in the first sink with hot water and detergent. Use a scrub brush or a green scrub pad to remove all of the food and grease. Never use steel wool. The small pieces of metal can break off and stick to a part of the utensil or equipment. This metal can later contaminate the food during preparation.

   Use only the correct amount of detergent. Too much makes it hard to rinse off all the detergent.
4. RINSE in the second sink with clean, hot water to remove all food, soil, grease

and detergent. Change the water as often as necessary to keep it clean.

5. SANITIZE in the third sink with either hot water or chemicals.

HOT WATER SANITIZING

Place the utensil or equipment in a sink filled with hot water, 170ºF (77ºC), for at least 30 seconds / 1/2 minute. To be properly sanitized, all parts of the item must be completely covered by the hot water. Always check the thermometer to make sure the temperature never drops below 170ºF. All small items must be placed in a utensil basket before putting them into the sanitizing sink.

CHEMICAL SANITIZING

Fill the sink with warm water and add the correct amount of chlorine bleach. For proper sanitizing a 100 p.p.m chlorine mixture is required. Use the test strips to check to amount of chlorine in a sink. P.P.M mean parts per million.

Place the item to be sanitized into the bleach and water. All parts must be completely covered for at least 60 seconds/ 1 minute.

TWO SINK METHOD

On some ships a two sink method of washing and sanitizing is used. This is a little different from the three sink method because only hot water can be used for sanitizing. Follow these steps when using this cleaning method.

WASH in the first sink with hot water and detergent. Use a scrub brush or a green scrub pad to remove all of the food and grease. Burnt-on food should be removed with a flat scraper.

SANITIZE in the second sink with hot water, 170ºF (77ºC). All parts of the item must be completely covered for at least 30 seconds. Again, use the utensil baskets when sanitizing small items.

After sanitizing in both the three sink and two sink methods, utensils and equipment should be placed on a clean drain-board or storage

shelf to air dry. Never use a cloth to dry an item that has been cleaned and sanitized. The cloth can contaminate it again.

The water used for washing, rinsing and sanitizing must be changed as often as necessary to keep it clean. To get utensils and equipment clean, you must use clean water.

REMEMBER hand-washing sinks are for washing hands only. They must never be used for any other purpose.

NEVER wash utensils or equipment in these sinks.

THREE BUCKET SYSTEM

The three bucket system is used to clean and sanitize food contact surfaces or equipment that cannot be put into sinks or dishwasher.

Equipment such as tables, slicers, mixers and refrigerators are cleaned by this method.

Some food service equipment must be taken apart before it can be cleaned and sanitized. Your supervisor should show you how to clean the different pieces of equipment. To prevent accidents, remember to always unplug electrical equipment before you start cleaning.

To clean and sanitize with the three bucket system, you will need the following equipment: 3 different colored buckets, detergent, a brush and scrub pad, 2 sponges, chlorine bleach and chlorine test strips.

Follow these steps when using this cleaning method.

Place the buckets on the floor next to equipment that is to be cleaned. Remove all loose food particles and crumbs before washing.

WASH

The bucket used for washing is Red. Fill the bucket with warm/hot water and add the correct amount of detergent.

Using either a scrubbing pad or a brush, apply the detergent and water onto the equipment. Scrub the surface to loosen all food and grease.

RINSE

The bucket used for rinsing is Gray.

Fill the bucket with warm, clean water and wet sponge. Wipe all of the food, grease and detergent off the surface. Rinse the sponge in the clean water and wipe the surface again. This step is not finished until all of the food, grease and detergent has been removed. If the surface does not look clean, then repeat the wash and rinse steps.

When rinsing, do not throw buckets of water onto the washed surface. This can damage

electrical equipment and contaminate other clean food-contact surfaces. The scoops made from the tops of plastic gallon containers are not allowed by the United States public Health Service.

These should be removed from all food preparation areas.

Do Not Splash Water!

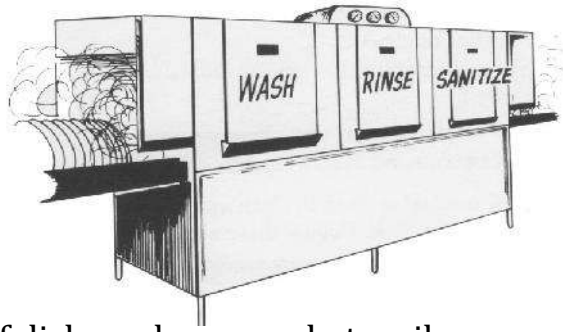
SANITIZE

The bucket used for sanitizing is white. Fill the bucket with warm water and add the correct amount of chlorine bleach. For proper sanitizing a 100 p.p.m chlorine mixture is required. Use the test strips to check the amount of chlorine in the bucket.

Wet the clean sponge and lightly cover all surfaces with the 100 p.p.m chlorine mixture. Use the test strips to check the amount of chlorine on the food contact surfaces.

Let the equipment air dry. Do not wipe with a cloth or towel.

DISHWASHING MACHINES



Dishwashing machines are used to clean large amounts of dishes, glasses and utensils. As the items move through the machine, they are washed, rinsed and sanitized. There are many different types of dishwashing machines and they are all operated in a similar way. General rules for operating dishwashing machine are listed below.

Scrape dishes

Scrape food from dishes into garbage containers or garbage disposals. All silverware should be put into a soaking tray. All dishes of the same size and shape should be stacked together in the soiled dish area. This makes them easier to rack.

NOTE: Only food should be put into garbage disposals. Never put paper, plastic, cardboard, egg shells or coffee grounds into them. Always check to make sure that a piece of

silverware has not dropped into a garbage disposal before starting it.

Properly Rack Dishes

Dishwashing machine cannot get dishes; glasses and silverware clean if they have not been properly placed in the racks. Glasses, cups and bowls should be placed upside down so they will fill up with water. Silverware should be placed in the utensil baskets with the handles up. Plates should be placed so that there is space between each one.

Pre-Wash Dishes

All dishes and silverware should be pre-washed before they go into the dishwashing machine. A green scrubbing pad should be used to remove dried eggs and baked-on food. A dishwashing machine will finish the cleaning job after you have scraped, racked and pre-washed the dishes. Within just a few minutes it can wash, rinse and sanitize a rack of dishes. You must always let the machine finish sanitizing the dishes.

As dishes pass through the machine, they are washed with detergent and hot water and

rinsed with clean, hot water. In the last part of the machine they are sanitized.

A dishwashing machine can sanitize with either heat or chemicals. Heat is the most widely used method of sanitizing. Hot water at 180ºF (82ºC) is sprayed onto the dishes for at least 10 seconds as they slowly move through the sanitizing part of the machine. Machines that sanitize with chemicals use a chlorine bleach mixture of 50 to 100 p.p.m. This mixture of chlorine bleach and water is separated on the dishes as they pass through the last part of the machine.

WHERE TO SANITIZE

- All food contact surfaces must be sanitized.
- All non food contact surfaces must be sanitized.
- All mouth contact surfaces must be sanitized.
- All body contact surface must be sanitized.

FOOD CONTACT SURFACES

Food contact surfaces are surfaces that come into contact with food. These include plates, glasses, cutlery, fruit containers, ice buckets, ice tongs, drink containers, saucepans etc. They must be sanitized either with water so hot that it will kill bacteria or with 100ppm or chlorine for.

NON FOOD CONTACT SURFACES.

Non food contact surfaces are surfaces that do not come into direct contact with food. These include almost everything else - tables, trays, refrigerator shelves, cupboards etc.

MOUTH CONTACT SURFACES

If you clean the Children's Playroom. Think about the toys and all the other surfaces, even if they are non food-contact surfaces. Babies will play with the toys and then they will put their hands in their mouth. They will also try to put the toys in their mouth. They will touch the tables and then they will put their hands in their mouth. Some might even try to eat the

tables. Sanitize the toys, the tables and anything that they might handle. These are all "possible Food-Contact surfaces".

BODY-CONTACT SURFACES

We must also wash and sanitize all material surfaces that come into direct or indirect contact with our mouth, face and other sensitive areas of our body. These items include napkins, pillowcases, towels, chefs wiping cloths etc. These items are all treated with extra care in the laundry

STORAGE OF CLEAN UTENSILS AND EQUIPMENT

After utensils and equipment are cleaned and sanitized, it is important to store them so that they will not be contaminated again. The following storage practices should be used at all times in a food service operation.

- Store all utensils and equipment in a clean, dry place, well above the deck. This will protect them from splashes, dirt, dust and other contamination.

- Clean pots and pans must be stored upside down on clean storage racks. This will protect the food contact surface from contamination.
- Clean cups, bowls and glasses must be stored upside down to protect them from contamination.
- Clean plates must be stored upside down or in covered plate storage racks.
- Silverware should be stored in clean utensil drawers, divider trays or silverware dispensers. All handlers of utensils should be pointed in the same direction.

Always store clean utensils and equipment away from dirty items to prevent cross contamination. Special areas have been provided on all ships so that clean and dirty items can be stored separately. You must always store items in their proper place.

CHAPTER 8 - PERSONAL HYGIENE

Personal hygiene is the name for a group of practices that will keep you clean and healthy plus protect the food you prepare. Personal hygiene practices are very important because they help to stop the spread of harmful bacteria from food service employees to the food they prepare. People are the single most common source of food contamination. Everyone carries many types of harmful bacteria on and in their bodies. These harmful bacteria can cause a food-borne illness, if they are given the change to contaminate the food. Using good personal hygiene practices is one of the most important way a food service employee can protect the food at all times.

FIRST IMPRESSIONS

It is good practice to start work clean and tidy. This will give a good impression to any customers you meet as well as playing an essential part in helping to protect food from

contamination. It helps to take a bath or shower every day. This will remove some of the bacteria that are naturally found on hair and skin, including those which live on stale perspiration and cause body odour. Deodorants can assist in preventing unpleasant body smells from developing after you have washed. However it is essential to avoid strongly scented deodorants, perfumes aftershaves and other toiletries or cosmetics because they can taint food.

JEWELLERY

Leave jewellery, including watches, at home or in your locker at work because bacteria can live on and under straps and rings, while gemstones and small parts could drop into food. Some companies allow food handlers to wear a plain wedding ring and sleeper earring. Find out your company policy.

APPROPRIATE CLOTHES

Never wear or carry outdoor clothes into a food area because they could contaminate

food or surface. Store outdoor clothes away from food areas. Your employer should provide a separate area or locker for the purpose.

Put on protective clothes before entering a food area. Although protective clothes may keep your own clothes clean, this is not their main purpose. Protective clothing is designed to protect food from contamination and you from harm. It should be :

- Suitable for the task
- Clean and in good condition
- Light colored, so that dirt will show easily, prompting you to change into clean replacement clothing.
- Easy to clean.

What you need to wear will largely depend upon the type of work you do. Typical examples include:

- Overalls, jackets, trousers, aprons
- Neck scarves, hats, hair nets, beard nets, moustache nets.

- Non slip shoes, boots, safety shoes
- Gloves, gauntlets.
- Other clothes, such as body warmers, may also be provided for working in cold environments.

A hat or hat covering must cover as much of your hair as possible. In some companies food handlers must also wear hair nets to contain hair. If your hair is long, it must be tied or clipped back so it cannot hang loose outside the head covering. Beards and moustaches should also be covered. Always put on your head covering before you put on other protective clothing to avoid displacing hair. Never brush or comb your hair in a food area. Do not wear protective clothing outside food areas, such as on your way to work, because you could cause contamination.

ESSENTIAL HAND HYGIENE

Even if you can avoid touching food by hand, you will touch equipment, utensil and surface

throughout the work period so your hands must be scrupulously clean at all times.
Wash your hands frequently throughout the day and always wash your hands:

- Before
  - Starting Work
  - Touching raw food or high risk food
- Between
  - Handling raw food
- After
  - Handling raw food
  - Visiting the toilet
  - Handling raw eggs in their shell
  - Coughing or sneezing into your hands or a handkerchief
  - Touching your hair or face
  - Carrying out cleaning jobs or touching containers of cleaning chemicals
  - Dealing with rubbish / waste and bins
  - Eating, drinking or smoking

Never test food with your finger or lick your finger tip to make it easier to pick up something.

Do not wear nail varnish because it can chip and flake into food and can hide dirt that must be removed before handling food.

Washing your hands often is one of the best ways to keep bacteria out of the food you prepare. Scrubbing them with warm water and plenty of soap remove many of these bacteria.

Wash your hands properly. It could save your life, your job and the life of your passenger. It may sound so obvious that it is not necessary to explain such a simple requirement but it is a fact that many personnel working on cruise ships (waiter, cooks, transporters or people working in the accommodation area or children supervision areas) do not know how to wash their hands effectively For the reason, this procedure is necessary.

The right steps to effective hand washing

1. Wet your hands with hot running water.

2. Apply a small amount of liquid soap to the hands.

3. Rub hands together vigorously until a soapy lather appears and continue for at least 20 seconds. Be sure to scrub between finger, around the tops and palms of the hands.

4. Clean under fingernails and between fingers.

5. Rinse hands under warm running water allowing the water to flow from above the wrists down to the fingertips.

6. Dry hands with a clean disposable (or single use) paper towel. Leave the water running while drying hands.

NOTE:

Unless the tap has a knee operate control turn off the tap (faucet) using the paper towel as a barrier between your hands and the tap handle.

Throw away the paper towel in a trash can line with a water resistant (plastic) bag. Trash can with food pedal operated lids are preferable when you have finished washing and drying your hands. Be careful not to touch anything that will contaminate them before you return to your work station.

CUTS AND SPOTS

Cover cuts, scratches and spots with a water-proof plaster to prevent spreading bacteria to food and to protect the wound or spot. Waterproof plasters should be brightly colored. They are usually blue, so that they can be seen easily if they come off. Some plasters contain a thin metal detector on production lines.

If you have a septic cut or weeping spot or boil, you must report to your supervisor. Remember that people are the main source of staphylococcuss aureus food poisoning bacteria.

REPORTING ILLNESS

You must tell your supervisor or other designated person if you have had, or are currently suffering from, a food-borne illness or any illness with similar symptoms. This is because

- You must not work with food if you have certain illness or symptoms because you could contaminate food.
- It is a legal requirement in most countries to report certain illnesses to the health authorities,
- You may need medical attention.
- You may need a doctor's approval before you can restart work with food.

These are the symptoms you must tell your supervisor or other designated person:

- Diarrhea
- Vomiting
- Nausea
- Ear, Eye and nose discharges

- A septic cut, wound or other skin condition that leaves an open wound or broken skin or any other skin condition or infection.

If you are told to see a doctor, you must tell the doctor that you are a food handler. Your doctor will decide whether any medical tests are needed. The doctor will also tell you when you can return to work.

PERSONAL HABITS TO AVOID

A clean food service employee wearing clean work clothes can still be dangerous in the galleys. The danger comes from personal habits that can contaminate the food. These habits must be avoided so that clean and safe food will always be served to the passengers and crew.

- Coughing or sneezing around food

  Each time you cough or sneeze, small droplets of spray containing millions of bacteria are thrown out of your mouth and nose. These droplets may fall on the food and contaminate it with harmful bacteria.

When you cough or sneeze, always turn your head away from the food. In addition, it also helps to cover your mouth and nose with a clean, disposable paper towel or tissue. The droplets of spray will be stopped in the towel and this can be safely thrown away. Most of the bacteria will be stopped by the paper towel, but some will always find their way onto your hands. Therefore, you must always wash your hands after coughing or sneezing.

- Your cigarette smoking may be dangerous to the passenger's health.

  Food service employees should not smoke in any part of the galleys. Smoking in these areas can contaminate food in several ways.

  When smoking a cigarette, your hand becomes contaminated with bacteria from your mouth. The bacteria are passed from your mouth onto the filter end of the cigarette. When your fingers touch the filter end, they become contaminated with

bacteria. Once on your hands, the bacteria can be spread to everything you touch.

Food can be contaminated by smoking in a way that is similar to coughing or sneezing. When a person blows the smoke out, they release small droplets of saliva. These droplets contain harmful bacteria and can contaminate anything they touch.

To prevent spreading bacteria into the food you prepare: **Always Wash Your Hands after Smoking.**

- Do not eat snacks or meals in the galleys.

  The bacteria in your mouth can contaminate your hands when eating or drinking from a glass. Once they are on your hands, the bacteria can spread to the food you prepare. Always eat your snacks and meals in the mess-rooms, and wash your hands before returning to work.
- Avoid scratching your head or face, playing with your hair, picking your nose and wiping your mouth with your hands. All of these personal habits will contaminate

your hands. You must always be alert to the many ways in which your hands can become contaminated by bacteria.

- Wash your hands only in the sinks provided for hand washing.
- Do not taste food with your finger or use the some spoon to taste several food items.
- This dangerous habit gives bacteria a free ride from your mouth and hand straight into the food. A clean spoon should be used to taste each food item.
- Do not spit on the decks or into sinks.

  Spitting in the galleys is a very bad habit. Harmful bacteria can be spread in a way that is similar to coughing and sneezing. All of these personal hygiene practices are important. They help to keep you healthy, and they stop the spread of harmful bacteria into the food you prepare.

  In general, food service workers spread more germs to food than any other single source. Don't be part of the problem! Be part of the solution! Always practice good

personal hygiene. Especially remember to be a Germ Buster! Wash your hands properly and often!

STUDY QUESTIONS FOR CHAPTERS 7 AND 8

1. What is considered the biggest spreader of germs?
2. When do we wear a plastic glove?
3. What happens when we do not shower for two days?
4. How often should a chef's towel be changed?
5. What is the rule for washing hands?
6. What is the difference between cleaning and sanitizing?
7. Mention some aims of cleaning.
8. Mention some activities in cleaning.
9. Explain the three bucket system.
10. How to make 100 ppm concentration in the white bucket!
11. Explain a three compartment sink operation.

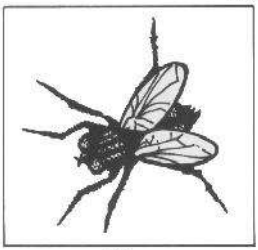
12. Explain a dishwashing machine operation.
13. Where do we store cleaning supplies?
14. Name two methods of sanitizing and when they are used.
15. What is a food-contact surface? Give 5 examples!
16. What is non food-contact surface? Give 5 examples!
17. Can we eliminate germs from the kitchen?
18. Why do we wear a food service hat?
19. Does cooking food always make it safe to eat?
20. How can you tell when a food is contaminated with germs?

CHAPTER 9 - PEST CONTROL AND GARBAGE HANDLING

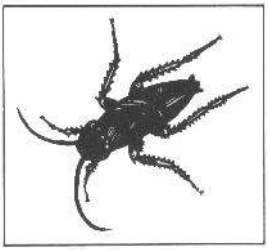
Since the beginning of time man has had to protect his food from pests such as insects and rodents. If given the chance, the pests would eat, destroy or contaminate the entire food supply. To make thing even worse, some pests carry diseases that can be passed to man though the food they contaminate. These pests must be stopped to prevent them from contaminating the food supply on the ship.

These pests must be controlled at all times

Insects

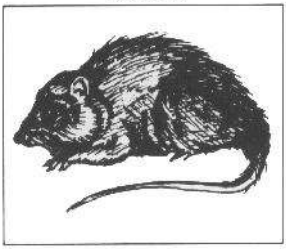


Flies



Cockroaches

Rodents



Rats and Mice

FLIES: HABITS AND CONTROL MEASURES

HABITS

A fly carries millions of harmful bacteria on and in its body. It lives and grows in very dirty places such as garbage, the body wastes of humans and animals, and sewage. If we allow it, they will live and grow in our food.

As a fly walks over dirty places, harmful bacteria stick to its mouth, feet and the hairs on its body. The fly takes bacteria into its body as it eats waste materials. The fly then buzzes off to the nearest galley or dining room where it walks over the food we eat and the utensils we use.

Some of the bacteria are brushed off its body as it walks over the food and utensils. A fly has no teeth so it cannot chew food. Therefore, a fly must soften the food first by vomiting on it. When flies vomit, bacteria from waste materials are spread onto the food. They cause further contamination by dropping feces into the food as they eat. Feces contain millions of bacteria.

Flies can carry many different members of the Invisible Enemy. Scientists have reported that one fly can carry as many 6 million bacteria on the outside of its body and as many as 25 million in its stomach and feces. Bad guys like Sam Salmonella, Steve Staph and Peter Perfringen are often a large part of these harmful bacteria. The total number of diseases that flies are known to carry now stands at thiry.

CONTROL MEASURES
SANITATION IS YOUR BEST DEFENSE!
KEEP YOUR WORK AREA CLEAN

It is easy to see how flies carry bacteria and spread disease. It is for this reason that they must be controlled. Every action possible must be taken to keep the flies out of the galleys and dining rooms. Here are some ways you can help to keep them under control.

- Keep flies out of the ship by using screens in all open port holes and keep all doors closed as much as possible.
- Do not disturb the electric fly traps. The flies are attracted to the special light; therefore it must stay on to work properly.
- Keep food covered to protect it from flies.
- Remove garbage from all good storage, preparation and serving areas and keep these areas clean.
- Keep garbage cans clean and covered with tight-fitting lids when not in use.
- Always clean garbage cans after emptying.
- Rotate fruits and vegetables and do not store at room temperature.

COCKROACHES: HABITS AND CONTROL MEASURES

HABITS

Cockroaches have lived on this earth for over 300 million years. They have caused problems for man ever since he took his first

step. Today, some 20 million years later, the cockroach is still a problem.

Cockroaches, like flies, feed on garbage, human and animal waste and any food that is not protected or properly stored. They also carry many harmful bacteria and viruses on the outside of their bodies. Clean food and utensils can be contaminated by the bacteria and viruses that are brushed off its body as the cockroach crawls around the galleys and dining rooms. Almost everywhere they go, they spread contamination through the feces they are always dropping. These are some of the reason why cockroaches can cause many problems in a foodservice operation. They must be controlled at all times. You can help fight this by following these procedures.

- Remove all sources of food by carefully cleaning your work areas.

  Cockroaches must have food to live. Tables, equipment, storage shelves, decks and bulkheads must be kept clean so food will not be available for them to eat. Cockroaches can live a long time on a tiny

crust of bread so all of these areas must be thoroughly cleaned. Cleaning regularly also helps to remove their eggs before they have a chance to hatch. Garbage should be stored in containers with tight-fitting lids and they should be emptied and cleaned regularly. Do not let cockroaches get into the food. KEEP IT COVERED!

- Remove all places where cockroaches can live

  Cockroaches need only a very small place to hide. All boxes, crates and other items that are not being used should be removed from your work area as quickly as possible. All cracks and open spaces in deck and bulkheads should be repaired. If you find a place where cockroaches are living, report it to your supervisor. He will make the arrangement to have it repaired.

  All food supplies brought into the galley should be stored neatly away from the bulkhead and off the deck at least 6 inches (15Cm). This will make it easy to keep the area clean, and it will reduce the number

of places where cockroaches can live. All boxes and containers of food supplies should be carefully checked for cockroaches when they first arrive in the galley.

- Protect the food you prepare from the insecticides used in the galleys.

  Chemical poisons, called insecticides, are used to kill cockroaches. These insecticides are dangerous and can kill passengers, crew members and you if they get into the food.

  Always remove or cover all food if insecticides are going to be sprayed in your work area. All tables, containers and equipment should be thoroughly washed after your area has been sprayed. If you find a container of insecticide in the galley, take it to the Chef's office immediately.

RAT AND MICE: HABITS AND CONTROL MEASURES

HABITS

Rodents, namely rats and mice, cause large amounts of damage to food and property every year. Rats for example, have front teeth that grow very fast. To keep them short, they must constantly chew on things such as wood, cement, metal pipes and electrical wiring. Fires that have destroyed large amounts of property have been started by rats chewing through electrical wiring.

Rodents not only cause large amounts of damage each year, but they also carry harmful bacteria that can cause diseases. They contaminate all the food and utensils they touch with their feces, urine and the harmful bacteria on their bodies.

Rodents like to travel and hunt for food at night. When looking for food or when cornered, rats have been known to attack and bite people. If you see a rat or a mouse anywhere on the ship, report it immediately to your supervisor.

CONTROL MEASURES

- Keep rodents off the ship

  The best way to control rodents is to simply prevent them from getting onto the ship. When the ship is docked, special metal protectors called “rat guards” are placed on the mooring ropes. The rat guards prevent rats from walking up the ropes and getting onto the ship.

- Destroy the places where rodents can hide

  Rats and mice build nests in crowded storage rooms, in areas where garbage is stored and under piles of boards, boxes and other items that will provide them with a safe place to hide. All food supplies in storerooms should be placed away from the bulkheads on racks at least 6 inches (15 cm) off the deck.

- Remove all sources of food

  Starve A Rat Today! Keep food properly stored and your work area clean. Garbage

containers should always be covered with a tight-fitting lid when not in use.

GARBAGE HANDLING

Garbage must be properly handled in a food service operation because it attracts pests and can contaminate food items, equipment and utensils. The following general rules for garbage handling should always be followed.

Store garbage in strong, water-tight, easy to clean containers with tight-fitting lids. Garbage should never be stored in boxes or in open containers.

Keep garbage containers covered expect during the necessary food handling and clean-up times.

Store garbage outside the galley in special area that is away from all food items, equipment and utensils. The garbage in the storage areas should be removed quickly enough to prevent it from forming odors and attracting pests. These storage areas should be thoroughly cleaned on a regular basis.

Remove garbage from the galleys after each meal or as often as possible.

To prevent contamination, do not clean garbage containers in an area where food is being stored, prepared or served. The area used for cleaning garbage containers should be equipped with hot and cold water and a deck drain.

The area around the garbage storage containers on the pier should be kept neat and clean at all items. These garbage containers should be stored as far away from the break doors as possible to help keep flies out of the ship.

The amount of garbage on the ship can be reduced by using equipment such as compactors, shredders, mulchers and incinerators.

Dry items such as cans, boxes and wooden creates can be pressed to a smaller size by using a compactor. This reduces the amount of space needed to store the garbage.

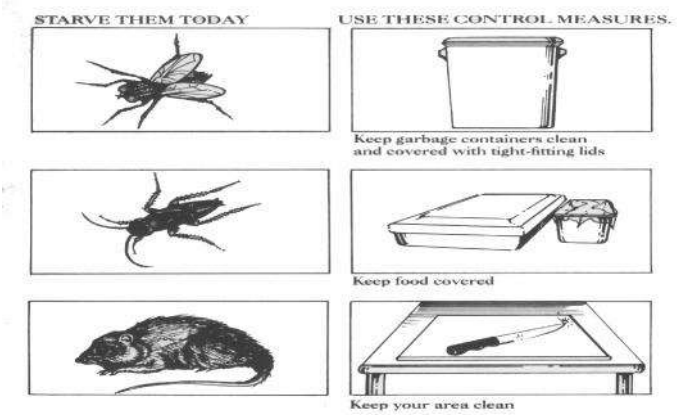
A shredded is used to grind dry garbage into smaller pieces. Paper and cardboard from

storage, preparation and serving can be handled by the shredder.

The mulcher is designed to handle all food waste and wet garbage other than plastic.

An incinerator uses a very hot flame and high temperatures to burn garbage. When properly operated, an incinerator can burn a large amount of the garbage produced on a ship.

In the hands of the right person, this equipment can be very helpful in handling garbage on a ship. For everyone's protection, it should be operated by only well-trained people. This equipment can be very dangerous in untrained hands.



CHAPTER 10 - ACCIDENT PREVENTION

Food service employees must do everything possible to protect the health of the passengers and crew. An important part of their job is preventing accidents.

Preventing accidents is just as important as preventing food-borne illness. A fire or a serious injury can be just as harmful as Sam Salmonella or Butch Botulism. Accident prevention and food service sanitation must always work together to keep a food service operation safe.

In this chapter we will answer these questions:

An accident is an unplanned event that causes damage, loss or injury. What is an accident?

A food service operation can be a dangerous place to work. The following accident can easily happen if someone does not try to prevent them.

ACCIDENT 1

A dining room steward goes into the galley to get a large order of food. He is in a hurry so he tries to carry everything on one tray. The tray is very heavy and he hurts his back when he lifts it.

Result of accident:

- Personal injury to back

ACCIDENT 2

The dining room steward does not stop working even though his back is hurting. He stars walking to the dining room with the plates stacked very high. He cannot see clearly because of the plate covers. With one wrong step he slips and falls down on a wet and greasy deck. This time he hurts his arm, drops all of the food, and breaks many of the plates and cups.

Result of accident:

Personal injury to arm

Damage to cups and plates

Loss of time and food

ACCIDENT 3

Two stewards quickly help him up and walk with him to the hospital.

Cooks mate immediately starts to clean up the food, broken plates and cups. He is in a hurry so he uses his bare hands. Within a few

minutes the Cooks mate is on his way to the hospital with a cut finger.

Result of injury:

Personal injury to finger

Loss of four employees during serving time.

These three accidents all happened very quickly. They were not planned, but they happened anyway. Think about this ”Could these accidents have been prevented?” The damage, loss or injury caused by accidents can be very serious. A fire can damage a ship very badly and cause great harm to the passengers and crew. An electrical shock can kill you in less than a second. A fall down a stairway can leave you unable to walk for the rest of your life.

You must study and work hard to make your ship a safe place to live and work.

What Causes An Accident?

Accidents are caused by people and unsafe conditions. An unsafe condition may be a

crowded galley or a dark and slippery stairway. It is possible for trained people to work in unsafe conditions for years without having an accident. However in most cases, the unsafe condition is not the greatest cause of the accident.

People cause most accidents. They start by creating their own unsafe conditions. They stack boxes too high, leave water and grease on decks and do not repair damaged wires on electrical equipment.

Many people see unsafe conditions, but do nothing to try and prevent an accident. They pick up broken glass with their bare hands, run across wet decks, lift things that are too heavy and do not use the safety-guards on slicers and equipment.

Untrained people in unsafe conditions cause accidents. You must learn to watch for unsafe conditions and try to prevent accidents.

ACCIDENTS = UNTRAINED PEOPLE + UNSAFE CONDITIONS

How can accidents be prevented?

Many people feel that accidents happen because of bad luck and therefore, they cannot be prevented. This is not true!

The truth is that all accidents can be prevented. A good safety program works to prevent accidents by removing unsafe conditions and training people to use safe work habits.

Trained people can prevent accidents. The safety Committee wants you to be an important part of the safety program on your ship. The following information on fire, cuts, burns, fall, electrical shock and back injury will help you to have a safe food service area.

FIRE

Fire is the most dangerous type of accident that can happen on a ship. If a fire starts, follow these important rules:

1. For a small fire, first try to put it out with a fire blanket or fire extinguisher, Then notify the bridge of the location of the fire by either a firm alarm or telephone. Calmly tell other

crew members there is a fire, but never yell "fire"!

2. When the fire is too large for you to put out, first notify the bridge of the location by using a fire alarm or telephone. Calmly tell other crew members there is a fire. If for some reason you cannot contact the bridge by using the fire alarm or the telephone, then send a crew member to the bridge.
3. Close all fire screen doors, portholes, fire dampers and shut off all cooking equipment.
4. Stay in the fire area until an officer from the bridge arrives. You must give him all of the important information about the fire.

You must always try to prevent a fire before it starts. Listed on the next page you will find some of the common causes of fires and how they can be prevented.

CAUSE OF FIRES	PREVENTION
Damaged electrical wire or equipment	Look for fire hazards such as sparking wires and

	damaged equipment. Report these to your supervisor immediately.
Overheating cooking oils and grease	Do not overheat cooking oil and grease. When oil gets too hot, it can suddenly burst into flames. Remember, different oils have different cooking temperatures. Always check the label on the container for the proper cooking temperature.
Greasy bulkheads, ceiling, equipment and hoods	Grease is a dangerous fire hazard because it burns very easily. All hoods, bulkheads, ceilings and equipment should be cleaned often to remove all oil and grease.
Burning cigarettes	Put out all cigarettes and matches in an ashtray. Never throw burning cigarettes or cigars over

Storing cloth, paper, wood and plastic near hot cooking equipment.	the side of the ship. The wind can blow them back and start a fire . Never smoke in bed! Items that will burn should never be placed near hot cooking equipment, ashtrays or electrical panels.

CUTS

Cuts are the most common type of food service accidents. Cuts are dangerous because they give bacteria a good place to live and grow. These bacteria can easily get into food if you use poor work habits.

Sharp equipment and utensils must be handled carefully. Knives should always be sharp because dull knives cause more accidents. Your chances of slipping and cutting your finger are greater when using a dull knife. This is because you must push down harder when cutting.

When handling a knife, always follow these safety rules:

Never pull a knife toward you when cutting. Always cut away from your body.

If you drop your knife, let it fall to the deck. Do not try to catch it.

People often cut their hands on knives that have been put into sinks with other utensils. To prevent this type of accident, wash your knives separately from all other equipment and utensils. Serious cuts can be caused by sharp food service equipment such as slicer, choppers and meat saws. To prevent accidents, you must use the safety guards when operating this equipment. Always turn the equipment off and unplug it before cleaning.

Broken glass and china should be cleaned up as quickly as possible. Use a broom and a dust pan and not your bare hands. If you must use your hands, protect them with gloves or paper towel.

BURNS

In the galleys, foodservice employees are most often burned by hot equipment, food and water. Burns, like cuts, open the skin and give harmful

bacteria place to grow. They must be properly protected to keep bacteria from contaminating the food during preparation.

On the next page you will find some of the common causes of burns. Also, you will see listed some ways to prevent accidents in the galleys.

CAUSE OF BURN	PREVENTION
Hot cooking equipment	Be careful when working around hot equipment. Use clean dry cloths when handling hot cooking equipment and utensils.
Deep fat frying	Frying with hot oil or grease can cause severe burns. Place all food in the fryer carefully to prevent splattering. Special care must be taken putting wet or cold food into the hot oil or grease.
Hot food	Carefully handle hot food with the proper utensils. Prevent spilling or splashing hot food by pouring it slowly.

Crowded work areas	When carrying hot food, give the warning, “Hot Food” to prevent burning other crew members. During busy work hours, stay in your area to keep other areas from becoming too crowded.
Cleaning chemicals	Some cleaning chemicals can burn your eyes and skin. Always follow the direction on the container. If you have any questions, then check with your supervisor before using the cleaning chemicals. Always wear the proper gloves, aprons or boots when needed to protect your skin when cleaning.
Dishwashing and sanitizing with hot water	Always wear protective clothing such as aprons and rubber gloves. Use the utensil basket when sanitizing with hot water.

FALLS

Falls can cause serious injuries. In the galleys most falls happen because food service employees rush around on slippery decks while

carrying heavy items. An example of this type of accident was given in the first part of this chapter. The dining room steward was lucky that he did not hurt another part of his body.

All food service employees must work together to prevent falls in the galleys and in all areas of the ship. To prevent falls, you must first correct all the unsafe conditions. Preventing falls also requires using safe practices. Some safe and unsafe work practices should be studied at this time.

UNSAFE CONDITION	SAFE CONDITION
Slippery decks.	Always keep decks clean and dry. Remove all trash such as boxes, paper and broken glass. Clean up spills as soon as they happen.
Dark and slippery stairways.	Stairways should be clean, dry, free of trash and well-lighted. You should always hold on to the handrail when using stairs.

Open break doors.	Stay away from open break doors. If you must work near one, always wear a safety harness, especially when the ship is sailing.
Reaching or climbing to get items stored in high places.	Falls from high places cause the most serious injuries. Always use a ladder when getting items stored in high places.

BACK INJURIES

To help prevent back injuries when lifting something heavy, follow these three easy steps:

- Bend your knees to lower body down to the object to be lifted.
- Keep your back straight and get a good grip on the object.
- Lift object by using the strength in your legs. Do not use the muscles in your back to lift a heavy object.

Only well-trained people working in safe conditions can prevent accident. Make your ship safe place and work by applying this information on accident prevention.

UNSAFE PRACTICE	SAFE WORK PRACTICE
Stacking items too high or where they will fall in rough weather.	All items on the ship must always be stored so that they will not fall and hurt someone.
Running or rushing around work areas.	Never run through a busy area, even if you are late for work. Always work at a steady pace. This will get the work done faster and safer.
Carrying heavy loads.	Do not hurt yourself by carrying loads that are too heavy. Work together with other crew members and carry heavy loads with carts, dollies and hand trucks.

Wearing shoes with slippery soles.	Wear only shoes with rubber soles that will not slip on wet galley decks.

ELECTRICAL SHOCK

An electrical shock can cause a serious injury, burn or even death. To prevent this type of accident, always follow these important rules.

Report any damaged electrical wires or equipment to your supervisor.

Some types of foodservice equipment require special cleaning methods. Check with your supervisor if you have any question on how to clean a piece of equipment.

Before cleaning any electrical equipment, turn off the electricity and unplug it if possible.

NEVER pour water onto a piece of electrical equipment.

Always wear rubber-soled shoes.

STUDY QUESTIONS FOR CHAPTERS 9 AND 10

1. Explain cross contamination.
2. Give some examples of cross contamination.
3. Why must we always separate raw from cooked and ready-to-eat food?
4. What does the physical protection of food mean?
5. Why must we keep food covered in the refrigerator?
6. Explain the 4 inch rule.
7. Explain the time-temperature rule.
8. How can we tell if food is biologically contaminated?
9. How do we know when food is safe from high levels of bacteria?
10. What diseases can be spread from polluted water?
11. What is the most common food service accident?
12. What is the best method of pest control?
13. Why are dairy products dated?

14. What does FIFO mean in regards to product rotation?
15. What is the safety type of egg product?
16. When can a whole shell egg be dangerous even if it is stored properly?
17. Name some approved food storage containers.
18. Name three metal containers that can be very dangerous for storing food in.
19. What type of food can be stored deeper than 4 inches? Give examples.
20. Why can't foods be stored in cans once they are opened?
21. When does food containers need a label?
22. Define an accident.
23. What does "perishable" mean?
24. Define "spoiled".
25. What food product can be served rare? At what temperature?

CHAPTER 11- Sanitation Guidelines for Bar Department

Bartenders need to give special attention to certain points in the beverage service operations involving their specific duties and functions. Remember to follow rules and regulations carefully. They exits to assure your health and safety and the safety and enjoyment of the passengers.

- Avoid contaminating the ice used for drink. Ice has the potential to carry numerous bacteria. It must be handled, stored and dispensed very carefully to avoid contamination. Several points must be observed while handling ice.
- Store ice only in the stainless steel ice bins provided at each bar, and keep the ice covered with the lids provided.
- Never touch the ice with your hands. Use the scoops provided at the ice machines.
- Don't use the same ice for drinks that you use to keep cans, bottles or the soda

system cold. Use only the ice stored in the stainless steel ice bins for drink.

- Transport ice in clean containers. Cleaning ice buckets and garbage containers should never be used to transport ice.
- Properly store and handle all drink mixed and food items.
- Drink mixes and cream are potentially Hazardous food items in which bacteria may grow and reproduce rapidly. These items must be kept refrigerated or on ice after the bottle or can is opened.
- Fruit should always be keep covered in plastic as stainless steel containers. Do not keep wooden or cardboard boxes in the bar or the bar pantry.
- Avoid handling cut fruit like cherries, melon or other garnishes with your bar hands. While cutting the fruit, wear a plastic glove on the hand used to hold the fruit and use toothpicks to place the cut fruit in glasses.

Other rules and regulation:

- Check temperature in all refrigerators three times a day (morning/afternoon/evening)
- Report machines and equipment not working properly.
- Report water leakages, condensation dripping, blocked drains of insects and rodents.
- Make sure that garbage bins are covered when not in use.
- Soap and paper towels must be available near wash sink and waste bucket.
- Make sure all food items are properly dated covered and stored correctly in the refrigerators at or below 40ºF.
- All refrigerators must have an accurate thermometer inside them.
- Wash, rinse, sanitize and air dry always the following items:
  - Cutting boards, can openers.
  - Beverage pitchers, strainers and all bar utensils.

- Counter shelves, drawers, table, walls and racks.
- Sinks.
- Ice machines with scoop.
- Sanitizing solution must be 100 ppm.
- Label all cleaning bottles with black masker or product label.

- Do not, eat or smoke on duty in any bar area or pantry and wash hands after smoking.
- Do not store any food items, utensils or glassware on deck.
- Make sure all glassware is free from fingerprints and debris.
- Correctly label and date all food items stored.
- Do not work if you have diarrhea. Report to your supervisor to see the doctor.
- Keep your hands away from your face and hair and out of your pockets. Do not touch money unless necessary.
- Never chew gum or anything of a similar nature.

- Avoid sneezing, yawning or coughing.
- Never work with dirty hands.
- Do not report to work in soiled cloths.

The above are minimum guidelines of sanitation procedures that must be strictly adhered to. The Bar manager may give you additional guidelines of Sanitation procedures to follow depending on the ships facilities and work.

CHAPTER 12 - Sanitation Guidelines for Waiter / Busboy

Waiters, busboys and the team at the buffet must focus on certain points in the food service operation involving their specific duties and functions.

AVOID CROSS CONTAMINATION

The most common potential for cross contamination in the dining room is at the waiter station (servant). The food and clean utensils may be contaminated by garbage and dirty utensils. This is why we have constructed clean and soiled shields on all water stations. The clean side is reserved for food and unused dishes, glasses silverware, napkins etc. The soiled side is reserved for dirty items those to be returned, like cups, glasses, cutlery and garbage. To avoid cross contamination you must at all times honor the separation of these items by using the designated stations for their intended purposes.

AVOID HANDLING THE EATING SURFACES OF UTENSILS

Bacteria very commonly live on the human body and especially on the hands. For this reason, avoid handling the eating surface of utensils. Do not touch them with your fingers. Do not touch the top of the plate, the inside of the glass or cup or the eating end of a fork spoon or knife. Handle these utensils by the bottom, the side or the handle. For the same reason when you wash your silverware, place the items in the basket with the eating ends down. Also place the utensils loosely in the basket so that all surfaces will be washed effectively.

AVOID HANDLING FOOD DIRECTLY WITH YOUR HANDS

Never use your hands to handle any foods. Breads, rolls, pastry, salads, cold cuts, cheese, ice and even garnishes should not be touched. Always used tongs, spoons or a plastic glove to pick up these foods. Never rearrange the food on a plate.

CLEAN AND ORGANIZE YOUR WAITER STATION

The dining room manager has a plan for the proper way to organize the drawers and cupboards of your servant stations. Keep them organized like this. Never store any personal or unnecessary items in the stations (paper pads, pens, matches, ashtray or clothing etc). Keep your station clean. Every day, they must be cleaned and sanitized using the three bucket system.

USE DISHWASHING MACHINES FOR ALL SERVICE UTENSILS

All plates, glasses, silverware and other service utensils must be washed in the dishwashing machine. The dishwashing machine on our ships are the only facilities for waiters and busboys for properly cleaning and sanitizing utensils.

You must not try to wash any utensils yourself at the hand wash sinks or the utility sinks. After utensils have been properly cleaned and sanitized in the dishwashing machine they are relatively bacteria free. It is not allowed to then wipe utensils silverware or plates because the towel will contaminate

them. Towel wiping is any example of cross contamination. Even though the utensils may appear shiny and clean after you wipe it, it will have more bacteria on it than one which has not been wiped with a towel

OTHER RULES AND REGULATIONS

- All waiters and busboys will be checked by the maitre d'hotel to ensure insure all uniforms are clean.
- Hands, nails, hair and mustaches will be checked daily for grooming.
- All waiters and busboys must wash their hands for 30 second after dropping off dirty dishes, trays and utensils.
- All waiters picking up food or utensils must use clean trays.
- All waiters must put dirty cups, plates and silverware on dirty side and clean utensils, trays and coffee cups on clean side of service sanitations.
- Busboys must change linen in bread basket after each sitting. If it is an open sitting then the baskets must be changed after each table is changed.

- Clean linen being brought up from the linen room must be placed in the placed in the dirty trolley.
- All dining rooms must be shampooed once a voyage. If the voyage is longer than 7 days, it should be done twice.
- All busboys and waiters taking ice from the ice machine must wear as plastic gloves.
- Busboys picking up bread or rolls for service must wear plastic gloves.
- Cleaning equipment must be stored in a separate locker and all bottles must be labeled.
- Baby chairs must be stored in a clean area and must be sanitized after each use.
- All coffee and hot water pots must be soaked once a week in bleach solution to remove coffee and water stains build up.
- Tray is never being left on the floor.
- A plate cover has to be placed on the plate before picking it up from the line.
- Personal belongings should not be brought to the dining room.
- Smoking, drinking and eating is forbidden in the galley at all times (except for water fountains)

- Observe the purpose of sinks (never wash hands in sinks used to prepare food).
- Chemicals must be cleanly labeled and stored in the chemical lockers.
- You are not allowed to enter galley areas (dish wash, garde-manger, pastry etc). If you need any assistance ask a Head waiter, Assistant FB manager or Galley steward.
- Don't work if you have diarrhea. Report to your supervisor to see the doctor.
- All open cuts/wounds must be covered with a waterproof bandage/plaster before reporting to work.
- Do not taste food on the floor.
- Do not use cracked or chipped glasses or dishware.
- Never handle glasses by the rim, utensils by the eating potions or tops of plates.
- Never place soiled dishes on the same tray with food that is to be served.
- Never sit on counters or tables.
- Keep your hands away from your face and hair and out of your pocket.
- Never chew gum or anything of a similar nature.
- Avoid sneezing, yawing or coughing.

- Do not spit in the restaurant or kitchen area.
- Never work with dirty hands.
- Do not report to work in soiled cloths.
- Never keep plates, coffee pots, cream jugs, cup saucers etc. on the guest chair.
- No left over iced water in the water pitcher, cream in the cream pitcher.

COURSE 13 – Sanitation Guidelines for Cook/Galley Staff

When you are working in the galley/kitchen, you should follow the same Hygiene and sanitation rules and regulation. Your responsibility is to know and follow proper food handling techniques so bacteria don't have a chance to grow and reproduce rapidly on the food we serve.

When the food supplies arrive on the dock to be loaded on to the ship, we must be sure that the quality of the food is also wholesome.
The food may be contaminated before or during delivered to the ship. For this reason it is important that reputable food supplies be used. We must be certain for example, that the fish we buy is from unpolluted water and that the meats and chicken we buy are from healthy animals. That have been killed, stored, handled and transported in a sanitary way. There are many inspections by the government to be sure that retail food suppliers are fresh and wholesome.

So by using reputable suppliers and by spot-checking the foods as they arrive on the dock for obvious signs of contamination, we can be sure as far as possible that our food supply is safe when we receive it. After this it is our responsibility to be certain that the food we store, prepare and serve always remains safe.
There are several basic rules that must be followed to protect the food. On course 6 we have discussed about safe food preparation. There are some other rules and regulation to be followed:

- Keep food off the deck.
  The deck is very dirty. Drainage water runs on the deck. Food scraps fall on the deck. We walk on the deck. Food that comes in contact with the deck may then become easily contaminated. There are many pallets (carabotini) and shelving throughout the areas where you work. The food should always be placed on these pallets or shelving but never on the deck.
- Cook foods to proper temperatures.
  Foods must be cooked to proper temperatures to kill the bacteria that are present. Proper cooking temperature for various meat products are as follows.

These are the minimum temperatures that the internal or center section of the meat must reach. Otherwise the large numbers of bacteria that are present will not be destroyed.

- Food held on buffet tables must be kept at proper hot or cold holding temperatures.
  Potentially hazardous hot foods on display must be kept in the Bagno Marias (or thermo tabletops) at a temperature of at least 140ºF (60°C) and potentially hazardous cold foods on the cold lines must be kept on refrigerated cold tops at a temperature less than 40ºF (4°C).
  To keep the proper temperature of hot food, the stainless steel container holding the food must be below the level of the water in the Bagno Maria.
- Reheat leftover food rapidly to at least 165ºF (74ºC)
  Any of the leftover foods contains more bacteria than one which is being served for the first time. For this reason the minimum temperature requirement is high. Remember that leftovers must not be reheated in a Bagno Maria. A stove or oven must be used. A Bagno Maria can not reheat

food quickly. It is only for hot holding purposes.

- Do not re-serve leftovers that have been held on buffets.
  Foods on buffets have been there for several hours. During this time, the top portion or cold foods may have been warmed by the air. Also guest may have coughed, sneezed or touched the foods during the buffet service. Therefore, after a buffet closes all of the foods or display must be considered contaminated and thrown in the garbage.
- Clean deck daily, strictly avoiding splash contamination onto food and food preparation surfaces.
- Maintain temperature logbook correctly.
- Handle and prepare raw meat and raw seafood separately.
- Grind pork in a separate grinder and clean after each uses.
- Always use the three bucket system to clean and sanitize your work area.
- No milk is allowed to sit in the pantries. Only bring milk when a guest request it and serve immediately.

- Smoking, drinking and eating is forbidden in the galley at all times (except for water fountains).
- Observe the purpose of sinks (never wash hands in sinks used to prepare food).
- Chemicals must be clearly labeled and stored in the chemical locker.
- Do not work if you have diarrhea. Report to your supervisor to see the doctor.
- All open cuts/wounds must be covered with a waterproof bandage/plaster before reporting to work.
- Do not store food on the floor.
- Do not store food against the wall.
- Do not refreeze food.
- Do not taste suspicious looking food.
- Do not serve unwashed fruits/vegetable.
- Do not spit in the kitchen area.
- Never use your apron as a towel.
- Never taste food with your finger.
- Never serve pork rare.
- Never store food in open containers.

CHAPTER 14 – Sanitation Guidelines for Housekeeping Department

We left this section to last because it is the biggest area on the ship and involves every rule in the sanitation manual. Housekeeping is much more than just service to passenger cabins. In this department, your duties bring you to contact with food, ice and water, room service, pest control, specials procedures to follow if passengers or crew are sick, chemical handling, air quality, and the general attention to the quality of the environment on board.

Standard Procedures

It is important for you to read, understand and follow all the Standard Procedures relating to your job. Your company has carefully developed a safe and logical procedure for each job you have to do, and in many cases, we have included a check list so you can be sure that you and your assistant have done everything to keep this important part of our ships safe, clean and in good order.

Basic Principles

Stay healthy and clean. Keep your passengers healthy and safe. Maintain their cabins hygienic and clean. They are the basic principles of everyone in the housekeeping department.

It starts with you. Whether you are a cabin steward or assistant, Room service steward, Laundryman, Pool Attendant or housekeeping cleaner. If you stay clean and healthy, you are contributing to the health and happiness of your passengers, and every crew member on board.

Be clean before you go to work, before you eat and before you leave your cabin. Clean body, clean uniform, clean shoes, clean breath and clean teeth.

Hand washing in Housekeeping

As we have repeated throughout this course book, wash your hands every time you touch something that could contaminate them. (20 seconds, hot water and soap, clean nails).

Danger zone in the cabin

We would love to think that our passengers think about sanitation and general good health as much as you do, but they generally do not. You are the specialist. Passengers are our guests. So

you have to protect them and at the same time, protect yourself.

Whatever you touch

As bad bacteria are easily transmitted by human contact, you must know where these danger zones exist. Ask yourself what have my passengers touched? And you will have the answer. Almost everything you see in the cabin and cabin bath room is a potential bacteria breeding ground. The door handle of the cabin, the door handle of the bath room, the bath room taps, the toilet flush button, the toilet seat, the toilet brush, the light switches, the air conditioning control, the cabin telephone, the TV remote control, the minibar door, the glasses and the cutlery.

Everything that your passengers can touch is a potential source of contamination.

Understanding the most likely hot spot of contamination, you will know where to clean with extra care, using 100 ppm of chlorine solution. (And wearing gloves in the bathroom for extra protection).

Never use Passengers bathrooms

On all ships, you have access (where absolutely necessary) to wash your hands in the public

bathrooms. You must never wash your hands in passenger bathrooms and never use toilets in passenger cabins.
Why do we always say so much about hand washing? It is only because human hands are the biggest source of contamination and illness on the planet. You touch something that has been contaminated with the bacteria of some one else, and you immediately risk getting some short of illness.

Sorry, No Handshaking
Try to avoid shaking hands while you are at work. Sometime it is difficult, because your passengers might want to offer a friendly hand shake when they meet you. If it is really unavoidable, shake their hands, but remember they may have contaminated them. Keep your hands away from your face and wash your hands.

Disinfection Check List
Your Housekeeper will give you a cabin check list that shows the parts of the cabin that need to be disinfected everyday.
These areas are the areas and objects we know to be the most likely hot spots and you should treat them each morning with your chlorine solution

and a just damp cloth (never a sponge). The list includes:

Door handles (inside and out).
Light switch panels (be very carefully)
Touch controls (like air conditioner)
Toilet facilities (wearing gloves)

Plates, Cutlery, Glasses etc.

Wash and sanitize only in the Room Service pantry or in a washing machine assigned to housekeeping. Never wash anything in the hand washing sink in your passenger cabin.

Usually, someone will be assigned to do this washing, but if it is your job, make sure you follow the instructions on the machine. Understand how the machine sanitizes everything you wash and always wash your hands after you use the machine.

Deep Cleaning in Cabins

In case your passengers are suffering from a disease that makes them sick, you must tell housekeeper immediately. This is important because the doctor will know how to handle the situation quickly and effectively.

This is where you become a member of the response team. You will receive special instructions from the housekeeper. You will need to wear protective clothes and safety shoes. This is because we want to be sure that you don't want to touch anything with your bare hands that could be infected.

Then very carefully, working with your team leader, you'll have to remove all the washable items (linen, bath towels etc) and deliver them in a specially colored plastic bag to the Chief Laundryman for special high temperature washing. (In some cases, we may even destroy these items in the incinerator).
After this, you will have to wash, rinse and disinfected all contact surfaces (door handles, switches, tables, chair arms the desk, telephone, everything), using a special chemical that kills the Norovirus.

In serious cases, you will have to completely strip the cabin, removing the curtains, mattresses, everything from the minibar, the chairs, everything. Then the housekeeper would arrange to fog the cabin with a disinfectant spray that will kill any remaining bacteria.

The only good news about Norovirus is that it is knocked out and destroyed by good clean habits and procedures. Hand washing, disinfecting with high concentrations of chlorine or special chemicals. Just another good reason to wash your hands every time you contaminate them.

Cleaning with no Dust

Public Health people have discovered that some passengers and crew can get sick because of the dust that's in the air we breathe. That means we can do something about it.

When you go to the cabin to start your cleaning, think about the best way to do without creating dust. Don't shake the bed linen, don't vigorously sweep the carpets, and don't flick into the air the dust of the top of doors or paintings or any surfaces that might contain dust.

Start your cleaning at the end of the cabin that are the furthest from the door. Use your vacuum cleaner, and remove the dust from all surfaces with a slightly damp cloth. That doesn't let the dust rise. If you're changing bed linen, take it off the best carefully and carry it into the soiled linen bag. Work towards the door in the cleaning

operation. If you have a deep cleaning schedule, do it the same way. Avoid dust.

Other Rules and Regulations

- Check temperatures in all refrigerators three times a day (morning/afternoon/evening).
- Report machines and equipment not working properly.
- Report water leakage, condensation, drip-page, blocked drains, loose hatches, peeling paint and signs of insects and rodents.
- Make sure garbage bins are covered when not in use.
- Soap and paper towels must be available near hand washing sink and waste towel bins.
- Make sure all food items are properly dated, covered and stored in the refrigerators at below 40ºF.
- All refrigerators must have an accurate thermometer inside.
- Use and store ice scoops properly.
- Mop/three bucket system water must be changed during the clean up when the water becomes visibly contaminated.
- Dirty water must be emptied only into mop sink.

- Mop/cloths must be rinsed and hung to dry between uses or changed.
  No bare hand contact with fruit which does not require peeling.
  No re-use of fruit taken from cabins.
  Always wash, rinse, sanitize and air dry the following items:

- Cutting boards and can openers.
- Beverage pitcher, strainers and all utensils.
- Counters, shelves, drawers, tables, wall, racks.
- Ice machine with scoop.
- Sanitizing solution must be 100 ppm. ½ oz. of bleach to 2 gallons of warm water. All sanitizing solution must be 90% to 110%.
- All chemical bottles must be labeled with solution inside bottle
- Showerheads must be cleaned once a month with 50 ppm solution of bleach and logged in logbook.
- All medical lines must go to the laundry room in a separate red laundry bag.
- All linen coming from the laundry room must be put in clean bags and dirty linen must be placed in different colored bags.
- All glasses and ice buckets must be cleaned in bell box or room service location.

- Never touch ice with your hands. Use plastic gloves and scoop.
- Make sure all cleaning chemicals are stored in the appropriate lockers.

The above are minimum guidelines of sanitation procedures that must be strictly adhered to. The chief house keeper may give you additional guidelines of sanitation procedures to follow depending on the ship's facilities and work duties.

CHAPTER 15 -SUMMARY

Your cruise through the world of food service sanitation is almost over. The purpose of this training program has been to present you with the information and training you will need to meet the responsibilities of your job. Food service employees must always work to protect the health of passenger and crew and to follow the food sanitation guidelines of the United States Public Health Service.

The success of the food service sanitation program depends on how well you apply this information to your work. To stop a food-borne illness, you must use this information as a weapon to defeat the Invisible Enemy. Preparing food that is safe to eat does not happen by accident. It is the work of well-trained foodservice employees.

The following chart will show how the Invisible Enemy can cause a food borne illness. If this information is not used by foodservice employees. All of the examples have caused large numbers of food-borne illnesses in the past.

Foodborne Illnesses Caused By	Examples
1. Food not refrigerated properly	• Potentially hazardous food stored in deep containers and cooled slowly. • Containers of food stacked on top of others. • Refrigerator overloaded with containers of food.
2. Holding food at unsafe temperature.	• Holding potentially hazardous foods at room temperature or at unsafe refrigeration and hot holding temperatures.
3. Poor personal hygiene. Not washing hands.	• Not washing hands before starting to work, after using the toilet, after coughing, sneezing or touching any contaminated item. • Working with a sore throat, runny nose and diarrhea or with infected cuts, burns, boils or pimples.

4. Cross contamination	• Cooked and raw food stored in some containers. • Raw food stored in a leaking container above an uncovered container of cooked food. • Preparing cooked food on a surface where raw food was prepared without first cleaning and sanitizing the food contact surface. • A raw turkey and roast beef were prepared on the same cutting board. The roast beef was cooked rare and the temperature was not high enough to kill the bacteria. • Washing hands in sink used for cleaning and sanitizing food and utensils. • Storing clean utensil and equipment in a soiled area. • Touching cooked food after handling raw food without thoroughly washing hands.

5. Cooking/reheating food at unsafe temperature.	• Pork, poultry and stuffed food items not cooked to the proper temperature. • Reheating leftovers slowly on the steam table at unsafe temperatures.
6. Food not handled properly.	• Unnecessary use of hands during preparation andservice. • Thawing of frozen food at room temperature or in warm water.
7. Utensils and equipment not properly washed and sanitized.	• Clean and wholesome food contaminated duringpreparation by soiled utensils and equipment. • Uncovered food on refrigerator shelves.
8. Food not stored properly	• Food stored on decks, under dripping water andsewage lines or in open containers.

9. Contaminated supplies used in food preparation 10. Food contaminated by chemicals.	• Food from unapproved sources, swollen cans and items contaminated by insects and rodents. • Insecticides drain openers and paint removes stored in food preparation areas. • Cleaning and sanitizing materials stored near food. • Unlabeled containers used in food preparation areas.

The Invisible Enemy caused a food-borne illness in all of these examples because the food service employees were not prepared to stop them. You must be ready to stop an Invisible enemy attack at all times. To stop them, you must always follow the Food Protection Plan. By following the four simple rules of this plan, you can stop the Invisible Enemy before they have a chance to cause a food-borne illness.

FOOD PROTECTION PLAN
Rule 1. Start with food that is clean and wholesome. Rule 2. Protect food from contamination Rule 3. Control the growth of bacteria. Rule 4. Use proper cleaning methods to destroy bacteria

You should be very proud to have completed this training program. Your knowledge of food service sanitation will always benefit you as well as everyone who enjoys the food you prepare and serve. Remember, knowledge is a tool that must be applied and used. Practice safe procedures, use common sense and maintain a positive attitude toward your all important job as a food service worker.

FOOD SAFETY IS IN YOUR HANDS!

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