

FOOD SAFETY



BE FOOD SAFE!
A publication for retail food establishment licensees and food handlers

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**COMBATING
CAMPYLOBACTER**

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OPENING MESSAGE

We are pleased to present you the fourth edition of the Food Safety Bulletin.

In this issue, we will feature *Campylobacter*, a bacteria commonly found in raw or undercooked poultry and unpasteurised milk, and is one of the most common causes of food poisoning.

Through examining cases of poor time-temperature management observed in food establishments, operators and food handlers can learn preventive measures and useful tips to eliminate such hygiene risks.

We will also highlight the importance of cold chain management and share guidelines on food storage. Gain insights from one of the key industry players on what it takes to adopt best practices in cold chain management.

Lastly, find out how you can obtain tips and facts on achieving success and stay ahead in today's competitive business climate.

We hope you have a truly enjoyable read!

**Food and Environmental Hygiene Department
National Environment Agency**



COMBATING *CAMPYLOBACTER*

Improper handling of food can lead to food poisoning incidents. Hence, as a food handler, it is important to understand that cooking food at the right temperatures will ensure that harmful bacteria are killed and one such bacteria is *Campylobacter*. *Campylobacter* infections, also known as campylobacteriosis, can result in fever, abdominal cramps, vomiting and/or diarrhoea which usually occur between 2 to 5 days upon the exposure to the bacteria.

The disease is generally self-limiting and most people will recover after several days, though some may take up to 10 days. On rare occasions, *Campylobacter* infections can result in

long-term complications such as meningitis, hepatitis or auto-immune disorders (e.g. Guillain-Barré Syndrome). The illness is caused by *Campylobacter* bacteria which normally inhabit the intestinal tracts of warm blooded animals. The bacteria grow best at 37°C to 42°C, the approximate body temperature of poultry. Food commonly associated with *Campylobacter* infections include improperly handled and undercooked poultry, unpasteurised milk and contaminated water. Hence, it is important to cook food thoroughly and to avoid cross-contamination during food preparation.

PREVENTION

Adopting some simple food handling practices is all it takes to reduce the chance of a *Campylobacter* infection.

- Cook meat, especially poultry, thoroughly (above 75°C).
- Ensure the centre of meat and poultry is well-cooked. Partially cooked food increases the risk of bacterial growth.
- Bring food like stews, soups and curries, to boiling temperatures when cooking.
- Always refrigerate meat products.
- Keep raw and cooked or 'ready-to-eat' foods separate to prevent cross-contamination.
- Exercise caution when washing raw ingredients as splashing of water droplets can spread germs onto other surfaces and utensils, causing cross-contamination.



IMPORTANCE OF TIME-TEMPERATURE CONTROL

Time-temperature abuse refers to the storage and holding of food in the temperature danger zone (5°C – 60°C) for an extended period of time. Prolonged exposure of food to the temperature danger zone will accelerate the rate of bacterial growth and quicken the food spoilage process. Thus, it is important to ensure stringent time-temperature control along the supply chain so as to preserve the quality of the food and ensure food safety. The maintenance of the cold chain management is a shared responsibility and requires concerted effort throughout the supply chain - from suppliers, cold store operators, logistic companies, wholesalers, distributors and retailers.

In this segment, we will look at some hygiene irregularities observed at retail establishments that illustrate breaks in the cold chain.



EXAMPLES OF POOR TIME-TEMPERATURE MANAGEMENT PRACTICES



- Raw poultry, meat and seafood were left unattended, at ambient temperature.
- Carton boxes were also wet and torn due to moisture condensation, which may attract pests.



- Ingredients were left in cardboard boxes outside the foodshop unattended, at ambient temperature.



- Raw ducks were left unattended, at ambient temperature.
- Meat juice was found leaking from the packaging onto the floor which may attract pests.



- A slab of raw pork and raw minced meat were left unattended, at ambient temperature.



- Raw ducks were left hanging in the stall unattended, at ambient temperature.



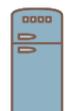
- Raw poultry were left unattended, at ambient temperature.
- Raw vegetables were left on the floor and some were found with no packaging. This could attract pests and increase the risk of contamination.

TIPS ON GOOD TIME-TEMPERATURE MANAGEMENT

RECEIVING



Schedule delivery time with your suppliers so that no food products or ingredients are left unattended upon delivery.



When receiving food products, load/unload the chilled and frozen food products as quickly as possible to minimise fluctuation in temperature of the products.



Use insulated containers with ice if cold items cannot be stored in chillers/freezer immediately.



An appointed kitchen staff could be tasked to receive the food products (i.e. raw ingredients, meat, poultry etc.) and ensure that food products are received in sealed packaging and at the right temperatures.

STORAGE



Ensure food ingredients are stored at the right temperatures. Use a thermometer to check that the chillers / freezers are operating at the correct temperatures and monitor the temperatures regularly.



For premises where the scale of operations and inventory are large, a temperature logging/ reporting system could be introduced to monitor the temperature of chilled and frozen food products (e.g. meat, poultry, etc.), such that immediate action can be taken if there is a breach.

PREPARATION AND HOLDING



Ensure that cooked food is not left at temperature danger zone for prolonged period of time.



Keep food meant to be consumed hot above 60°C, and food meant to be consumed cold at below 5°C.



Controlling time and temperature helps prevent harmful bacteria from multiplying to unsafe levels.

SERVING AND DELIVERY



For businesses doing delivery of food to customers, ensure that food is kept at correct temperatures during delivery.



Plan the delivery route carefully and include alternative plans in case of unexpected road conditions.

IMPORTANCE OF COLD CHAIN MANAGEMENT & GUIDELINES ON STORING FOOD SAFELY

WHAT IS COLD CHAIN MANAGEMENT?

In the previous section, we have shared some observations of improper temperature control in retail outlets. Cold Chain Management (CCM), the process to ensure that temperature-sensitive food products are maintained at correct temperatures from farm to fork, is important to ensure food safety and quality.

Without proper temperature control, harmful bacteria in food can multiply rapidly, especially when left at temperatures between 5°C – 60°C, which is known as temperature danger zone. Monitoring food temperatures throughout all stages along the supply chain and proper documentation at the retail end will help prevent potential temperature abuse and keep food safe.

OPTIMUM STORAGE TEMPERATURES

Bacteria can survive and multiply rapidly under favourable conditions. Hence, it is recommended for food products to be stored at the correct temperatures:

- Chilled food storage temperature for food retail outlets: 4°C and below.
- Frozen food storage temperature for food retail outlets: -12°C and below.

STORING FOOD SAFELY IN CHILLERS AND FREEZERS

- Store food at the correct temperatures as soon as it has been delivered or prepared. This prevents the growth of harmful bacteria and minimises the risk of food spoilage.
- Do not store marinated food at room temperature as bacteria can multiply rapidly at room temperature. Place marinated food in covered containers and store it in the refrigerator.
- Place hot food into shallow dishes or distribute them into smaller portions for rapid, even cooling before refrigeration. Alternatively, use a blast chiller to cool food down quickly before storing it in the refrigerator.
- Avoid storing perishable food on shelves along the refrigerator door. The temperature of food stored along the door could be subject to fluctuations whenever the refrigerator door is opened.
- Refer to the tips below on proper storage of food in the chiller and freezer.

TIPS ON PROPER STORAGE OF FOOD IN THE CHILLER AND FREEZER

Allow proper circulation of cool air by not overloading the chiller beyond its capacity. Cool air should circulate freely to keep food properly chilled.



Avoid leaving the display chiller door open for too long as this will raise the display chiller's temperature. Place notices to remind customers to close the display chiller doors after selection, and not leave them open for an extended period of time.

Do a stock-check every week to discard food that has turned bad or passed the "use-by" or "expiry" date



Clean the internal surfaces and rubber linings of your chillers and freezers regularly



Store cooked and ready-to-eat food above raw food



Store all food in properly-covered food-grade containers

Keep the temperature of chiller at 4°C and below

Keep the temperature of the freezer at -12°C and below.

A SUPERMARKET'S SUCCESS WITH COLD CHAIN MANAGEMENT

AN INTERVIEW WITH MR JASON CHONG (BRANCH MANAGER OF NTUC FAIRPRICE)

NTUC FairPrice has grown to become one of Singapore's leading retailer, serving over half a million shoppers daily with a network of over 130 outlets. It is the first supermarket chain in Singapore to be awarded the ISO 22000 Food Safety Management System certification. It is also the first retailer in Singapore to build, own and manage their very own refrigerated distribution facility for temperature-sensitive, fresh and chilled products.

Can you share some of FairPrice's Cold Chain Management (CCM) practices?

FairPrice takes food safety and quality very seriously, and we consistently strive to maintain the highest standards for all food products. In 2001, we received the Hazard Analysis and Critical Control Point (HACCP) certification for our CCM system to ensure fresh produce is maintained at optimal temperature throughout the whole process from farm to shelf. We have also led the way in developing CCM for Milk and Dairy Products in 2002, and subsequently developed and implemented CCM for chilled pork and vegetables.

In retail stores, all chilled and frozen products are given priority for visual and temperature checks, and loading into storage and display cabinets to ensure there is no break in the cold chain system. Products such as poultry, meat, seafood, and vegetables are properly segregated into separate storage units.

FairPrice uses an Electronic Monitoring System (EMS) which provides 24-hour real-time temperature monitoring for chilled/frozen cold stores and selected display units. When temperature exceeds the critical limits, branch managers and staff will be alerted to perform appropriate corrective actions. The EMS data is reviewed monthly to check for missing data and anomalies, verify the temperatures and working conditions of chillers and freezers. For chillers and freezers that are not connected to the EMS, FairPrice staff will monitor the temperature four times a day to ensure the products are kept at safe temperatures.

We also display guidelines on temperature-sensitive products and critical limits for product temperatures as a reminder to our staff.

“ FairPrice embraces a positive workplace culture whereby we see the importance of continual training and skills upgrading for our staff, to prepare for both internal and external operations. ”

What are the benefits of CCM?

CCM for chilled pork and dairy products were found to contribute to the revenue growth as they help to extend the shelf lives of these products. From an operational point of view, we were able to reduce the cost of goods returned or disposed, thus leading to reduced operating costs.

We also found improved customer satisfaction in the quality of these products. Customers also benefit from an increased variety of dairy products and number of chilled pork suppliers.

How are staff trained to better understand CCM and appreciate the systems in place?

Our staff are trained on our operational standards and systems at our dedicated FairPrice Training Institute, and this helps them to better follow the systems and guidelines in place to uphold food safety standards. We have various training programmes to ensure staff have the skills to handle food products safely, thus keeping the workplace hygienic and food safe. These include a 3.5-day mandatory training for all new staff, and additional specialised training depending on their respective departments and appointments. FairPrice Training Institute also conducts weekly team lead briefing for continuous and refresher training of staff in cold chain management, proper food handling and safety practices.



Are there any additional measures taken to promote food safety culture in the workplace?

FairPrice embraces a positive workplace culture whereby we see the importance of continual training and skills upgrading for our staff, to prepare for both internal and external operations. There are also regular briefing sessions with our store supervisors where food safety advisories are shared.

“ It is important for an outlet to first establish a set of standards, which is based on best practices and suited for their needs. ”

Any advice for food establishments to put in place an effective CCM system?

It is important for an outlet to first establish a set of standards, which is based on best practices and suited for their needs. Once a system, with comprehensive guides on procedures and best practices, has been put in place, Key Performance Indicators (KPIs) should be set to monitor progress and improvement. Systems for auditing and monitoring could also be implemented to ensure compliance.

Training and education are also key to ensure that staff comply with the system. Such a framework will help ensure effective management of food safety.

Establishments are also encouraged to seek new and innovative ways to improve upon and enhance current systems. Ultimately, the purpose of CCM is to ensure that customers are provided with safe and quality food.

