

# FoodSafety

Bulletin

Keep your food safe! A publication for retail food establishment licensees and food handlers.

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AT BAY**

Learn more about the bacteria that cause food poisoning

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Lessons learnt from a food poisoning incident involving egg-based cold dessert



# OPENING MESSAGE

We have come to the second issue of the Food Safety Bulletin.

This issue will feature *Salmonella*, a foodborne pathogen and the various safe food handling practices to prevent food from being contaminated with it. As eggs are a common source of this foodborne pathogen, food safety tips on choosing and handling eggs and egg products will also be shared. Through a case study, we will also share lessons learnt from a food poisoning incident which involved the use of eggs in a cold dessert.

The revised Points Demerit System (PDS) will also be featured in this issue.

If you have comments on this newsletter, we look forward to receiving your feedback via email at [contact\\_nea@nea.gov.sg](mailto:contact_nea@nea.gov.sg). If you wish to retrieve an online copy of past issues, please visit <http://www.nea.gov.sg/public-health/food-hygiene/food-hygiene-practices-guidelines>.

We hope you will find this issue a delightful read.

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

# Keeping SALMONELLA at Bay

With contributions from the Ministry of Health

**S**almonella are bacteria that can cause an illness known as salmonellosis, which is the leading cause of food poisoning in Singapore. Symptoms include diarrhoea, fever and vomiting. Salmonellosis can be fatal to young children, the elderly and those with impaired immune systems.

Common sources of *Salmonella* include undercooked chicken, beef, eggs or unpasteurised dairy products. *Salmonella* can survive in the environment for several days. Contamination of food with *Salmonella* may occur when food handlers do not practise good personal and food hygiene.

## PREVENTION OF FOOD POISONING BY SALMONELLA

Consuming raw or undercooked food products can increase the risk of *Salmonella* infection. *Salmonella* is destroyed by heat, so do ensure that the food you serve is thoroughly cooked. Remember to also practise the following food hygiene tips:

- Always keep raw food below cooked/ready-to-eat food in chiller and freezer.



- Ensure food is properly covered before storing it in the chiller or freezer.



- Always use different colour-coded utensils, chopping boards and knives for handling raw and cooked/ready-to-eat food.



- Wear clean gloves when preparing cooked/ready-to-eat food. Do not touch raw food and unclean surfaces or items with gloved hands.



## CLEANLINESS IS THE KEY TO PREVENT THE SPREAD OF BACTERIA

- Clean all preparation surfaces before and after each use and make it a habit to 'clean as you go'!



- Wash and sanitize utensils, crockery and implements before and after use.



- Wash your hands with soap and water before and after handling food.



# Choosing Your EGGS Wisely

*With contributions from the Agri-Food & Veterinary Authority*



**S**almonella, the name of a group of bacteria, is one of the most common causes of food poisoning. The bacteria, *Salmonella* Enteritidis, which are found in contaminated eggs can cause *Salmonella* infection in humans. The eggs available in Singapore are from *Salmonella* Enteritidis-free sources. Our eggs are imported from Agri-Food & Veterinary Authority (AVA) approved egg farms which are tested to be free from *Salmonella* Enteritidis. In addition, our local egg farms undergo regular inspections by AVA. However, *Salmonella* Enteritidis can be found in the environment and there is a chance of raw eggs being contaminated with the bacteria due to improper handling. There are different types of egg products in the market which require different storage conditions and handling methods. Let's take a look at the different types of egg products and how they should be handled.

## **NORMAL SHELL EGGS**

Normal shell eggs can carry the risk of *Salmonella* infection through cross-contamination from the environment by improper handling methods. When cracking an egg, bits of the shell may come into contact with the egg white and yolk. An egg can also become contaminated when unclean egg shells are used to separate the yolk and the white.

As a rule of thumb, keep eggs refrigerated for maximum freshness and use them within three to five weeks of purchase/receipt. Wash your hands between handling of raw food and eggs, and discard eggs with cracked shells as bacteria can enter the egg through the cracks.

## **PASTEURISED SHELL EGGS**

Pasteurisation of eggs is a process that helps kill bacteria in the eggs and on the shells. This process involves immersing the eggs in a water bath of a certain temperature for a short period of time. The temperature is high enough to destroy bacteria, however the duration is controlled to ensure that the egg is still raw. Pasteurised shell eggs can stay fresh for about 60 days when kept chilled.

## **STORING SHELL EGGS**

- Upon receipt, check that the egg shells are clean and not cracked.
- Refrigerate the eggs at 0 to 4°C.

## **USING SHELL EGGS**

- Wash your hands with soap and water before and after handling the eggs.
- Wash and sanitize utensils, work surfaces and equipment before and after each use.
- Cook egg products thoroughly to a minimum internal temperature of 75°C for at least 2 minutes.

## **ALTERNATIVES TO SHELL EGGS**

Liquid egg and egg powder are alternatives to shell eggs. Simply put, they are shell eggs processed into different forms. Both the liquid egg and egg powder can be used for baking or cooking omelettes/scrambled eggs. Not only do they provide as much nutritional value as shell eggs, they are also

pasteurised to eliminate the risk of *Salmonella* and other harmful microorganisms.

Both liquid and powdered eggs are packed for convenience of use and they require minimal storage space. If shell eggs are not handled carefully, they can break easily and create a mess. However, wastage is not a problem with liquid egg and egg powder.

## LIQUID EGG

### Production of Liquid Egg

- Fresh, clean shell eggs are cracked, filtered and stored in chiller tanks.
- The eggs undergo pasteurisation, during which harmful pathogens are destroyed.
- The pasteurised liquid egg is packed and chilled.
- The liquid egg then undergoes quality checks, laboratory testing and monitoring before it is certified safe for consumption.

### Storing Liquid Egg

- Keep liquid egg refrigerated at all times.
- Check the “use by” date and do not store longer than the recommended shelf life.

### Using Liquid Egg

- Liquid egg is ready-to-use.
- Use liquid egg immediately after opening.



Egg Powder

- Use the whole pack/carton of liquid egg once it has been opened.
- Do not freeze liquid egg packs/cartons that have already been opened.

## EGG POWDER

### Production of Egg Powder

- The egg powder undergoes the same manufacturing process as liquid eggs, with one additional step where the liquid egg is dried and made into powder.

### Storing Egg Powder

- Store in a cool, dry and dark place.
- After opening, the egg product should be stored according to the instructions on the label of the egg product.

### Using Egg Powder

- Add appropriate amount of water to the egg powder and whisk the paste together until the consistency of liquid egg is obtained.



Liquid Egg

# PROPER HANDLING OF EGGS FOR SAFE CONSUMPTION

With contributions from the Agri-Food & Veterinary Authority

According to the Agri-Food & Veterinary Authority (AVA), Singaporeans consumed approximately 312 eggs per person in 2013. Given that eggs are popular menu mainstays, widely used for baking and are enjoyed by many, it is important to ensure that they are handled properly and safe for consumption.

Chickens, even those that appear to be healthy and clean, are potential carriers of *Salmonella* Enteritidis. In infected chickens, *Salmonella* Enteritidis bacteria live in their intestines and are subsequently transmitted via their droppings. The probability of egg shells being contaminated is high as eggs travel through a chicken's cloaca, a posterior opening through which solid waste and urine are also passed.

When not cleaned properly, residual chicken droppings are left on the shells and may enter the egg through cracks in the shell. The *Salmonella* Enteritidis bacteria can double every 20 minutes under the right conditions; this is equivalent to a single bacterium multiplying into a million units in seven hours. If an egg is not cooked thoroughly, the bacteria will survive and cause an infection.

Follow these tips to ensure the proper handling and cooking of eggs.

- Purchase eggs only from AVA-approved suppliers.



- Discard eggs that are past their expiry dates.



- When receiving eggs from your supplier, check that the egg shells are clean and not cracked.



- Wash your hands thoroughly with soap and water before and after handling eggs.



- Pooling of eggs poses higher risk of contamination. Pool the number of eggs you require just before use and cook them thoroughly. Consider using pasteurised liquid egg when you need large quantities of liquid egg mixture.



- Cook the eggs thoroughly until both the yolks and whites are firm. Runny egg whites or yolks may still contain bacteria.



- All cooked eggs or dishes containing eggs should be served immediately after cooking.



- Use pasteurised liquid egg or egg powder for food that would be lightly cooked or uncooked, e.g. mayonnaise, cream, icing or tiramisu. Store these egg products as recommended on the label of the egg product.



Photo contributed by AVA



# FOOD POISONING CASE STUDY

*With contributions from the Ministry of Health*

**T**iramisu is a dessert enjoyed by many diners but five patrons' dining experience was marred when they came down with food poisoning symptoms after consuming this egg-based dessert in a local restaurant. They developed symptoms such as diarrhoea, fever and nausea. In addition, one of them was subsequently hospitalised. Two of the four stool samples obtained from the affected patrons were tested positive for *Salmonella* Enteritidis.

#### Learning points from this incident:



**Finding 1:** During the preparation of tiramisu, egg shells were used to separate the egg whites from the yolk.

**Issue:** If the surface of an egg shell is contaminated with *Salmonella*, the bacteria could contaminate the egg yolk and white upon contact.

**Recommendation:** Use an egg strainer to separate the egg whites from the yolk to minimise the risk of contamination.



**Finding 2:** Ready-to-eat food stored in the refrigerator were not covered.

**Issue:** When ready-to-eat food is left uncovered in the refrigerator, cross-contamination could occur if raw ingredients are stored together with ready-to-eat food.

**Recommendation:** Ensure all food items are properly covered before placing them in the refrigerator. Cooked and ready-to-

eat food should always be stored above raw food.



**Finding 3:** The food handlers used raw eggs to prepare the tiramisu.

**Issue:** As tiramisu uses eggs without the need for further cooking, any bacteria present in the eggs are not heat-killed and thus pose a risk of food poisoning to consumers.

**Recommendation:** Operators are encouraged to use liquid egg or egg powder when preparing foods which do not require further cooking or are not fully cooked. Examples of such foods include mayonnaise and egg-based desserts such as tiramisu or ice-cream.



**Finding 4:** The pedal-operated refuse bin was faulty.

**Issue:** Refuse bin without a functional pedal could result in food handlers using their hands to lift the cover of the bin and throw rubbish. This action could potentially increase the risk of cross-contamination when the food handler does not wash his hands with soap and water after handling refuse and continues to handle food.

**Recommendation:** Replace faulty refuse bin immediately and ensure adequate provision of pedal-operated refuse bin lined with plastic bag. Food handlers should always wash hands with soap and water after handling waste.

# Revised Demerit Points for FOOD HYGIENE OFFENCES

The Points Demerit System (PDS) is a systematic approach to deal with the suspension or revocation of food establishments' licences. Under the PDS, demerit points are given for each hygiene offence that is convicted in court or compounded.

NEA has done a review of the demerit points for food hygiene offences. The revised demerit points took effect from 1 April 2014. The objective of the review was to establish the risk of the hygiene offences and their impact on food safety. As such, offences assessed to be of higher risk and impact to food safety were accorded more demerit points; whereas offences assessed to be of lower risk or of an administrative nature were accorded lower or no demerit points.

Offences are categorised as:

- **Serious offences** – 6 demerit points
- **Major offences** – 4 demerit points
- **Minor offences** – 0 demerit points

The tables below show some examples of offences with revised demerit points:

## SOME EXAMPLES OF OFFENCES WITH INCREASED DEMERIT POINTS

OFFENCE	EXISTING PENALTIES		NEW PENALTIES	
	FINES	DEMERIT POINTS	FINES	DEMERITS POINTS
Handle food with bare hands	\$300	4	\$400	6
Fail to store raw food below cooked food	\$300	4	\$400	6
Use same utensil to handle raw food and cooked food	\$300	4	\$400	6
Pack food in unclean package	\$300	4	\$400	6

## SOME EXAMPLES OF OFFENCES WITH REDUCED DEMERIT POINTS

OFFENCE	EXISTING PENALTIES		NEW PENALTIES	
	FINES	DEMERIT POINTS	FINES	DEMERITS POINTS
Fail to appoint nominee when unable to be present to conduct sale at stall	\$200	2	\$200	0
Fail to display licence	\$200	2	\$200	0

For more information on the revisions and the full list of hygiene offences affected by the review of demerit points, please visit NEA's website at <http://www.nea.gov.sg/public-health/food-hygiene/food-hygiene-standards-in-singapore>.



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