

本期內容 IN THIS ISSUE

焦點個案

- ❖ 再談食物交叉污染及如何避免

食物安全平台

- ❖ 烹製蛋及蛋製品 - 安全第一

食物事故點滴

- ❖ 食物中金屬雜質的最新規管措施
- ❖ 切勿食用野生捕捉的蝸牛

風險傳達工作一覽

Incident in Focus

- ❖ More About Cross-contamination of Food and How We Can Avoid It

Food Safety Platform

- ❖ Preparation of Eggs and Egg Products – Safety First

Food Incident Highlight

- ❖ Updated Regulatory Measures on Metallic Contaminants in Food
- ❖ Do Not Consume Wild-caught Snails

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焦點個案 Incident in Focus

再談食物交叉污染及如何避免

More About Cross-contamination of Food and How We Can Avoid It

食物安全中心風險傳達組
衛生總督察蘇志強先生報告

Reported by Mr. Chi Keung SO, Chief Health Inspector,
Risk Communication Section, Centre for Food Safety

背景

二零二零年九月，共有分別來自7個羣組的19人在進食屯門一間食肆的龍蝦伊麵後出現腸胃炎症狀，而造成這些食物中毒個案的病原體就是天然存在於海水中的副溶血性弧菌。調查發現，處理生海鮮的食肆員工佩戴同一雙手套來處理煮熟的配料，又使用清潔工作枱的毛巾來抹手，而工作枱則同時用於處理生海鮮及熟食。因此，交叉污染很可能就是以上食物中毒個案的成因。事實上，交叉污染是經常被忽略但可以預防食物中毒原因之一。

Background

Nineteen people from seven groups suffered from gastrointestinal symptoms after consuming lobsters with E-fu noodles baked in soup from a restaurant in Tuen Mun in September 2020. *Vibrio parahaemolyticus*, a bacterium that lives naturally in sea water, was the causative agent of the food poisoning cases. Investigations revealed that the food handlers who picked raw seafood also handled cooked ingredients with the same pair of gloves. They also dried their hands with the same towels for cleaning the work table. The work table was used to handle both raw seafood and cooked food simultaneously. As a result, cross-contamination is the most likely contributing factor to these food poisoning

cases. In fact, cross-contamination is one of the often overlooked but preventable factors for food poisoning.

Cross-contamination as Means of Spreading Food Poisoning Organisms

Cross-contamination refers to the transfer of microorganisms from one vehicle, such as food (especially raw), utensils and hands of food handlers, to another food. There are two ways of how cross-contamination may occur. On the one hand, bacteria can be transferred directly when one food touches or drips onto another. On the other hand, bacteria can be transferred indirectly from contaminated hands, pest droppings, food preparation equipment and utensils, work surfaces or even splashes to food.

Aggravating Factors

Many food premises in Hong Kong have small kitchens. Tight food preparation areas, compound with the provision of a vast varieties of dishes and high volume of output during rush hours, may lead to slippage in food safety practices during food preparation. This can aggravate the risk of cross-contamination to ready-to-eat food. Despite all the constraints, food premises operators can follow some basic and effective steps to avoid cross-contamination.

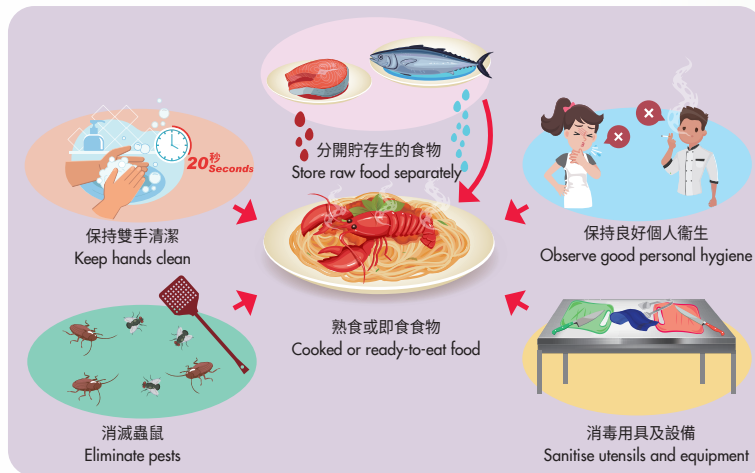


圖1: 避免交叉污染
Figure 1: Avoid cross-contamination

交叉污染是引致食物中毒的微生物之傳播途徑

交叉污染是指微生物從一種媒介，例如食物(尤其是生的)、用具及食物處理人員的手，傳播至另一種食物。交叉污染可能會在兩種情況下出現：一種情況是食物與食物接觸，或有汁液滴下至另一種食物上，直接傳播細菌。另一種情況是經由受污染的手、蟲鼠糞便、食物配製設備及用具、工作枱，甚或水花，間接把細菌傳播至食物。



加劇問題的因素

本港很多食肆都只設有小型廚房，食物配製區空間狹窄，卻提供多款菜式，在繁忙時段更要應付大量需求，以致配製食物時可能未能做好食物安全措施，增加即食食物受交叉污染的風險。儘管有種種限制，但食肆經營者仍可採取一些基本而有效的步驟來避免交叉污染。

避免交叉污染的基本步驟

在配製食物時，食物處理人員應經常徹底洗手，尤其是在接觸生的食物或食物包裝後，以及在處理熟食/即食食物前。洗手時應使用梘液及清水，搓手最少20秒，沖洗乾淨，然後以即棄紙巾抹乾雙手。處理即食食物時，應戴上即棄手套。手套如有損壞或弄污，例如在上述個案中接觸生的食物後，便應更換。切記佩戴即棄手套並不能代替正確洗手。

有效地清潔和消毒食物配製設備及廚具，亦同樣重要。應設有不同的區域/工作枱，分開處理生的食物及熟食/即食食物。然而，如果必須使用同一張工作枱處理生熟食，在處理熟食/即食食物前，必須徹底清潔和消毒工作枱面。用熱水及清潔劑或認可的殺菌劑清洗用具及工作枱面，尤其是在配製生的食物後。

此外，如果必須使用同一個雪櫃存放生的食物及熟食/即食食物，應把食物貯存於有蓋容器內，以免生的食物與熟食/即食食物互相接觸。生的食物應置於熟食/即食食物下方，以免汁液滴下導致交叉污染。為了防止蟲鼠造成污染，應妥善存放熟食/即食食物。為消除這方面的污染，亦應推行防治蟲鼠計劃。

注意事項

1. 交叉污染是引致食物中毒的常見主要成因。
2. 交叉污染的成因可以由生的食物接觸或滴下汁液至熟食/即食食物上，直接傳播細菌，或經由受污染的手、蟲鼠、工作面、食物配製設備及用具間接傳播細菌。
3. 只要採取一些基本的衛生措施，交叉污染是可以預防的。

給消費者的建議

- 居家環境亦存有交叉污染的風險，應採取相同的基本步驟來避免交叉污染。
- 把熟食/即食食物與生的食物分開，特別是生的肉類、家禽及海產。雪櫃內生的食物應置於熟食/即食食物下方，並貯存在不同的有蓋容器內。
- 向信譽良好的店鋪購買熟食/即食食物。

給業界的建議

- 管理層應向食物處理人員提供培訓，使他們充分了解處理生的食物所涉及的交叉污染風險，並保持良好個人衛生，以防止交叉污染。
- 審視食物配製工作流程中是否存在有交叉污染風險，並制訂食物安全計劃以消除風險。
- 任何時候都遵循「食物安全五要點」，尤其是「保持清潔」及「生熟分開」這兩項要點，以防止配製食物時出現交叉污染。

Basic Steps to Avoid Cross-contamination

During food preparation, food handlers should always wash their hands thoroughly, especially after touching raw food or its packaging and right before handling cooked/ready-to-eat food. Wash hands with liquid soap and water, and rub for at least 20 seconds. Then rinse with water and dry with a disposable paper towel. Wear disposable gloves when handling ready-to-eat food. They should be changed when damaged or soiled, such as after touching raw food in the case reported above. Remember, wearing disposable gloves cannot replace proper hand hygiene.

Effective cleaning and disinfection of food preparation equipment and cooking utensils are equally important. There should be separate zones/tables for handling raw and cooked/ready-to-eat food. However, should the same work table be used for both, the worktop must be thoroughly cleaned and disinfected before being used for cooked/ready-to-eat food. Wash utensils and worktops with hot water and detergent or approved types of bactericidal agent, especially after preparing raw food.

Furthermore, if raw food and cooked/ready-to-eat food have to be stored in the same refrigerator, store food in covered containers to avoid contact between raw food and cooked/ready-to-eat food. Store raw food below cooked/ready-to-eat food in the refrigerator to prevent cross-contamination through drippings. In guarding against pest contamination, store cooked/ready-to-eat food out of reach from pests. A pest control programme should also be in place to eliminate this source of contamination.

Key Points to Note

1. Cross-contamination is a common and important contributing factor for food poisoning.
2. Cross-contamination can occur directly by raw food touching or dripping onto cooked/ready-to-eat food, or indirectly via contaminated hands, pests, work surfaces, food preparation equipment and utensils.
3. Cross-contamination is preventable with the application of some basic hygienic practices.

Advice to Consumers

- Observe the same basic steps to avoid cross-contamination, as the risk of cross-contamination also exists in domestic environment.
- Separate raw food, e.g. raw meat, poultry and seafood, from cooked/ready-to-eat food. Store raw food below cooked/ready-to-eat food in the refrigerator in separate covered containers.
- Purchase cooked/ready-to-eat food from reliable sources.

Advice to the Trade

- The management should provide training to food handlers so that they can fully understand the risk of cross-contamination in handling raw food and observe good personal hygiene to prevent cross-contamination.
- Review the food preparation work flow to identify the risk of cross-contamination and design a food safety plan to eliminate the risk.
- Always adhere to the "5 Keys to Food Safety", especially the keys of "Clean" and "Separate" to safeguard against cross-contamination for the preparation of food.

烹製蛋及蛋製品 - 安全第一

Preparation of Eggs and Egg Products – Safety First

食物安全中心風險傳達組
科學主任陳蓉蓉女士及葉景新先生報告

Reported by Ms. Melva CHEN and Mr. Kenneth YIP, Scientific Officers,
Risk Communication Section, Centre for Food Safety

生吃或進食未經煮熟的蛋，有可能導致沙門氏菌感染，可構成嚴重的健康風險，甚至危及生命，對**高危人士**的風險尤其大。在二零一七年八月至二零二零年八月期間，衛生防護中心轉介了328宗與食肆有關的沙門氏菌食物中毒個案，涉及995名患者。為了協助食物業預防蛋及蛋製品中的沙門氏菌引致食物中毒，食物安全中心將發布指引，就烹製蛋類食品提供實用的食物安全建議。本文會率先簡介一下指引內容。

Consuming raw or undercooked eggs potentially causes *Salmonella* infection, which can pose severe, sometimes life-threatening, health risks, especially to **susceptible populations**. During August 2017 to August 2020, there were 328 food poisoning outbreaks related to food premises involving 995 victims caused by *Salmonella* species referred by the Centre for Health Protection. With a view to assist the food trade in preventing food poisoning due to *Salmonella* in eggs and egg products, the Centre for Food Safety is going to publish a guideline, giving out practical food safety advice about using eggs in food preparation. This article serves as a sneak peek at the guideline.

蛋的選擇

要確保食物安全，首先要選擇安全的原材料。食物業應向可靠的供應商採購清潔、沒有裂紋或蛋液漏出的蛋。如需製作以略煮或未經煮熟的蛋為用料的菜式時，例如炒滑蛋或意大利芝士蛋糕，應選用經巴士德消毒的蛋、蛋製品或蛋粉。巴士德消毒法是透過低熱殺死病原體，並使引致食物腐壞的酶失去活性。

在一些國家，某些農場採取了減低沙門氏菌污染風險的措施，生產獲認證的有殼蛋。雖然這些蛋聲稱可供生吃，但據報海外曾驗出這些蛋含有沙門氏菌，偶有造成食源性疾病事故。因此，製作菜色時，若蛋不需要全熟，採用經巴士德消毒的蛋或蛋製品仍然是較為安全的選擇。

貯存及處理生蛋

有殼蛋應貯存在陰涼乾爽的地方，最好存放在雪櫃內，並應按照先入先出的原則使用。生蛋若處理不當，可造成交叉污染，因而引致食物中毒。在處理蛋類前後，均應徹底洗淨雙手。每次處理蛋及蛋製品前，亦須清潔和消毒所有用具及其他食物接觸面，例如打蛋器、碗及工作枱。有殼蛋是不用清洗的，因為清洗後細菌容易透過蛋殼上的小孔從蛋殼外進入蛋內。把蛋黃與蛋白分開時，最好使用清潔的分蛋器，不應使用蛋殼，因為蛋殼表面可能沾有沙門氏菌。

製作混合蛋漿以供烹製蛋類菜式存有高風險

混合蛋漿是指把若干隻蛋打開後置於容器中混合而成的蛋漿，用於製作多客蛋類菜式，或用於多種食物配方。製作混合蛋漿是一些食肆常見用以節省時間和控制分量的做法。然而，若有一隻或以上的蛋受感染，把蛋混合便會使容器中全部蛋漿都受到污染，以這些混合蛋漿烹製的蛋類菜式如未有徹底煮熟，可能會導致食用後出現食物中毒。受污染的混合蛋漿亦可成為食肆中沙門氏菌的來源，污染用具或其他食物。



圖1: 食物業處所常見用以烹製蛋類菜式的高風險做法
Figure 1: Common high-risk egg preparation practices in food premises.

Choosing of Eggs

Keeping food safe starts with choosing safe raw materials. Food businesses should purchase eggs from reliable sources and only accept eggs that are clean without cracks or leakage. For dishes that often use lightly cooked or uncooked eggs, e.g. soft-scrambled eggs or tiramisu, choose pasteurised eggs, egg products or dried egg powder. Pasteurisation is the process of applying low heat to kill pathogens and inactivate spoilage enzymes.

In some countries, certain shell eggs are produced under certification systems with measures at farm level that aim to reduce the risk of *Salmonella* contamination. While claimed to be safe for raw consumption, these eggs have been reported

to be tested positive with *Salmonella*, occasionally causing foodborne disease outbreaks overseas. Therefore, pasteurised eggs or egg products are still the much safer choice if undercooked eggs are required.

Storing and Handling of Raw Eggs

Shell eggs should be stored in a cool, dry place, ideally in the refrigerator, and used on a first-in-first-out basis. Improper handling of raw eggs may result in cross-contamination and thus food poisoning. Food handlers should wash their hands thoroughly before and after using eggs. All utensils and other food contact surfaces such as whisks, bowls and benches should be cleaned and sanitised every time before handling eggs and egg products. Washing shell eggs is unnecessary because this facilitates the entry of bacteria from the outside of the shell to inside the egg through the pores in the shell. When separating the yolk from the white, it is better to use a clean egg separator instead of the egg shell which may contain traces of *Salmonella* on the surface.

Pooling Eggs is a High-risk Practice When Preparing Egg Dishes

Pooling refers to the practice of breaking a number of 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. However, pooling eggs can allow one or more infected eggs to contaminate the whole pool of eggs. If people consume egg dishes prepared from the pool without thorough cooking, they may get food poisoning. The batch of contaminated pooled eggs can also serve as a reservoir for *Salmonella* in the restaurants which may contaminate utensils or other foods.

Restaurants should only break enough eggs for immediate service in response

食肆應待消費者點菜後才把蛋打開，即點即製蛋類菜式。備用的混合蛋漿應以有蓋容器貯存在雪櫃內，使用時只取出所需分量。混合蛋漿應即日用完，不要添加新蛋。由於混合蛋漿含有細菌的機會較大，因此應徹底煮熟，不應用於製作生或不熟透的菜式。

蛋要徹底煮熟並存放於安全溫度

要消滅有害細菌，最佳方法是把蛋徹底煮熟至中心溫度達攝氏75度，或直至蛋黃凝固。此外，蛋類菜式貯存溫度不當，是本地食物中毒個案的常見成因。如烹製後並非即時食用，炒滑蛋等熱食應經常保持於攝氏60度以上，而三文治及甜品等冷食則應保持於攝氏4度或以下。

以上建議不僅適用於食物業，在家也同樣適用，有助減少食物中毒的風險。

to a consumer's order. If you are breaking eggs for later use, keep the pooled eggs in covered containers in the refrigerator and only take out the amount as needed. Use all pooled eggs on the same day and do not top up with new eggs. 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.

Cook Eggs Thoroughly and Keep Them at a Safe Temperature

The best way of eliminating harmful bacteria is to cook the eggs thoroughly until the core temperature reaches 75°C or the yolks are firm. Also, improper holding temperature of egg dishes is a common cause of local food poisoning outbreaks. If not consumed immediately after preparation, hot dishes such as soft-scrambled eggs should always be served or kept at above 60°C, and cold dishes such as sandwiches and desserts should be kept at 4°C or below.

The above advice is applicable not only in food businesses but also in domestic settings to reduce risks of food poisoning.

食物事故點滴 Food Incident Highlight

食物中金屬雜質的最新規管措施 Updated Regulatory Measures on Metallic Contaminants in Food

《2018年食物摻雜(金屬雜質含量)(修訂)規例》(《修訂規例》)將由二零二零年十一月一日起全面生效，涵蓋各類食物。《修訂規例》在二零一九年十一月一日起先適用於部分保質期較短的新鮮食物，例如新鮮蔬菜及魚類。至於保質期一般較長的其他食物，則有12個月的寬限期。寬限期將於二零二零年十月三十一日結束。

修訂旨在加強規管和更新標準，以期更有效保障公眾健康，並讓本港的規管標準與國際標準接軌。《修訂規例》把更多金屬污染物納入規管，由7種增至14種，而適用於不同食物及食物組別的金屬污染上限數目，亦由19個增至144個。

業界應遵從《修訂規例》的條文，確保所售賣的食物符合標準。

The Food Adulteration (Metallic Contamination) (Amendment) Regulation 2018 ('the Amendment Regulation') will take full effect from 1 November 2020 to cover all kinds of foods. The Amendment Regulation first took effect on 1 November 2019 for certain types of fresh food with a shorter shelf life, e.g. fresh vegetables and fish. For other food which normally have a longer shelf life, a 12-month grace period was offered. The grace period will end on 31 October 2020.

The amendments aim to enhance the regulatory control and update the standards to better safeguard public health and align the local regulatory standards with the international ones. The Amendment Regulation increases the number of metallic contaminants covered from 7 to 14, and the number of maximum levels for metallic contaminants in respect of different foods and food groups is increased from 19 to 144.

Traders should observe the details of the Amendment Regulation and ensure the foods for sale comply with the standards.

切勿食用野生捕捉的蝸牛

Do Not Consume Wild-caught Snails

最近關於本地野生捕捉的蝸牛可否直接食用的討論，在網上引起了熱議。蝸牛是雜食性動物。可供食用的蝸牛在農場飼養，生長環境及飼料都有嚴格控制。相比之下，野生捕捉的蝸牛在沒有控制的環境中覓食，有可能受有毒物質污染，感染寄生蟲的風險也較高。外地據報曾出現進食野生捕捉的蝸牛後感染「廣州管圓線蟲」的個案。這種寄生蟲可入侵人類的中樞神經系統並導致腦膜炎，可以致命。

由於無法確保食用安全，消費者切勿進食野生捕捉的蝸牛。如果想享用可供食用的蝸牛，應向可靠的店鋪購買養殖蝸牛，才是較安全的選擇。

A recent discussion on whether local wild-caught snails can be consumed directly stirred up some controversy online. Snails are omnivorous animals. Edible snails (escargots) are raised in farms with strict control of living environment and feeds. In contrast, there is no control of what wild-caught snails have eaten, they may be contaminated with toxic substances and have a higher risk of being infected with parasites. Cases of *Angiostrongylus cantonensis* infection after eating wild-caught snails have been reported overseas. The parasite can invade the central nervous system in humans and cause meningitis, which can be lethal.



圖1:本地野生蝸牛示例
Figure 1: An example of a local wild snail

Consumers should not eat wild-caught snails, as there is no means to ensure safety of consumption. To enjoy escargots during a meal, it is safer to patronise reliable shops for farm-raised snails instead.



風險傳達工作一覽 (二零二零年九月)

Summary of Risk Communication Work (September 2020)

事故/食物安全個案 Incidents/ Food Safety Cases: 179	公眾查詢 Public Enquiries: 93	業界查詢 Trade Enquiries: 159	食物投訴 Food Complaints: 292	給業界的快速警報 Rapid Alerts to Trade: 5
給消費者的食物警報 Food Alerts to Consumers: 0	懷疑食物中毒個案通報 Suspected Food Poisoning Alerts: 2	教育研討會/演講/講座/輔導 Educational Seminars/ Lectures/Talks/ Counselling: 27	上載到食物安全中心網頁的新訊息 New Messages Put on the CFS Website: 48	