**FOOD SAFETY MANAGEMENT**

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**Introduction**

The factors responsible for maintaining the quality and quantity of food and its specific characteristics are generally termed as food safety and hygiene. The numerous factors that can’t be ignored in the process of food preservation and storage will be the focal point of this discussion. The different pests and parasites that grossly affect food quality will be grouped. Another point of discussion is basically the cogent steps that will be undergone to store food including an upgraded process of thorough cleansing and disinfection of the storage containers and stores too. Topics on mediums through which contamination is caused and its effect on food will also be treated, Asides that, several trainings and systems have been put in place in a bid to upgrade self-hygiene and tools which have been designed to make safe methods for tomorrow. The report coverage will include subjects associated with dangers of unsafe food and services, its legal and administrative needs, all focused on the entire advancement of good hygiene and health blueprint for the future.

**TASK A**

**Controls available to prevent food contamination**

The foundational hygiene and precautionary level gives room for the avoidance and prevention of the contamination of food, these steps have been taken in a bid to achieve working measures which are also taken to handle the several problems in the place. Over time, records has shown that vegetarian foods contaminate less easily than non-vegetarian foods. In order to prevent diseases related with food and contamination, shelving should be maintained. These focal measures can be considered:

* Ensure hands are always clean; this aids in keeping the food clean in every way possible. When cooking with hands, note that 40% of bacteria might be moved into the food since a normal human hand contains such percentage. So, hands should be disinfected and clean before cooking as this is the first rule of cooking
* Workstations aids in the categorization and the arrangement of the food and its leftovers so it should be kept clean, this way presence of insects and pests are reduced. To preserve the food to look servable and fresh as it has been learnt, the workstation has to be regularly cleaned (Dhama. et. al., 2013)
* The regular and separate laundry of kitchen outfits aids in organizing the foods and also the kitchen’s disinfection, this should be done with kitchen clothes associated with meats and everything that needs cleaning steadily to prevent food contamination on the current food item from the previous food.
* To prevent the germs ingredients mixture which creates a chemical reaction in foods, separate chopping boards must be provided for meats and vegetables (Kushi, et. al., 2012).
* Keeping foods fresh requires frequent cooking which also aids in the food’s rotation in the kitchen, fresh foods also aids in easing digestions and table manners of the individual which in turn changes the general upgrading of the kitchen’s health hygienically.
* Meat and raw material storage should be carried out in separate clean spaces and should be distant from regular foods services and ingredients when processing, the provision of specific and different drawers should be made available to avoid cross contamination.
* Storage temperatures should sufficient and be kept below 5c to keep raw meats fresh.
* Distant designated places should be used for waste disposals in order to prevent spread of contamination (Kushi, et. al., 2012).

**Different Sources Of Food Contamination**

Food contamination is based on varying issues that have been observed to affect the pre and post processing/food preparation. The first source of food development could be the cause of contamination or inversely it can be infected when being conveyed to the final consumer which can be hazardous to the health sometimes, Below are three core sources of food contamination:

***Contamination of source:***

Farms, agricultural grounds for vegetables and cattle, milk production farms, poultry farms for eggs and chicken can all be sources for food. This happens when certain bacteria and parasites that are found in the environment can reproduce when fertilizing or occur through water and air. Since they are visible on vegetables, farmers fail to identify them hence the food contamination. Some bacterium when mixed with animal skin or faeces turns poisonous and results in contamination( Marriot, et , al, 2018)

***Contamination on pre-processing:***

Some contamination cases have been observed to occur at the pre-processing stage. The least infection from a parasite can infect an entire production especially when they are being cut from the ground. Due to the presence of microfibers in some places, bacteria and viruses can be bred especially when heat and moisture is present. Records have shown that excess heat from carriage trucks and lack of proper storage mechanism has also contributed to the contamination menace. (Marriott, et. al., 2018).

***Contamination during processing:***

Various records have shown that food contamination can also occur during processing.

Several tools and substances being employed during handling and cutting of food can also cause contamination even though they seem quite useful during processing. The usage of non material specific containers and processing foods in dirty places can cause food contamination since there might be a reaction thereby resulting in virus and bacteria creation (Sani and Siow, 2014).

**Agents of food spoilage**

The conveyors and organisms responsible for transferring enzymes to the food items and also aids in creation of issues in the working and food preservation are called agents of spoilage. They can be visible and non-visible. Reason for contamination is mainly due to the presence of microfibers and non fibres found in the food. The agents that have been affecting the advancement and destroying the food quality for the future are classified as microorganisms or non-microorganisms. Below are some of these common agents:

***Bacteria***

Over time, studies have shown that bacteria can mate and asexually spread without any unique feature to be considered as they can come themselves. Their development kicks under favourable temperatures including the environment and food they survive on. They reproduce in multiples which is quite rapid and this is undoubtedly a major issue, when this occurs precaution become worthless since the entire food becomes contaminated. (Sani and Siow, 2014).

***Soil and water***

The usefulness of some microorganisms and viruses cannot be over emphasized as they add value to the soil in order to improve the growth rate of food which includes the vegetables and crops. Asides that, There are several other organisms which are found in water and attached with the crops during when cultivating and washing is carried out. Contaminations of this sort can cause havoc to the original nature of the food including destroying its nutrients. (Sani and Siow, 2014).

***Pests***

When pests, cockroaches, ants, houseflies are present, they can cause harm to the hygienic condition of the food and its nutrients, this occurs mostly during the developing stages where numerous microorganisms and germs are transferred from one place to invade another place.

***Unsafe Utensils***

Cleanliness and good management in separate sections is highly required when using several utensils in food saving and processing, this is done to maintain the quality of food. Sometimes, microorganisms that were created in food storage containers that are old and must have stayed long end up infesting new foods too.

**Food preservation method and their effectiveness**

Due to the offspring of new innovations and processes in food preservation, the old methods that have been observed over the centuries are been overwritten for sake of comfort and effectiveness because of inadequate structures, processes, etc. Listed below are some of the most effect driven methods:

|  |  |
| --- | --- |
| Preservation Methods | Effectiveness |
| Freezing | * Aids in food storage for a lengthy period
* Aids in prevention of heat based organisms
* Solidifies them
* Makes the taste remain same and fresh
 |
| Canning |  \*Sterilization of equipmentsVery useful for long food storage* Helps in conveying of foods from one point to another
* Foods stored in glass bottles aids in the prevention of metal reaction
 |
| Pickling | * Chemicals are used in food preservation
* It helps to keep favourite food for a longer time and eaten too
* Chemicals that are strong prevents microorganisms from infecting the food
* Presence of strong acidic features destroys microorganisms
 |
| Salting |  \* Salt addition aids in adjustment of foods to a later environment* Helps in prevention of raw food exposure to the immediate environment
* Helps in the development and sustainance of protein present in the food important enzymes.
 |
| Airtight storage | * Helps in protecting the food from microorganisms that are airborne
* Packages that are airtight aids in prevention of moisture entrance into the food
* Aids in taste sustenance of the food
* It helps in leakage prevention and food spillage including chemicals
 |
| Sugaring  | * To restore the taste of the food, crystallization should be used e
* It aids in the prevention of developing microorganisms that cause food degardetion
* It also makes foods like candies and sugar coated cookies being processed easily
 |

**TASK C**

**Methods for the safe storage of food, with a temperature control system**

In food preservation and its components, storing food is one of the most stressful and vital works. Several factors needs to be considered in the process of food storage, the quantity of food that should be saved, the food type, the temperature are some the things to be considered. Some main storage features includes:

|  |  |
| --- | --- |
| Foods | Storage methods |
| Dry foods | * Dryness and cleanliness should be ensured when the need arises in storing dry fruits
* The thickness of the shelves must not be above 15cm
* Normal temperature range should be 10°C to 15°C (50°F to 59°F)
* The number of people who should access the stores needs to be limited
* Store cleaning and maintenance should be done regularly
 |
| Frozen foods | * Normal temperature should be 4°C (39°F) or colder
* Temperature maintenance should regular
* Always make sure the refrigerator shelves are cleaned, also try to develop schedules to maintain the same process
* Try storing raw products distant from cooked products
* Desist from placing hot foods in the refrigerators
 |
| Dairy products | * Normal temperatures should be 2°C to 4°C (36° to 39°n
* They have the capacity to contain smells so the storage clean and separate from other things as well
* Diary products rotation are vital in order to rotate them with the fresh products
* Over freezing of products is not advised (Tongnuanchan and Benjakul, 2014)
 |
| Produce | Storage of fruits and vegetables should be carried out at  2° to 4°C (36° to 39°F)to ensure freshness and quality* Storage of unripe fruits should be between 10°C to 15°C (50°F to 59°F)
* Ensure that special storage needs are kept in the system intact
* Try as much as possible to maintain the moisture of vegetable and fruits needs
 |
| Fresh meat, poultry and seafood | * Their storage should be 1°C to 3°C (34°C to 37°F) in a walk-in refrigerator
* 2°C to 4°C (36°F to 39°F) is the ideal temperature where individual meats should be kept
* Temperatures such as –1°C to 2°C (30°C to 34°F) is ideal for sea foods
* Storage should be done below , cooked and prepared to be eaten
 |

**Importance of personal hygiene**

Food handlers have taken ample time to carry out good awareness on personal hygiene of which includes food protection values. In order to further develop the several issues which are involved in food preservation and handling, countless unhygienic features have been observed. The process by which daily habits that are included in the handling of food are taken care of is called personal hygiene. Germs that might transmit to the food are contained usually in the hands; this may also damage the consistency and quality of foods. Fresh and washed clothes is a recommended way to appear while dealing with foods (Lelieveld, et. al., 2014). Numerous germs and components are being attracted by clothes which were originally designed to enhance the workforce.

Hair coverage and nail cutting cannot be overlooked while having direct contact with food as this is a general personal hygiene practice. Sick persons should be prohibited in workplaces, sneezing and coughing over foods should be avoided as it infest germs that possibly might mess the entire food and its services. Hygiene demands that wearing of metallic, dangling objects and jewelleries should be prohibited as it can contaminate the food by falling mistakenly into it. In maintenance the facility’s health and hygiene , basic rules and regulations should be drawn out by the management or supervisor to ensure effective changes in the process. Routine checks and of foods and services should be carried out to ensure the management of quality standards. For effective guard over personal hygiene of the store, intensive training of the health services should be mapped out .

**TASK D**

**Importance of cleaning and disinfection as well as pest control**

In making notable improvements especially in food related industries and food handling features, cleaning and disinfection of such place cannot be undermined. Scheduled pest control services and cleaning aids to understand major factors. Understanding the environmental and climatic effects on food is being prompted by these factors. The occurrence and pest’s growth including some other bacteria found in the storage unit can all be prevented by the cleaning. The rotation of the food should be stable, in aiding the overall maintenance of the system’s hygiene it should be kept clean and safe. Its have been observed in services involving cleaning and pests control where issues such as infestation of crops and huge production failure can be avoided (Martins, et. al., 2012).

In improving the health of containers used in storage, disinfections should be deployed since it also aids in the overall advancement of the services. Disinfection has overtime helped in the development of a trusted and safe resource in the whole storage which in turn has created a habit of working on the habits. Several chemicals are being used for pest controls which will in turn destroy the injection of those pests for a longer period. The pulling out of things that are likely to cause infection in the place aids in the generation of many issues that has been having long occurrences in the system. In an effort to make the place disinfected and safe to use, removal of infection causing thing aids in the maintenance of the quality and quantity of the products in the place. This in turn builds more trust and more relationship with clients in a bid to enhance business deals (Martins, et. al., 2012). To identify new bacteria and how they occur in the facility, and also making some changes in the system, disinfection should be practised.

**A justification of the need for the hygienic design of premises and hygiene training**

For the overall improvement of the workplace, hygiene services and designs in the location have been created, it has also enhanced different changes in the development of clean and safe storage services. Training is needed to upgrade the skills of the employees and corresponding authorities in a bid to maintain the hygiene factors and resources. One reason for hygiene design is to make sure contamination and harmful bacteria is not found in the infrastructure of a place. Automatic cleaning can be achieved through the introduction of hygiene design. The designing of good drainage system that moves out chemicals and water filtering foods and blockages are all benefits of hygiene design, the regular cleaning will aid in the prevention of the occurrence of several pests and parasites in the place (Jianu and Chiş, 2012).

Another feature of hygiene designs is to ensure enough lighting and pure ventilation in order to ensure the effective visibility of all things which should be handled by efficient workers in the system, the manner in which food services are being shown and stored should effective and clean. Washing of hands and cook facilities should be properly designed for staff sanitation. In doing this, the staff will be cautious of their personal hygiene both at home and at their workplace. One reason why hygiene training for staff must be mandatory is because they must be able to work in regards to scientific standards as a mistake might cause a breach in trust and quality. Every safety standard and cleaning item being deployed during the training is very important (Jianu and Chiş, 2012). This training improves the belief and culture practised in the facility which tends to develop various factors associated with maintenance and storage of food products. All these measures have aided in the steady cleaning of the workplace and making the employees develop a mindset of cleanliness

**TASK E**

**A food hazard risk assessment including at least 5 different types of food**

There are certain hazards and risks that may likely occur in the food industry during food processing. Hazards includes physical substances or biological allergenic which is open to harm. In that case, Risk assessment plays an all important role in food manufacturing firms and its operations (Pereira, et. al., 2017). Personal health and safety, food quality, food safety, adverse environmental occurrences personal health and safety, information security and bio-security are all faucets of risk management. During the production of food items, it is the sole responsibility of the senior management to ensure risks moderation

The chain of fast food products is being led by McDonalds which is famous for its burger. The organization serves close to 70 million customers spreading in over 100 countries worldwide. The department in charge of operations, McDonalds carefully analyses every stage involved in the process in a bid to reduce risks and hazards. Potential risk assessment aids a business to be aware which forms part of the responsibility of food safety. This in turn offers assistance to managers in a bid to reduce the oncoming problems which may cause harm to whole processing of food in the near future.

Varieties of Foods being served at McDonalds include these main 5; McCafe, Desserts and shakes, Happy meal, Chicken and sandwiches, Burgers. The food chain has been mainly focused on possible damages and conditions of work in order to ensure the management of quality (Choudri, t. al., 2018).

Below is a table showing McDonalds’ hazard risk assessment plan:

|  |  |  |  |
| --- | --- | --- | --- |
| ***Step***  | ***Hazard***  |  ***Control***  | ***Monitoring***  |
| Purchase and delivery  | Injurious bacteria,external factors may present in fast food items, such as – burger, Sandwiches etc.  | In order to control this, there has to use trustworthy or reputable suppliers.  | To monitor this, check delivery transports, food condition, temperatures, expiry and manufacturing date marks.  |
| Storage  | While storing fast food items, the chances of bacterial growth may increase. They may also raise through chemicals used in food processing and micro-organisms.  | It is essential for food quality manager to store food at the right temperature, cover them properly, altering stock and separate raw and fried food.  | Constantly checking store conditions, the durability of food, i.e. burger and McCafe get easily harm in few days.  |
| Preparation  | Bacterial growth of further contamination, using a hygienic place to prepare and store food.  | McDonald’s is required to use clean equipment, separate utensils for veg and non-veg food items.  | Monitoring schedules and visual checks.  |
| Cooking  | In this process, survival for harmful bacteria is one of the greatest hazards. Eye injury from oil, cuts, and**Lacerations also can be.**  | Proper and effective cooking environment which is free from unhygienic conditions. To avoid the risk of **Laceration, knives should be in good condition.**  | Checking routine temperatures, checking the taste of food as well as raw material used in food processing.  |
| Further Storage  | Bacterial growth, lack of space for storing and proper air.  | Some food items should be keptin open places. Separate raw and ready-to-eat foods.  | Checking the quality of food and date marks.  |

In line with this, a recent (R2AMP) restaurant have been designed by McDonalds’ for assessment of risk management initiative by the use of security management equipments. In order to record and determine ongoing and past risks, the detailed program was created, this will in turn supply corrective steps to the business organization.

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## A food safety control system or HACCP plan

Risk is being encountered by McDonalds during food processing and its quality since they are a multinational food chain, In reducing such risks, they have adopted a well working system that stores records relating to damage analysis and also to ensure full control. The HACCP system takes control of food system which helps in the prevention of various problems associated with food.

The food chain of McDonalds is applied by the HACCP, by this system food safety is raised and utilization of ready resources are obtained. The system that controls food also aids in the provision of working feedbacks in respect to food safety issues: in turn it increases food quality (Viswanath, et. al., 2012).

McDonalds adopted seven principles of HACCP plan to achieve its food safety system, they are:

* Principle 1 – There is a core need to demonstrate oncoming damages which stems from food processing, growth, manufacturing, delivery and disintegration point
* Principle 2 - Ability to circle out working processes and activities which aids in the eradication of risks and also reducing why they seem to occur
* Principle 3- For CCPs to be controllable, some level of severe limitations has to be met
* Principle 4- For CCPs to be under surveillance, a system should be implemented by observing and testing
* Principle 5- To indicate that CCPs are not be resisted, a corrective action should be undergone
* Principle 6- In order to ensure if HACCP is functioning or not, an execution of several processes has to be carried out in verification of procedures and tests inclusive
* Principle 7- Finally, tracking of the effects of all these measures and procedures requires documentation regularly.

**A food safety guide which summarises the legal requirements of the organization selected**

Every food producing establishment should take food safety as a very important task. There are some standards and guidelines being put in place by the Australian Government which must be adhered to by businesses who have their operation there. McDonalds best known for its best products; French fries, McCafe, Burgers etc runs in Australia. For a healthy and safe food, food safety legislation has set processing standards for associations. (Malakootian, et. al., 2016) Below are Australian legislations/food standards-

* [Food Production (Safety) Act 2000](https://www.legislation.qld.gov.au/view/html/inforce/current/act-2000-045)- It is a primary legislation of food safety which applies to all food businesses of Australia. The prime motive of this act is to manage food safety as per the level of risk which a food manufacturing company provide to society. Food production safety also ensures that manufacturer has to keep all details, like – license, isolation of contaminants in food and application fees.
* Australia New Zealand Food Standards Code – Standards involving labelling, packaging, composition, food safety and hygiene, food advertisement are all covered. Queensland health and Local Government has a combined effort in its enforcement. Food should fit into all sections including quality, ingredients, health etc

**Conclusion**

This report has covered numerous issues ranging from food storage and safety to food services all in a bid to enhance and improve safety measures in the place. Pests, bacteria and light viruses were identified to be core agents that coax food processing. Lack of hygiene including hand washing and glove wearing has been observed to increase the vulnerability of food to germs thereby affecting the process. Trainings have been recommended for optimum results in food processing. Measures for food preservation like preparing food pickles and salt addition have been discussed also. For effective future food safety, all these strategies should be implemented

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