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二零二二年有關食肆及食物業的 食物中毒個案回顧

Review of Food Poisoning Outbreaks Related to Food Premises and Food Business in 2022

食物安全中心風險管理組
蔡育嬌醫生報告

Reported by Dr. Lousia CHOI, Medical & Health Officer,
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本文旨在回顧食物環境衛生署(食環署)食物安全中心(食安中心)在二零二二年所接報與本地食肆及食物業有關的食物中毒個案。

This article reviews the food poisoning outbreaks (FPOs) related to local food premises and food business reported to the Centre for Food Safety (CFS) of the Food and Environmental Hygiene Department (FEHD) in 2022.

與本地食肆及食物業有關的食物中毒個案

二零二二年,食安中心接獲117宗由衛生署轉介的食物中毒個案,有500人受影響。過去兩年食肆及食物業的食物中毒個案數目偏低,或是由於在嚴格的2019冠狀病毒病防疫措施下營業時間縮短及聚餐減少。

Food Poisoning Outbreaks Related to Local Food Premises and Food Business

In 2022, the CFS received 117 FPO referrals from the Department of Health (DH), affecting 500 persons. The FPO statistics in food premises and food business remained at the low side in past two years and this may be attributed to the stringent COVID-19 anti-pandemic measures from shortened business hours and fewer meal gatherings.

病原體及成因

在二零二二年的食物中毒個案中,由細菌性致病菌引起的仍然佔大多數(66.1%),排在首位的是沙門氏菌(56.4%),其後是副溶血性弧菌(35.6%)、產氣莢膜梭狀芽孢桿菌(3%)及金黃葡萄球菌(3%)。至於病毒所引起的食物中毒個案佔總數23.6%,大多數個案都涉及諾如病毒(96.7%)。由生化毒素(例如組胺、雪卡毒素

Causative Agents and Contributing Factors

Bacterial pathogens remained the leading cause (66.1%) of FPOs in 2022. *Salmonella* (56.4%) topped the list, followed by *Vibrio parahaemolyticus* (35.6%), *Clostridium perfringens* (3%) and *Staphylococcus aureus* (3%). Viral causes accounted for 23.6% of all FPOs with Norovirus accounted for majority of viral cases (96.7%). Biochemical cases (such as histamine and ciguatera toxin etc.) increased from 6% in 2021 to 9.4% in 2022. Improper holding temperature (23.3% of all contributing

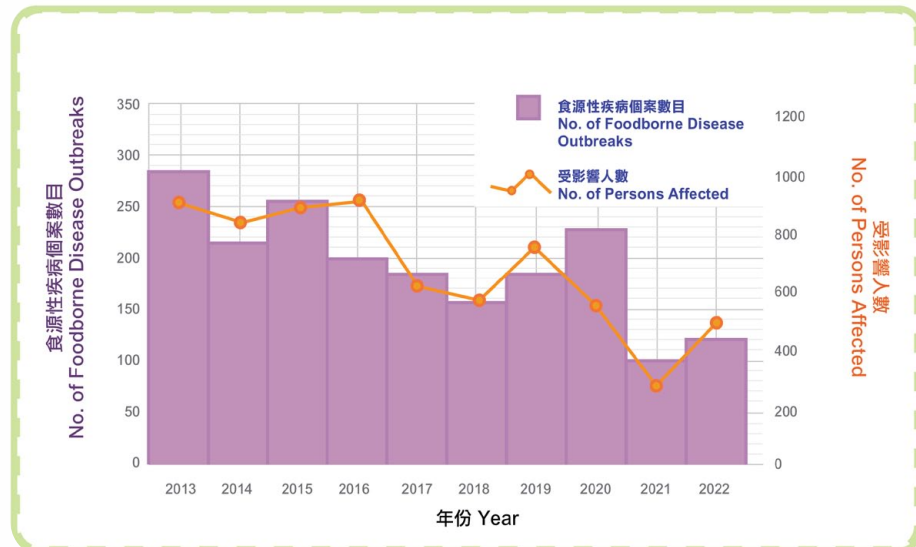


圖1：二零一三年至二零二二年有關食肆及食物業的食物中毒爆發個案數目及受影響人數

Figure 1: Number of food poisoning outbreaks related to food premises and food business and the corresponding number of persons affected from 2013 to 2022.

等)引起的食物中毒個案由二零二一年的6%上升至二零二二年的9.4%。二零二二年食物中毒個案最常見的三大成因分別是「貯存溫度不當」(佔所有成因23.3%)、「被用具污染」(21.3%)，以及「被生的食物污染」(20.8%)。

二零二二年發生的食物中毒個案摘要

涉及流心蛋糕的沙門氏菌食物中毒個案

二零二二年十一月，食安中心接獲4宗食物中毒個案，合共10人受影響，受影響人士均在一家本地食肆進食流心蛋糕。據食肆現場調查發現，雖然使用了經巴士德消毒法消毒的雞蛋蛋液製作流心蛋糕，但是同一個沒有清洗的打蛋器用作處理未經巴士德消毒的雞蛋和經巴士德消毒的雞蛋蛋液。麵糊又與生肉一起存放在雪櫃，因此可能出現污染。調查亦發現流心蛋糕烹煮不足，中心溫度低於攝氏55度，比食安中心建議能殺死病原體的溫度(攝氏75度)低。

食環署指令有關食肆即時停售涉事食品並進行徹底清潔及消毒，又作出衛生建議。

經化驗後發現，食物樣本和患者的糞便含有基因序列型相同的腸炎沙門氏菌。儘管經巴士德消毒的蛋製品應用來配製生或略熟的雞蛋，但從這宗事故明確可見，食物處理人員應遵守良好衛生規範以避免食物從其他來源受到交叉污染的重要性。

涉及吞拿魚及鯖魚毒素的食物中毒個案

食安中心在二零二二年接獲5宗鯖魚中毒個案，數字相比二零二一年的2宗有所增加。二零二二年的個案均涉及吞拿魚，合共8人受影響。

食安中心到這5家食肆並沿有關供應鏈進行調查。4宗個案涉及在食肆內長時間把吞拿魚存放在超過攝氏4度的不當溫度，而在另一宗個案中則有證據顯示魚類在進口香港前因不適當的貯存溫度引致組胺產生。這些個案清楚顯示，要減低組胺中毒和鯖魚中毒的風險，在整個處理含大量組胺的魚製品(如吞拿魚)的過程中，維持適當的貯存溫度非常重要。

鯖魚中毒又稱組胺中毒，由進食含大量組胺的魚類引起，較常出現在含有大量稱為組氨酸的氨基酸的魚類，例如吞拿魚及沙甸魚等。魚類在捕獲後，若處理及貯存溫度不當，細菌酶會把組氨酸轉化成組胺。組胺可在從捕魚到進食前等各個食物供應鏈程序中形成。

結語

防疫措施令本地食肆及食物業的食物中毒個案數目在過去兩年一直維持在相對較低的水平。隨着防疫措施放寬及堂食的顧客數目回升，食物業界可能面對人手短缺問題，或會引起食物安全方面的關注。業界須保持警覺，向所有食物處理人員，包括全職、臨時或兼職員工提供足夠的食物安全培訓。為減少食物中毒事故發生，食安中心推出了一個全新的「[安樂查飯](#)」專題網頁，教導食物從業員有關良好衛生規範的知識。

factors), contamination by utensil (21.3%) and contamination by raw food (20.8%) were the three most frequently identified contributing factors for FPOs in 2022.

Highlights on Food Poisoning Outbreaks in 2022

Food Poisoning Outbreaks involving Lava Cake related to *Salmonella* species

In November 2022, the CFS received four FPOs related to the consumption of lava cake at a local food premises, involving 10 persons. Field investigation at the food premises revealed that although pasteurised egg solution was used to produce the lava cake, contamination could occur as the same egg beater was used to process both unpasteurised eggs and pasteurised egg solution without cleaning. The egg batter was stored with raw meat in the same refrigerator. Investigation also revealed inadequate cooking of lava cake with core temperature below 55°C, which was below the CFS's recommended temperature (75°C) to kill pathogens.

The FEHD instructed the food premises to stop the sale of incriminated food immediately, conduct thorough cleansing and disinfection of the food premises and dispose of the remaining food. Health advice was given.

Laboratory investigation revealed *Salmonella* Enteritidis of same sequence type was detected in both the food sample and victim's stool. While pasteurised egg products should be used to prepare the lightly cooked or uncooked egg, this case clearly illustrated the importance of food handlers following Good Hygiene Practices (GHPs) to avoid cross-contamination of foods from other sources.

Food Poisoning Outbreaks involving Tuna products and Scombroid toxin

The CFS noted an increase in the number of scombroid fish poisoning from 2 cases in 2021 to 5 cases in 2022. Tuna fish was involved in all cases in 2022 which affected eight persons.

Investigations had been conducted at these five food premises and along their supply chain. Four cases involved prolonged storage of tuna fish at improper temperatures above 4°C at the food premises, whereas one case showed evidence of improper storage temperature before importation to Hong Kong, resulting in histamine formation. These cases highlighted the importance of proper storage temperature along the whole processing chain for fish products with high histidine content, such as tuna, in order to minimise the risks of histamine formation and scombroid fish poisoning.

Scombrototoxin fish poisoning, also known as histamine poisoning, is caused by consuming fish that has been contaminated with high amounts of histamine. This is more likely to occur in fish high in a particular amino acid called histidine, such as tuna and sardines. When fish is handled and stored at improper temperatures after harvesting, the bacterial enzyme changes histidine in fish into histamine. Histamine may be produced at any point along the food chain, from fish harvesting to the point before consumption.

Conclusion

Local FPOs in food premises and food business remained at relatively low level due to anti-pandemic control measures in past two years. With the relaxation of anti-pandemic measures and more customers returning to on-premises dining, food businesses may face labour shortage that may pose food safety concern. Food businesses should remain vigilant and provide adequate food safety training to all food handlers, including permanent, temporary, or part-time staff. For the purpose of minimising the likelihood of food poisoning, the CFS has launched a new thematic website called "[Safe Kitchen](#)" to educate those who work with food on GHPs.

學校午膳與食物安全

School Lunch and Food Safety

食物安全中心風險傳達組
衛生總督察巫慧芳女士及
研究主任鄭基慧女士報告

Reported by Ms. Rita OSBORN, Chief Health Inspector, and
Ms. Amy CHENG, Research Officer,
Risk Communication Section, Centre for Food Safety

小童特別容易感染食源性疾病，因此必須確保在學校供應的食物安全。不當處理食物會加劇病原體的傳播，對食物安全構成潛在威脅。要維護食物安全及學生的健康，有賴學校、飯盒供應商和家長攜手合作。本文重點討論飯盒預備過程中的潛在危害。

供應商所提供飯盒的食物安全

由於飯盒一般都是供應商在食物製造廠大量生產，因此，任何未有完全遵行食物安全守則的做法都可能影響多個進食的人。為確保所生產飯盒的食物安全，供應商應預先計劃，確保有足夠的人手、空間及器具作貯存、預備、烹煮及熱存。廚房最好具備指定工作區域及不同用具，分別處理未煮和已煮熟的食物。為確保遵守「食物安全五要點」及良好衛生規範，應遵守完善的操作程序和清潔時間表。

製作安全的飯盒，切勿存放食物於攝氏4至60度之間的危險溫度範圍內。一般來說，預備飯盒的過程有三個能預防或消除食物安全危害的主要控制重點：

烹煮

徹底煮熟食物是殺死如沙門氏菌通常會附在食物原材料內，和食物原材料一同被帶到食物製造場範圍內的病原體的重要步驟。米飯等食物須徹底煮熟及翻熱，直至食物中心溫度達攝氏75度或以上。盡量在供餐當日才烹煮所有食物，包括肉汁、湯等。

熱存

食物烹煮後在危險溫度範圍內存放及運送的時間過長，容易滋生細菌。因此，製作好的飯盒應放在電能保溫手推車中，保持在攝氏60度以上。把飯盒放入保溫設備前，應先以適當及可行的方法將設備預熱。學校應在飯盒送抵後盡快將分發給學生。

送遞

在送遞過程中控制食物溫度（如熱食保持在攝氏60度以上）和盡量縮短運送時間對確保食物能安全食用同樣重要。保溫容器可用作保持熱食在食用前的溫度。

控制重點應加以監察，以評估是否達標，例如利用食物溫度計量度食物中心溫度，然後作妥善的書面紀錄。如沒有達到已設立的控制重點標準，應以矯正程序把過程納回正軌，如繼續烹煮食物直至達標。

學校飯堂製作的餐食

設有廚房的學校在預備及供應餐食時，也應遵從上述的做法。若在校園備餐，把食物分份時，交叉污染和食物安全措施不足是兩個主要的關注點。用同一器具來處理未煮及已煮熟的食物，可導致已煮熟的食物受污染。為免交叉污染，食物處理人應定時洗手，並在預備不同食物前後或弄髒時更換手套。用途不同的用具和空間應清楚標示。用膳區（如飯堂）應保持環

Assuring the safety of food served in schools is essential as young children are particularly susceptible to foodborne illness. Inappropriate food handling encourages the spread of pathogens and poses a potential threat to food safety. The collaborative effort of schools, meal box suppliers and parents is necessary to safeguard food safety and the health of students. This article highlights the potential hazards in the course of lunch box preparation.

Food safety of meal boxes from suppliers

Meal boxes are typically mass-produced at the supplier's food factory. Therefore, any lapse in food safety can potentially affect a large number of diners. To ensure food safety of the meal box produced, suppliers should plan ahead of time to ensure sufficient manpower, space and equipment for food storage, preparation, cooking and hot-holding. Kitchens should preferably have designated working zones and different utensils for handling raw and cooked food. Comprehensive operating protocols and cleaning schedules should be in place to ensure the adoption of "5 Keys to Food Safety" and Good Hygiene Practices (GHPs).

Keeping food away from Danger Temperature Zone between 4°C and 60°C is key to producing safe meal boxes. In general, there are three major critical control points (CCPs) along the process of meal box preparation where food safety hazards can be prevented or eliminated:

Cooking

Thorough cooking is a critical step to eliminate pathogens such as *Salmonella* that are likely to accompany any raw foods brought into a food preparation area. Foods including rice should be thoroughly cooked and reheated until its centre reaches 75°C or above. Where possible, cook all food items, including sauce and soup, on the day of consumption.

Hot holding

Prolonged storage and transport within temperature danger zone after cooking will allow bacteria to grow. Hence, finished meal boxes should be consistently kept at above 60°C in electric warming trolleys. Hot-holding equipment should be pre-heated by suitable and feasible means before putting meal boxes in it. Schools should distribute the meal boxes to students in a timely manner upon arrival.

Delivery

Controlling the temperature of food (e.g. hot food kept above 60°C) during delivery is equally important in ensuring that food is safe to eat, likewise the delivery time should be shortened as far as practicable. Insulated containers can be used to keep food consistently hot before use.

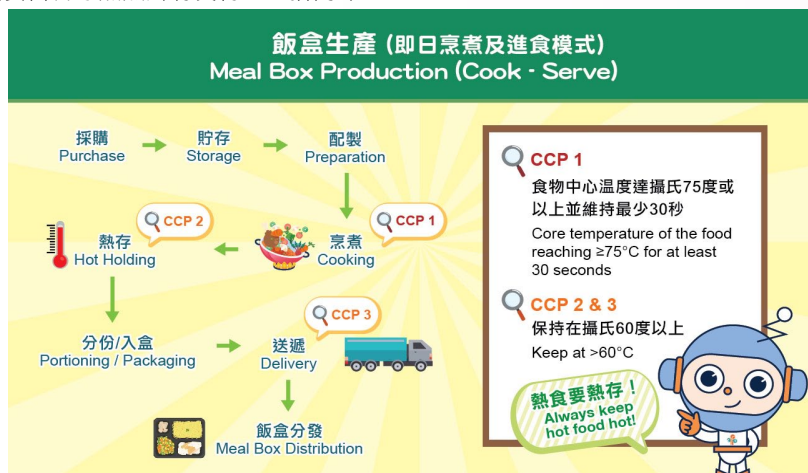


圖2: 飯盒生產流程圖
Figure 2: Schematic diagram for meal box production

CCPs should be monitored to assess whether they are met, such as using a temperature probe to measure food temperature, followed by proper documentation. If the established CCP standards are not fulfilled, corrective actions such as continuing the cooking process until it reaches the target standard should be taken in order to bring the process back into control.

Meal produced at school canteens

Schools with in-house kitchens should also observe the aforementioned practices when preparing and serving meals. Cross-contamination and lapses during portioning are two major concerns when meals are prepared on campus. The use of the same equipment for handling raw and ready-to-eat foods may result in contamination after cooking. To prevent cross-contamination, food handlers should wash hands regularly, and change gloves between preparing foodstuffs or when soiled. Utensils for different purposes and areas should be clearly labelled. Environmental hygiene of dining areas such as canteens should also be well maintained. It is often best to follow a 'clean as you go' approach while preparing food; trash should be properly disposed of after each meal to avoid pest infestation.

境衛生。預備食物時，「邊做邊清潔」是最佳做法；每餐後應妥善處理垃圾，以免蟲鼠滋生。

食物應在空間充足的指定地點派發給學生，處理食物的人員應保持個人衛生。份份的用具和向學生提供的餐具應保持清潔完好。學校應配備保溫設備，以保持食物在攝氏60度以上。

自攜家中製作的飯盒時的注意事項

家長如選擇為子女預備午餐，應謹記遵守「食物安全五要點」。已煮熟食物應徹底翻熱，並存放在適合的保溫容器中。學生進食前應徹底洗淨雙手。無論學校的餐食以何種方式預備，食物處理人員均應時刻保持個人衛生，並對食物衛生及溫度控制有基本認識，以營造安全健康的學校環境。

When giving out food to students, it should be done in a designated area with enough space, and staff handling the meals should observe personal hygiene. Portioning utensils and tableware provided to students should be clean and kept in good condition. Hot-holding devices should be available in order to keep meals at a temperature above 60°C.

Precautions when bringing home-made meal boxes

When choosing to pack lunches for their children, parents should keep the "Five Keys to Food Safety" in mind. Pre-cooked food should be thoroughly reheated and kept at safe temperatures by storing them in appropriate insulated containers. Students should wash their hands thoroughly before tucking in. In order to create a safe and healthy environment at school, food handlers should always maintain personal hygiene and have a basic understanding of food hygiene and temperature control, regardless of how the school meals are prepared.

安全處理三文治和烘焙食品 Handle Sandwiches and Bakery Products Safely

在烘焙的過程中，高溫可殺死存在於烘焙食品的微生物。然而，由於食品沒有再經加熱處理，在烘焙過程後受到污染、長時間於室溫貯存及處理食物過程不衛生，可加快微生物滋生。進行人手處理工序和使用水分或蛋白質含量較高的餡料會使部分三文治和烘焙食品（特別是長時間存放在溫暖潮濕的環境下）較易受微生物和霉菌影響而變壞。烘焙食品和三文治（包括消費者在家自製的三文治）應盡快食用，如非即時進食，非預先包裝食品應存放於攝氏4度或以下的雪櫃內，並在1至2天內食用。預先包裝食品則應在保質期內食用。

沒有餡料或烘焙後不經其他工序處理的烘焙食品（例如豬仔包及菠蘿包）加以覆蓋後，可在室溫下存放最多約2至4天。業界可參考[食安中心業界指引](#)，安全配製有關食品。

During baking of bakery products, the high temperature kills the microorganisms present. However, post-baking contamination, prolonged storage at room temperature and unhygienic handling can promote microbial growth as there is no further heat treatment. With manual handling and the use of fillings with higher moisture or protein contents, some sandwiches and bakery products are more prone to deterioration caused by microorganisms and moulds, especially when stored under extended hours in warm, wet conditions. These products should be consumed as soon as possible. If not consumed immediately, keep these bakery products and sandwiches (including home-made ones) in the refrigerator at or below 4°C, and consume them within one or two days for non-prepackaged products or within shelf-life for prepackaged ones.

Bakery products that have no fillings and subject to minimal post-baking handling (e.g. plain rolls and pineapple buns) can be stored covered at room temperature for up to around two to four days. The trade can take reference from the [CFS Trade Guideline](#) and prepare the products safely.

浸泡菇類與食物安全 Soaking Mushrooms and Food Safety

乾燥的菇類如木耳、銀耳和花菇常用於烹製菜色中。在烹煮前先用清水浸泡乾燥菇類是常見做法。浸泡會增加乾燥菇類的水含量，在室溫浸泡過久可引致細菌繁殖。部分細菌是致病細菌，可引發食源性疾病，當中部分甚至能產生毒素。

乾燥菇類備妥後，應先以流動的淨水沖洗乾淨，然後轉移到清潔的容器內浸泡，並避免一次過浸泡過多菇類。在室溫浸泡菇類的時間一般不宜超過2小時，否則應該放入雪櫃內。已浸泡的菇類應盡快烹煮食用。如果發現浸泡後的菇類表面黏糊或有異味，便應該丟棄。

Dried mushrooms such as wood's ear, jelly fungus and flower mushroom are widely used in dish preparation. It is common to soak dried mushrooms in water before using them in a dish. Soaking increases water content of dried mushrooms, which could lead to proliferation of bacteria when left at room temperature for a prolonged period of time. Some bacteria are disease-causing and could lead to foodborne illnesses, and some can even produce toxins.

Upon preparation, wash dried mushrooms under clean running water before transferring them to clean containers for soaking. Avoid soaking too many mushrooms at once. The time for soaking mushrooms at room temperature should generally be no more than two hours, otherwise they should be kept in the refrigerator. Mushrooms that have been soaked should be used and consumed as soon as possible. Discard mushrooms if slime or abnormal smells are found after soaking.



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