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## 焦點個案 Incident in Focus

## 二零一九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 2019

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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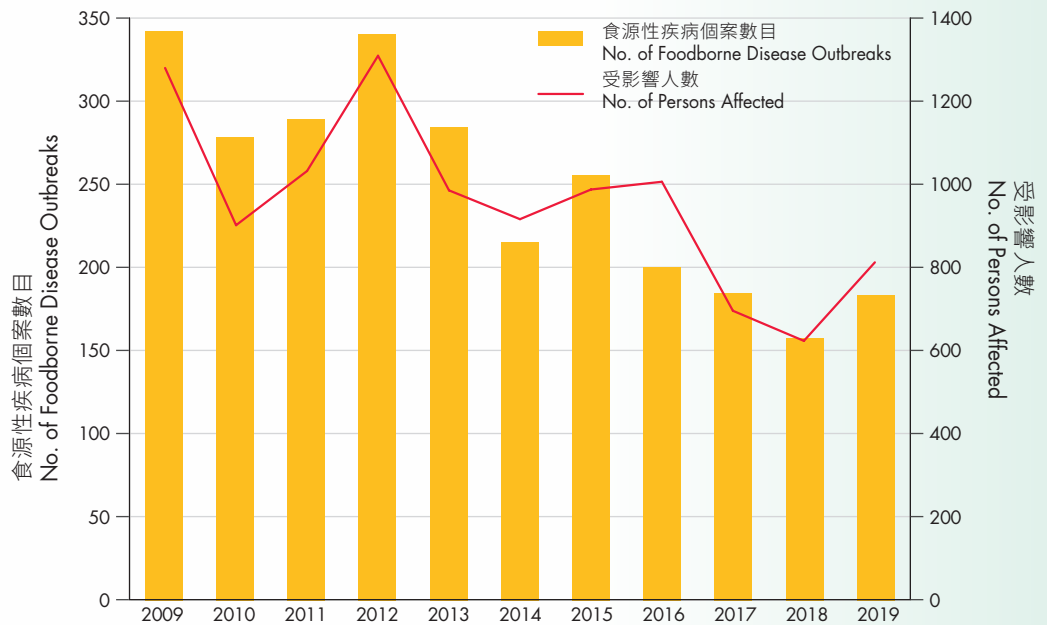


圖1: 二零零九年至二零一九年有關食肆及食物業的食物中毒個案數目及受影響人數  
Figure 1. Number of food poisoning outbreaks related to food premises and food business and the corresponding number of persons affected from 2009 to 2019.

食物中毒是本港法定須呈報的疾病。食物環境衛生署食物安全中心(食安中心)的職責之一,是與衛生署合作調查和監控有關本地食肆及食物業的食物中毒個案。本文旨在回顧食安中心在二零一九年所接報的食物中毒個案。

### 與本地食肆及食物業有關的食物中毒個案

二零一九年,食安中心共接獲184宗由衛生署轉介的食物中毒個案,有805人受影響。食物中毒個案數目在過去十年整體呈下跌趨勢,但二零一九年略有增加(見圖1),主要原因是食肆未有遵行衛生守則,造成一些較大規模的食物中毒事故,涉及的個案數目及受影響人數較多,下文的個案摘要將加以說明。

### 病原體及成因

在二零一九年的所有食源性疾病個案中,由細菌引起的仍然佔大多數(88.6%),排在前三位的細菌病原體與二零一八年的相若。在二零一九年細菌所引起的個案中,排在首位的是沙門氏菌(佔細菌所引

Food poisoning is a statutory notifiable disease in Hong Kong. The Centre for Food Safety (CFS) of the Food and Environmental Hygiene Department, in collaboration with the Department of Health (DH), is responsible for the investigation and control of food poisoning outbreaks related to local food premises and food business. In this article, we will review the food poisoning outbreaks reported to the CFS in 2019.

### Food Poisoning Outbreaks Related to Local Food Premises and Food Business

In 2019, the CFS received 184 food poisoning outbreaks referred from the DH, affecting 805 persons in total. The number of food poisoning outbreaks showed a generally decreasing trend over the past decade, although a slight increase was observed in 2019 (see Figure 1). The increase last year was mainly due to a lapse in hygiene practices in a few incidents leading to a larger scale involvement in terms of the number of outbreaks and persons affected as per illustrated in the case highlighted below.

### Causative Agents and Contributing Factors

Bacterial foodborne agents remained the leading causes (88.6%) of all foodborne disease outbreaks in 2019, with the top three commonest bacterial agents similar to those in 2018. For

焦點個案  
Incident in Focus

起的個案總數58.5%)，其次是副溶血性弧菌(佔細菌所引起的個案總數26.3%)，第三位則是蠟樣芽孢桿菌及金黃葡萄球菌(兩者均佔細菌所引起的個案總數5.3%)。至於病毒所引起的食物中毒個案，佔總數大約9.2%，大多數個案都涉及諾如病毒(見圖2)。食物中毒個案最常見的成因分別是食物未經徹底煮熟、被生的食物污染，以及貯存溫度不當。

二零一九年發生的流行病學關連大規模食物中毒個案摘要

沙門氏菌引起的集體食物中毒個案

二零一九年六月，衛生署向食安中心通報17宗集體食物中毒個案，涉及一間食肆，合共40人受影響。在不同的個案中，部分患者的糞便及血液樣本被驗出含有腸炎沙門氏菌。衛生署的流行病學調查顯示，這些個案均與進食未經煮熟的炒滑蛋有關。

據現場調查發現，食肆在前一天將360隻未經巴士德消毒的雞蛋混合攪拌成大量蛋液，存放在攝氏9度的雪櫃中備用。翌日，雞蛋僅加熱至半熟狀態，並在營業時間內一直以攝氏30度的溫水隔水熱存，當顧客點菜時，未有再經加熱或烹煮便上菜奉客。在這種情況下，由於過早預備大量蛋液及食物貯存溫度不當，助長了細菌的生長。其次，雞蛋未有徹底煮熟，不能完全殺滅細菌，使沙門氏菌得以再度繁殖。此外，全日使用溫水隔水熱存未經煮熟的雞蛋，進一步有利細菌的增長，因而造成大規模食物中毒個案。食安中心其後向食物處理人員作出衛生建議，並勸諭食肆即時暫停出售有關食品及進行徹底清潔消毒。在食肆作出糾正後，中心再無接獲相關食物中毒報告。

雞蛋存有被沙門氏菌污染的風險。在產蛋的過程中或之後，糞便中的沙門氏菌可經蛋殼滲透進蛋內，使雞蛋受到污染，因而含有沙門氏菌。沙門氏菌亦可在蛋殼尚未形成之前污染雞蛋。此外，要從外觀分辨雞蛋是否受到污染是不可能的。為了預防沙門氏菌感染，業界應採取下列建議措施：蛋類菜式應徹底煮熟，滑蛋應即點即製；避免長時間存放食物備用；混合攪拌而成的蛋液應盡快用完，並避免添加新雞蛋；選用經巴士德消毒的雞蛋來製作無需加熱處理的蛋類菜式；如食物含有生或未煮熟的雞蛋，應提供資料予顧客，例如孕婦、幼童、長者及免疫力弱人士，以便作出知情的選擇。

結語

食物中毒個案數目在過去三年一直維持在200宗以下。食物處理不當是食物中毒個案的主要成因。政府不會掉以輕心，仍會一如既往努力保障食物安全，而業界及市民亦應遵循「食物安全五要點」，以消除食物中毒的常見成因，避免日後發生食物中毒個案。

bacterial causes in 2019, *Salmonella* (58.5% of all bacterial cases) topped the list, followed by *Vibrio parahaemolyticus* (26.3% of all bacterial cases); *Bacillus cereus* and *Staphylococcus aureus* ranked third places (both 5.3% of all bacterial cases). Viral causes accounted for around 9.2% of all the food poisoning outbreaks and Norovirus was involved in the majority of viral cases (see Figure 2). Inadequate cooking, contamination by raw food and improper holding temperature were the three most frequently identified contributing factors.

食安中心在二零一九年所接報的食物中毒個案成因  
Causes of food poisoning outbreaks reported to the CFS in 2019

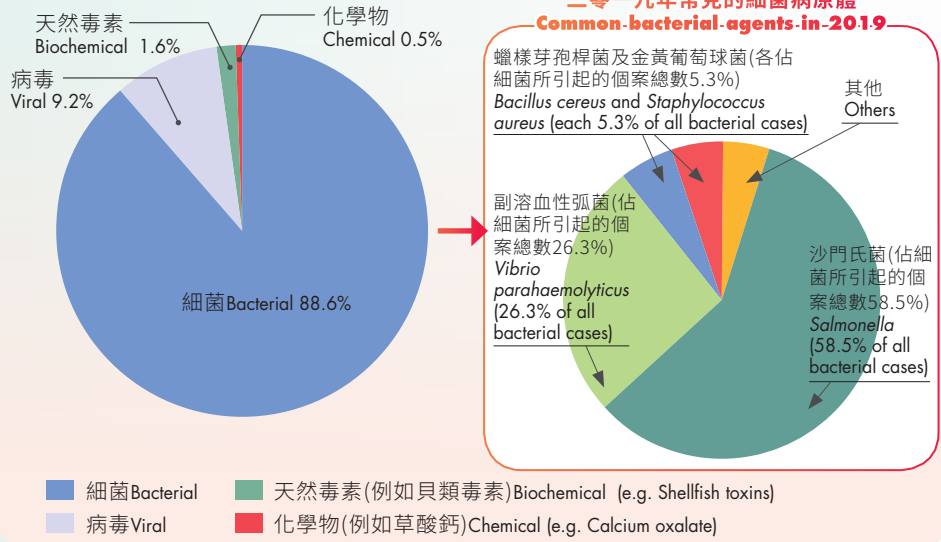


圖2: 食安中心在二零一九年所接報的食物中毒個案成因  
Figure 2. Causes of food poisoning outbreaks reported to the CFS in 2019.

stool and blood specimens of some victims in different clusters. Epidemiological investigation of these clusters by the DH suggested that they were related to the consumption of undercooked scrambled eggs.

Field investigation in the restaurants revealed a large amount of whisked eggs, made up of 360 eggs, were prepared from unpasteurised eggs one day beforehand and stored in refrigerator at 9°C. The eggs were inadequately heated to a semi-cooked condition on the next day and kept in lukewarm water bath at 30°C throughout business hours. When orders were made, no further reheating or cooking of the eggs was done before serving to customers. In this case, the preparation of a large amount of whisked eggs too far in advance and its storage at an inappropriate temperature enhanced the growth of bacteria. Inadequate cooking of the eggs could not kill *Salmonella* completely and allow them to multiply again. The use of lukewarm water bath to keep the undercooked eggs for one whole day further acted as an incubator for bacteria multiplication and contributed to this large scale outbreak. Health advice was delivered to the food handlers, and the food premises was advised to suspend sale of the food items immediately and carry out thorough cleansing and disinfection. Upon the rectification of the irregularities, no further outbreaks had been reported afterwards.

Eggs have an inherent risk of contamination by *Salmonella*. *Salmonella* was found in eggs via contamination through eggshell penetration from contaminated faeces during or after laying eggs. *Salmonella* can also contaminate the egg before the shell is formed. It is also impossible to identify a contaminated egg from its appearance. To prevent *Salmonella* infection, the trade was advised to thoroughly cook egg dishes and prepare scrambled eggs on a per-order basis, avoid keeping food for a prolonged period of time, use pooled eggs as soon as possible and avoid topping up. For preparation of egg dishes without heat treatment, the trade was advised to use pasteurised eggs. Information on the presence of raw or undercooked eggs in food should be provided to customers, such as pregnant women, young children, the elderly and people with weakened immunity, for making an informed decision.

Conclusion

The number of food poisoning outbreaks has remained below 200 over the past three years. Improper food handling is the leading contributory factor for food poisoning outbreaks. While the government will continue to be vigilant in safeguarding food safety, the trade and the public are advised to follow the "Five Keys to Food Safety" to address the common contributory factors and avoid future occurrence of food poisoning outbreaks.

Highlight on a Major Epi-linked Food Poisoning Outbreak in 2019

Clusters of Food Poisoning Outbreaks Related to *Salmonella* Species

In June 2019, the DH reported to the CFS 17 clusters of food poisoning outbreaks related to one restaurant, affecting a total of 40 persons. *Salmonella* enteritidis was isolated from the

# 冠狀病毒與食源性人畜共患病

## Coronaviruses and Foodborne Zoonoses

食物安全中心風險評估組  
吳海艷獸醫師報告

Reported by Dr. Candy NG, Veterinary Officer,  
Risk Assessment Section, Centre for Food Safety

### 背景

2019冠狀病毒病自爆發以來，疫情至今已迅速蔓延到世界各地。2019冠狀病毒病相信是由一種源自動物的新型冠狀病毒(名為「嚴重急性呼吸綜合症冠狀病毒2」)所引致，此病毒可能跨越了物種界限而感染人類，繼而在人與人之間持續傳播。

人畜共患病是指在一些動物與人類之間傳播的疾病或感染。人類可經多種途徑染上人畜共患病：直接接觸動物或這些動物所污染的物件；被蚊子等帶菌病媒所咬；以及飲用受污染的食水或進食受污染的食物(屬食源性人畜共患病)。目前的2019冠狀病毒病可能就是一種人畜共患病，但我們會因進食而染上這個病嗎？

### 冠狀病毒與食物安全

食源性人畜共患病的傳播通常是由於食物或個人衛生欠佳所致，例如食物在加工或處理過程中受到污染，食物未經徹底煮熟，又或者食物貯存不當。這些不當的做法可能會導致病菌經由糞口途徑傳播。病菌在進入人體後，便會入侵腸道細胞，然後在體內同一或其他部位進行複製，因而引致疾病。

2019冠狀病毒病由冠狀病毒所引致。冠狀病毒有很多不同種類，有些只會令動物致病，例如牛、豬、貓、狗、鳥及兔。包括最新發現的嚴重急性呼吸綜合症冠狀病毒2在內，已證實有七種冠狀病毒能夠感染人類，而且全部源自動物，即是人畜共患病。冠狀病毒可使人患上感冒以至其他更嚴重的疾病，例如中東呼吸綜合症及嚴重急性呼吸系統綜合症(沙士)。

引致2019冠狀病毒病的冠狀病毒以往從未在人類中被發現，此病毒在結構上與沙士冠狀病毒十分相似。2019冠狀病毒病的特徵仍有待了解，相對而言，我們對沙士有較深入的研究。從沙士的經驗來看，2019冠狀病毒病不大可能透過進食傳播。海外各地包括歐洲聯盟、澳洲及新西蘭的食物安全評估機構都持相同觀點。

雖然有初步研究顯示，這種病毒可能存活於一些受感染者的糞便中，但糞口傳播並非這次疫情的主要傳播途徑。目前主要的傳播途徑仍是透過呼吸道飛沫來人傳人。世界衛生組織(世衛)表示，從受感染者的糞便感染2019冠狀病毒病的風險似乎很低。然而，由於始終存有風險，我們應該經常清潔雙手，特別是如廁後及進食和處理食物前。

一般來說，與冠狀病毒相關的食源性疾病並不常見，但中東呼吸綜合症則屬例外：根據中東通報的個案，有證據顯示，人類可透過飲用未經巴士德消毒的生駱駝奶感染中東呼吸綜合症，然而這又是因為未有徹底煮熟食物而致病的一例。

### Background

The current outbreak of coronavirus disease (COVID-19) has been spreading rapidly around the world. COVID-19 was believed to be caused by a novel coronavirus (SARS-CoV-2), originated in animals and plausibly jumping across the species barrier to infect humans. The virus has then sustained a human-to-human transmission.

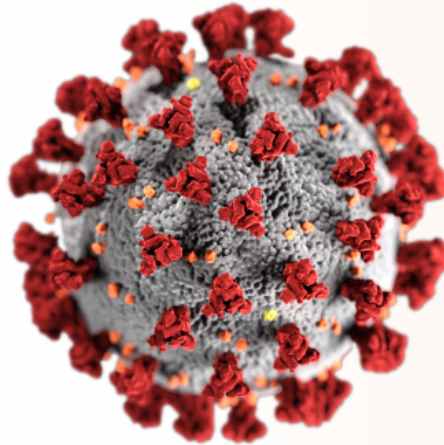


圖3：嚴重急性呼吸綜合症冠狀病毒2的一個病毒粒子  
(圖片來源：美國疾病控制及預防中心)  
Figure 3. Illustration of a SARS-CoV-2 virion.  
(Source: Centers for Disease Control and Prevention, USA)

Zoonoses are diseases or infections transmitted between some animals and humans. There are various ways in which people can catch a zoonosis: through direct contact with animals or materials contaminated by these animals, being bitten by a germ-carrying vector such as a mosquito, as well as through drinking contaminated water or eating contaminated food (foodborne zoonoses). While COVID-19 is likely a zoonosis, can we acquire the disease through eating?

### Coronaviruses and Food Safety

In general, foodborne zoonoses are transmitted because of poor food or personal hygiene practices, such as contamination during food processing or handling, inadequate cooking and improper food storage. Such poor practices may result in germs being transmitted via the faecal-oral route. Following ingestion, the germs would invade the cells of the gut. Subsequent replication takes place either at the same site or elsewhere in the body and cause illnesses as a result.

COVID-19 is caused by coronaviruses (CoV). There are many different types of CoV. Some cause diseases only in animals such as cattle, pigs, cats, dogs, birds and rabbits. Including the latest SARS-CoV-2, there are seven types of CoV which have been proven capable of infecting humans and all of them originated from animals, i.e. zoonoses. CoV can cause illnesses in people ranging from common cold to other more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS).

The CoV that causes COVID-19 has not been previously found in humans. It is indeed structurally very similar to the SARS CoV. While there are more to be explored about COVID-19, SARS is relatively well-studied. From the experience with SARS, it is unlikely that COVID-19 is transmitted by consuming food. Various food safety assessment authorities from overseas countries including the European Union, Australia and New Zealand share the same view.

Initial investigations suggested that the virus may be present in the faeces of some infected people. However, spreading through this route does not seem to be a main feature of the outbreak. The predominant route of transmission still appears to be mainly from human to human, usually via respiratory droplets. According to the World Health Organization (WHO), the risk of catching COVID-19 from the faeces of an infected person appears to be low. Because this is a risk, however, we should clean our hands regularly, especially after using the bathroom as well as before eating and preparing food.

Typically, it is uncommon for CoV to be associated with foodborne diseases. One exception is MERS: from the cases reported in Middle East, there is evidence that people can get infected with MERS by drinking unpasteurised raw camel milk, which is again associated with inadequate cooking process.

### 預防食源性人畜共患病的一般食物安全建議

雖然不時都有發現新的病菌，但保持良好的個人及食物衛生，則是無論何時都適用的基本原則，可幫助我們預防染上食源性人畜共患病。世衛提倡遵循下列五個簡單而有效的要點，藉以預防食源性疾病：

1. 精明選擇(選擇安全的原材料)
2. 保持清潔(保持雙手及用具清潔)
3. 生熟分開(分開生熟食物)
4. 煮熟食物(徹底煮熟食物)
5. 安全溫度(把食物存放於安全溫度)

### General Food Safety Advices for Prevention of Foodborne Zoonoses

Although there may be new germs identified every now and then, the basic principles of good personal and food hygiene are always applicable and can safeguard you from potential foodborne zoonoses. The WHO has advocated five simple and effective keys for people to follow to prevent foodborne diseases. They are:

1. Choose (Choose safe raw materials)
2. Clean (Keep hands and utensils clean)
3. Separate (Separate raw and cooked food)
4. Cook (Cook thoroughly)
5. Safe Temperature (Keep food at safe temperature)

### 食物事故點滴 Food Incident Highlight

## 空氣炸鍋與丙烯酰胺

## Air Fryers and Acrylamide

空氣炸鍋是漸受歡迎的廚房電器，透過使熱空氣圍繞食物循環流動來炸熟食物。與傳統油炸相比，氣炸用油較少，但同樣能烹調出味道與口感相近的菜式。

最近，韓國某消費者組織發表的報告指出，以攝氏200度氣炸的薯條含有大量可能致癌物丙烯酰胺，引起了關注。當食物在超過攝氏120度的高溫下加熱時，食物內天然存在的游離氨基酸天門冬酰胺與還原糖(例如葡萄糖及果糖)便會發生反應，形成丙烯酰胺。一般而言，無論採用哪種方法烹煮，溫度越高、時間越長，所產生的丙烯酰胺便越多。很多烘焙及煎炸食物，例如薯條、薯片及餅乾，丙烯酰胺的含量都偏高。

要減少食物中的丙烯酰胺，不宜以過高的溫度烹煮過長時間。消費者在煎炸(包括氣炸)、烘焙、烤烘或燒烤食物時，應把食物煮至呈金黃色或淺黃色即可。

Air fryers have been gaining popularity. The kitchen appliances fry foods by circulating hot air around the food. Compared to conventional frying, air-frying requires lesser oil to produce meals of a similar taste and texture.

Recently, a consumer group in Korea reported that French fries prepared by air-frying at 200°C contained significant levels of a possible carcinogen, acrylamide. This report aroused some concerns. Acrylamide is formed between the naturally present free amino acid, asparagine, and reducing sugars (e.g. glucose and fructose) when food is heated at high temperatures (>120°C). In general, higher temperatures and longer cooking time will result in higher levels of acrylamide regardless of the cooking method. Many baked and fried foods, such as French fries, crisps and biscuits, contain relatively high levels of acrylamide.

Acrylamide can be reduced by not cooking food at a too high temperature for too long. Consumers should aim for a golden yellow colour or lighter when frying (including air frying), baking, toasting or roasting food.

## 遠離發霉食物

## Stay Away from Mouldy Food

在食物收成之前或之後，或在貯存的過程中，霉菌都可能會在食物表面或內部生長，而春季潮濕溫暖的天氣，正是這種真菌微生物的有利生長環境。霉菌可導致食物的質感與味道變壞。此外，霉菌還可能會產生有害的物質，例如可引致肝癌等病的黃曲霉毒素，危害人類健康。

要防止真菌無意中在食物上生長，最重要的預防措施是適當地貯存食物，例如存放於雪櫃。雖然除去霉菌及食品發霉的周圍部分，可能有助除去看不見的毒素，但不足以保證這樣做可將之全部清除。因此，食物發霉便要丟棄；食品如受影響，便不應食用。

While mould growth can actually occur before or after harvest, or during storage, on or inside the food itself, high humidity and warm temperatures in springtime favour the growth of the fungal microorganism. Mould can lead to deterioration of food texture and taste. In addition, mould may produce harmful substances such as aflatoxins which may contribute to adverse health effects in humans, such as liver cancer.

To prevent unintentional fungal growth on food, storing food properly like refrigeration is always the key preventive measure. While removing the mould and a significant amount of the surrounding product might help to remove any unseen toxins present, there is no guarantee that doing so can remove them all. It is therefore recommended to throw away mouldy food; affected products should not be consumed.



## 風險傳達工作一覽 (二零二零年二月)

## Summary of Risk Communication Work (February 2020)

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