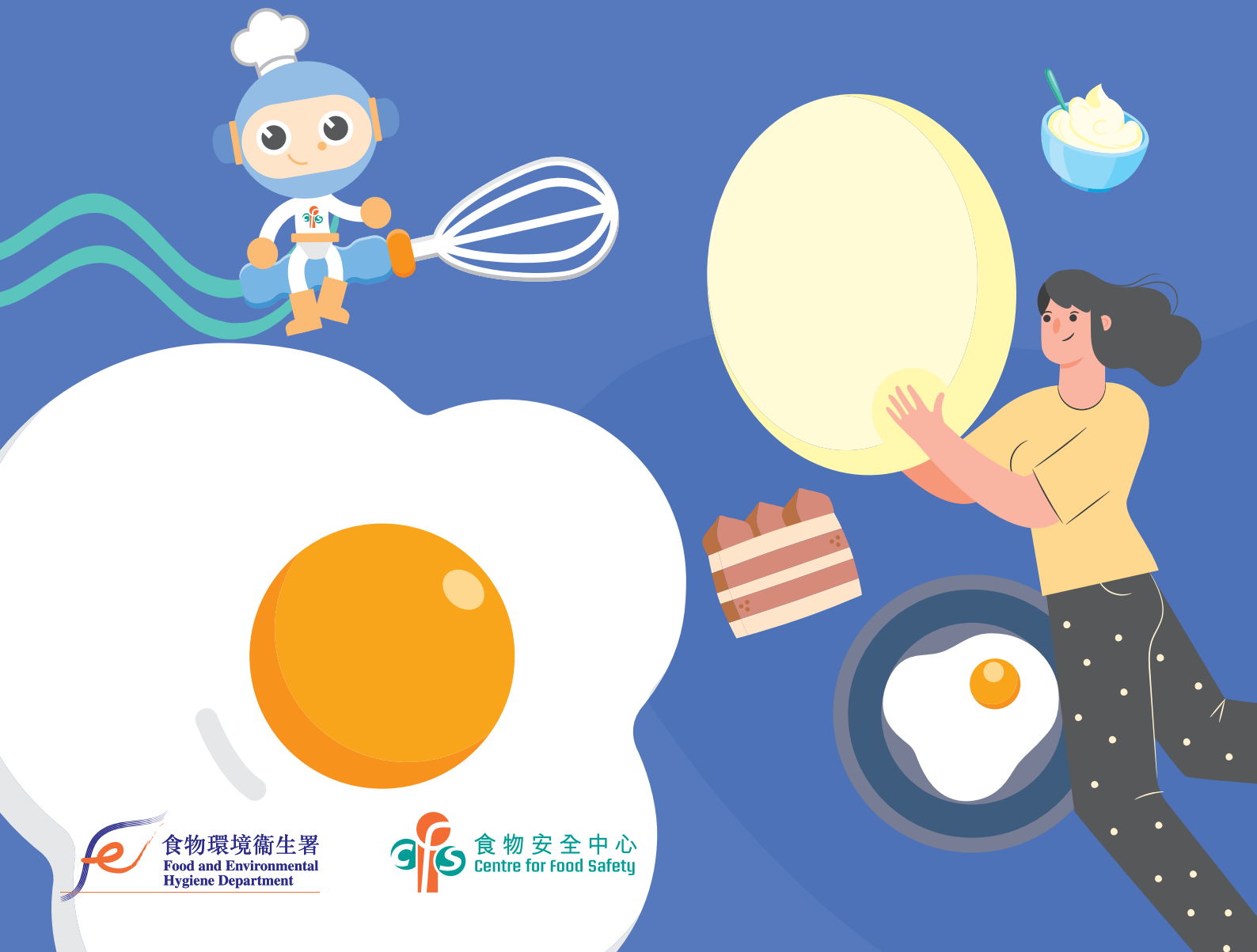





# Eggs and Egg Products

## Food Safety Guidelines for Food Businesses





This set of guidelines is intended for food businesses that prepare and sell eggs and egg products, including those take-away shops or restaurants receiving orders through mobile apps. It aims to help food premises implement appropriate food safety measures in the course of food preparation to produce and sell wholesome and safe eggs and egg products.



# Introduction

There have been local food poisoning cases in recent years involving eggs or egg products. Mishandling of eggs and egg products, such as inadequate cooking and improper holding temperature of eggs after cooking, is responsible for such foodborne illness.

## Beware of Salmonella

Eggs may contain a group of bacteria called Salmonella that can make people sick. Poultry may carry bacteria such as Salmonella, which can contaminate the inside of eggs before the shells are formed. Egg shells may become contaminated with Salmonella from poultry droppings, and Salmonella may enter the eggs through pores or cracks on the shells.

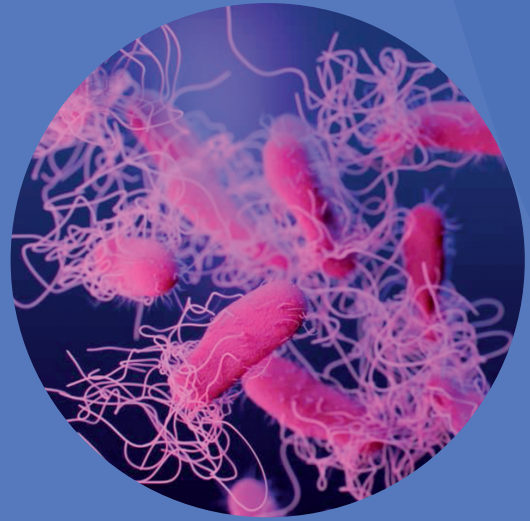


Photo credit:  
The U.S. Centers for  
Disease Control and Prevention



**The inside of eggs contaminated with Salmonella can appear normal.**

## Pooling of Eggs Poses Risks

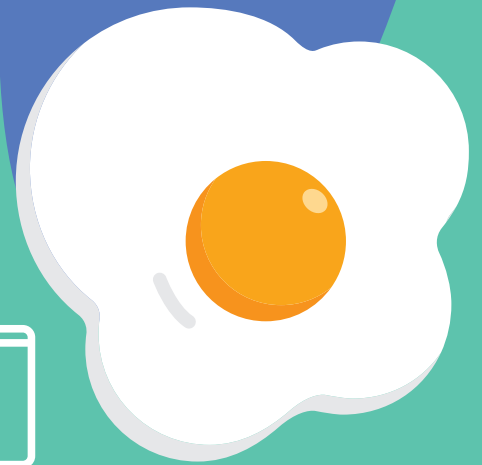
Compounded with mishandling, the use of pooled raw eggs in food preparation significantly increases the risk of food contamination. Pooling refers to the practice of breaking eggs into containers and using the combined eggs to make multiple servings of egg dishes or for use in multiple recipes. If cooked properly, an egg dish produced from raw pooled eggs may not cause illness. The practice of pooling allows one infected egg to contaminate a much larger batch of pooled eggs. In addition, the batch of contaminated pooled eggs can serve as a reservoir for disease-causing bacteria in a warm environment, and can contaminate other food or food contact surfaces through utensils and hand contacts.

In order to ensure food served is fit for human consumption, it is important to implement appropriate and adequate food safety measures when preparing eggs and egg products.



# A Generic Flow Diagram of the Preparation of Eggs and Egg Products

Below is a generic flow diagram of the safe preparation of eggs and egg products. Food businesses can choose appropriate steps according to the production needs or the nature of the finished products. For detailed advice, please refer to the following pages.



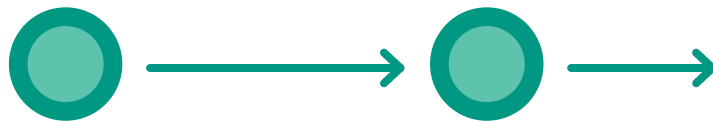
## START



Purchase  
+  
Receiving



Storage



Will the food  
undergo heat  
treatment?

- Choose pasteurised eggs, liquid eggs or dried egg powder to prepare dishes not requiring heat treatment

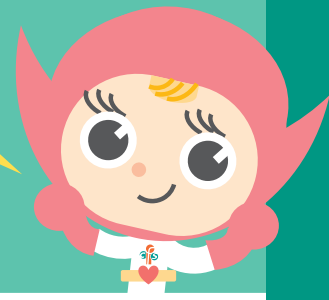
- Store shell eggs under refrigeration
- Check the expiry date
- Use by the first-in-first-out principle



## Cracking eggs for a single dish



Keep hot dishes at above 60°C



- Cook thoroughly until the core temperature reaches 75°C or the yolk is firm

### Examples

- Fried eggs
- Soft scrambled eggs with rice



Cracking eggs for a single dish

Cooking



Pooling of eggs

Pooled eggs carry risks. More safety measures for pooling of eggs can be found on page 10.



## Serving

- Remind customers to consume as soon as possible for takeaways

- Avoid putting lightly cooked or raw egg dishes on takeaway menus

### Examples

- Mango puddings
- Tiramisu
- Salad dressings



Mixing/  
Topping

• Pooled eggs prepared in advance should not be used for foods that do not require heat treatment

Keep cold food at 4°C or below



Cold holding

# Food Safety Measures for Preparing Eggs and Egg Products

## 5 Keys to Food Safety

To prepare safe and wholesome food, including eggs and egg products, it is essential to follow the **5 Keys to Food Safety** in the daily operation:



Below are some practical tips on the preparation of eggs and egg products, which can be readily incorporated into a Food Safety Plan. Additional measures, as highlighted in yellow textboxes, should be taken for preparation of raw or undercooked egg products.

## 7

### Purchase and Receiving

- Purchase clean and intact shell eggs from reliable suppliers.
- Avoid using cracked eggs as they are more prone to contamination and therefore present a higher health risk.
- Shell eggs need not to be washed. However, they can be washed if soiled with droppings. Washed eggs should be used immediately.

- Choose pasteurised eggs, liquid eggs or dried egg powder to prepare dishes not requiring heat treatment.
- Certain shell eggs produced under a certification system, in which a range of interventions have been put in place across the production chain, might be eaten raw or lightly cooked. Check documentary proof to see if such interventions are acceptable in terms of food safety. That said, certain interventions, such as vaccination, are partially protective in healthy poultry, and the quality of eggs depends on good farm management.
- Consuming raw or undercooked eggs still carries a risk of microbiological contamination. Using pasteurised shell eggs or liquid egg substitutes, or dried egg powder is a much safer alternative in recipes requiring raw eggs.
- Non-hen eggs (such as duck, goose, and quail eggs) have a higher risk of Salmonella and should not be used to prepare raw or lightly cooked egg dishes.

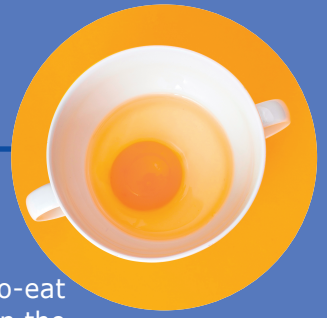
## 2

### Storage

- Store eggs and egg substitutes properly:
  - Store shell eggs in a cool, dry place, ideally in the fridge which can inhibit bacterial growth and extend shelf life of the eggs.
  - Pasteurised shell eggs or liquid egg substitutes must be stored in the refrigerator.
  - Pasteurised liquid egg substitutes should be used as soon as possible once opened.
  - Store dried egg powder in airtight containers placed in a cool, dry place.
- Apply the first-in-first-out principle to store and use eggs. Do not use eggs beyond its expiry date or expected shelf life.
- Ideally, use separate refrigerators for storing raw food, including eggs, and ready-to-eat food.
- If shell eggs and ready-to-eat food have to be stored in the same refrigerator, store ready-to-eat food in containers and above raw food.
- If preparation of pooled eggs is required, use them within a day and discard any remaining eggs.  
(Note: Pooled eggs carry risks, therefore they should not be used for raw or lightly cooked dishes. Please refer to page 10 for details.)

### 3

## Preparation



- Food contact surfaces of cooking equipment and utensils should be maintained in a clean and sanitary condition.
- Food handlers should wear disposable gloves when handling ready-to-eat food. Discard gloves when damaged, soiled, or when interruptions occur in the operation.
- Use separate utensils to handle raw food and ready-to-eat food.

- Use the eggs immediately after cracking the whole eggs.
- When separating the egg white from the egg yolk, use a clean egg separator instead of egg shells to minimise cross contamination. Salmonella, if present on the surface of the shell, can be transferred to the contents of the egg.



### 4

## Cooking (If applicable)

- Cook thoroughly until the core temperature reaches 75°C or the yolk is firm.

### 5

## Cold/Hot Holding

- Cooked eggs and egg products that are served hot should be kept at above 60°C prior to serving, while cold dishes should be kept at 4°C or below. This is also applicable to foods requiring transportation, e.g. egg products produced in factory.
- As a general rule, if cooked eggs have been kept under room temperature:
  - for less than 2 hours, they can be refrigerated for final use later or used before the 4 hours limit is up.
  - for more than 2 hours but less than 4 hours, they should be used within the 4 hours limit but should not be returned to the refrigerator.
  - for more than 4 hours, they should be discarded.
- Adopt appropriate measures to ensure first-in-first-serve of egg ingredients which are cooked or prepared in advance, e.g. use date and time coding to show the storage time.
- For takeaways and delivered meals, shorten the time the delivered foods left out of temperature control. Remind customers to consume as soon as possible where appropriate.
- Delivered foods should be kept in insulated containers and avoid preparing food too early.
- Keep records and adhere to the time temperature requirements, especially for delivered foods and transported foods.





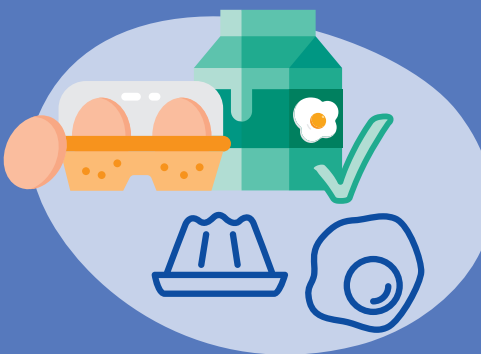
- A double boiler (also known as water bath and bain-marie) or a slow cooker below 60°C should not be used for hot holding of eggs because they favour bacterial growth within the Temperature Danger Zone and increase the risk of food poisoning.
- Avoid offering dishes with raw or undercooked eggs for mobile orders or take-away meals.

## 6

### Good Hygiene Practice

- Always follow good personal hygiene practices, including:
  - Wash hands thoroughly with running water and liquid soap for 20 seconds before handling foods, immediately after handling raw eggs, often during food preparation, and after going to the toilet.
  - Hand washing and drying facilities should be suitably located in food preparation or production areas to ensure they are readily accessible to food handlers. Where possible, non-hand operable taps and disposable paper towels should be equipped to help prevent re-contamination of clean hands.
- Clean and sanitise all utensils, equipment and food contact surfaces thoroughly after contact with eggs.

Summing up the above, there are six steps to take note of when preparing eggs and egg products:



Use pasteurised eggs for dishes containing raw or undercooked eggs



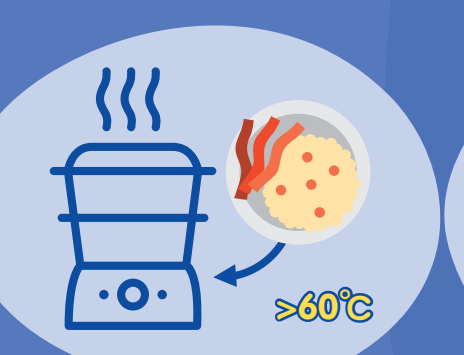
Keep hands, utensils and working areas clean



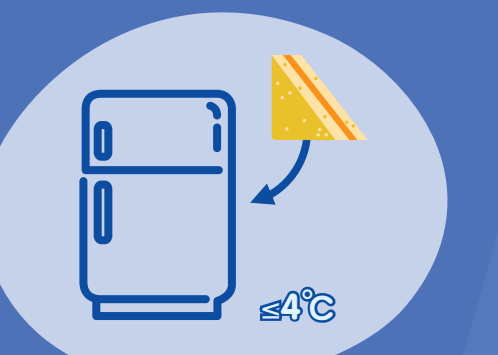
Use pooled eggs carefully within a day



Cook eggs at 75°C or above or until the yolks are firm



Keep hot dishes at above 60°C if not to be eaten immediately



Keep cold dishes at 4°C or below, not at room temperature

# Provide a Consumer Advisory for Raw or Undercooked Eggs and Egg Products

To keep consumers, especially susceptible populations such as pregnant women, infants, young children, the elderly and people with weakened immunity, informed of the risk of consuming raw or undercooked eggs and egg products, food businesses can provide a consumer advisory or a reminder on these foods on the menu. The advisory should be legible and displayed in a prominent position on the menu. Apart from menus, the advisory can also appear on menu boards, brochures, signage, food labels and placards whichever suitable.

The following is an example of a consumer advisory:

**Consuming raw or undercooked foods may increase the risk of foodborne illness, especially for pregnant women, infants, young children, the elderly and people with weakened immunity.**

Below are some non-exhaustive examples of egg dishes that may contain raw or undercooked eggs. If eggs or egg ingredients for making these dishes are not pasteurised or they are not cooked until the core temperature reaches 75°C, a consumer advisory on the menu should be provided.

- Soft scrambled eggs/fried sunny side-up eggs/over-easy eggs/omelettes
- Poached eggs/ soft-boiled eggs
- Shanghai-styled egg white soufflé balls with red bean fillings
- Soufflé pancakes
- Meringue/ Meringue-topped pies

- Tiramisu/no-bake cheesecakes
- Puddings/custards/Mousses
- Shanghainese stir-fried egg whites
- Minced beef with raw egg
- Spaghetti Carbonara
- Homemade/restaurant-made salad dressings or sandwich dressings

Alternatively, food business operators could offer well-cooked options for susceptible populations. For example, they can suggest fully cooked eggs or offer alternative cooked ingredients instead of raw egg yolks for Shanghainese stir-fried egg whites, when receiving order from a group with elderly.



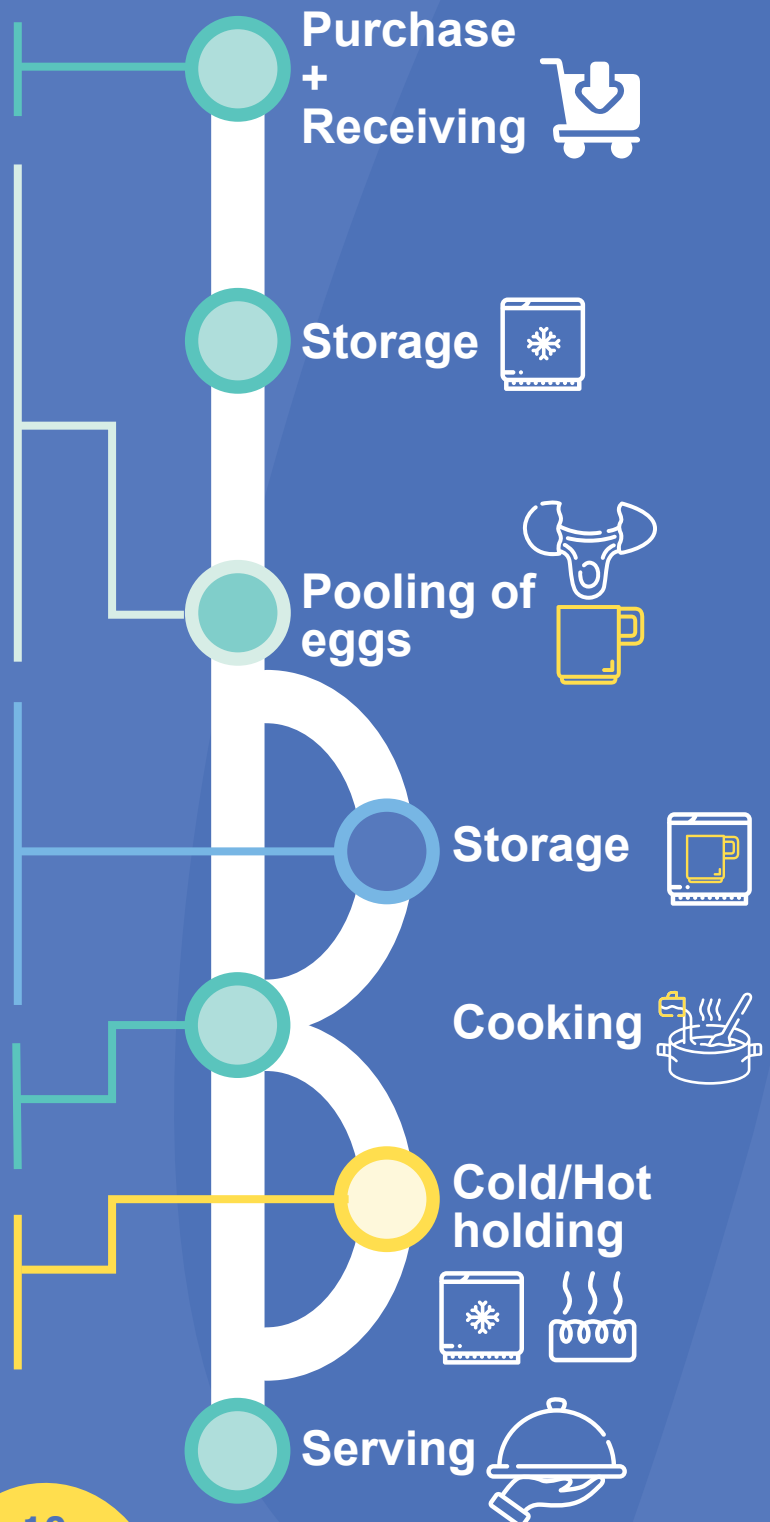
# Food Safety Measures for Pooling of Eggs



Pooling refers to the practice of breaking eggs into containers and using the combined eggs to make multiple servings of egg dishes or for use in multiple recipes. Pooling is a common practice in some restaurants to save time and control portion size. As pooled eggs have a higher chance of harbouring bacteria, **they should be cooked thoroughly and not be used for making raw or lightly cooked dishes.**

Extra food safety measures can be taken to minimise the microbiological risk when pooling eggs is required:

- It is better to use pasteurised eggs to prepare pooled eggs.
- Prepare the pooled eggs for a single dish for immediate consumption as much as possible.
- Be careful not to splash raw eggs onto other foods or surfaces.
- Plan the production schedule ahead to avoid preparing pooled eggs too far in advance; pool eggs just prior to cooking as much as possible.
- Wash the whisk, other utensils and hands after pooling eggs.
- Pooled liquid eggs not for immediate use should be kept in covered containers in the fridge and only take out the amount as needed.
- Use all pooled liquid eggs on the day of pooling and do not top them up with new eggs.
- Cook pooled eggs thoroughly, with core temperature at 75°C or with equivalent heat treatment.
- After cooking, hot dishes should be kept at above 60°C and cold dishes at 4°C or below if served at a later time.





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