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安全製作醬汁，預防食物中毒

Safe Preparation of Sauces to Prevent Food Poisoning

食物安全中心風險傳達組
科學主任游天頌先生報告

醬汁用途廣泛，能提升菜餚的風味。然而，製作醬汁時，食物安全至為重要。過往不時有因進食不同種類的醬汁而引致食物中毒的報告，當中涉及肉醬（如意粉醬、辣椒醬）、肉汁（如咖哩汁）、蘸醬（如牛油果醬），以及蛋黃醬和荷蘭醬等蛋製醬汁。這些食物中毒個案的部分成因，可能與預先大量製作醬汁，卻把醬汁放在未有蓋好的鍋中於室溫下緩慢冷卻有關。本文會探討與醬汁有關的食物中毒常見成因，並提供實用的預防方法。

1. 徹底煮熟醬汁

許多常見的食材（如肉類和蛋類中的沙門氏菌，水果、蔬菜和香草中的蠟樣芽孢桿菌，以及肉汁、濃湯和煮熟豆類中的產氣莢膜梭狀芽孢桿菌）都可能帶有來自環境的病原體。徹底烹煮（即食物中心溫度至少達攝氏75度並維持30秒）可殺滅活躍的細菌。由於細菌可於未經烹煮或僅輕微煮過的醬汁配料中存活，因此應避免食用未經煮熟的醬汁。

要防止病原體在食物中存活，應把醬汁徹底煮熟。如食譜需要使用生蛋、生乳或生牛奶芝士來製作醬汁，建議改用經巴士德消毒的同類產品。

2. 迅速冷卻醬汁

醬汁在徹底煮熟後，應保持在攝氏60度以上；如非即時食用，則應在兩小時內迅速冷卻。蠟樣芽孢桿菌和產氣莢膜梭狀芽孢桿菌等病原體能產生孢子。孢子是細菌一種頑強的休眠形態，即使在烹煮及沒有營養等不利環境下仍能存活。若煮熟的醬汁長時間處於攝氏4度至60度的「危險溫度範圍」（例如整鍋醬汁放在廚房一整夜自然冷卻，或放在加熱不足的溫水內隔水熱存一個下午），這些耐熱的病原體孢子便可能發芽。由於烹煮過程已殺滅了大部分其他微生物，這些細菌在較少競爭下便會迅速繁殖，一旦進入人體後便會在腸道內產生毒素，引致腸胃不適等食物中毒症狀。蠟樣芽孢桿菌亦可在食物中產生毒素，並在溫暖的環境下形成具保護作用的孢子。因此，單靠翻熱並不能確保受孢子和毒素污染的醬汁可供安全食用。

要迅速冷卻醬汁，可參考下文圖一。首先把醬汁在兩小時內冷卻至攝氏20度或以下，然後在雪櫃內於兩至四小時內繼續冷卻至攝氏4度。其他有助加快冷卻速度的方法包括：分小批製作醬汁、把醬汁分裝在有蓋的淺身容器並放在空

Reported by Arthur YAU, Scientific Officer,
Risk Communication Section, Centre for Food Safety

Sauces are versatile and can enhance the palatability of many dishes. However, food safety is of paramount concern especially when it comes to the preparation of sauces. Food poisoning cases involving different types of sauces, including meat sauces (e.g. pasta sauces, chilli), gravies (e.g. curry sauces), dips (e.g. guacamole) and egg-based sauces like mayonnaise and hollandaise sauce, have been reported from time to time. This may be partially caused by the tendency to prepare larger batches of sauces in advance, coupled with slow cooling with uncovered pots left at room temperature. This article explores common causes of food poisoning involving sauces and offers practical tips on prevention.

1. Cook Sauces Thoroughly

Many common food ingredients can harbour pathogens from the environment, e.g. *Salmonella* in meat and eggs, *Bacillus cereus* in fruits, vegetables and herbs, *Clostridium perfringens* in gravies, thick soups, cooked beans etc. Proper cooking (at least 75°C for 30 seconds) can kill the vegetative bacteria present. Avoid undercooking as sauces that contain uncooked or lightly cooked components can lead to survival of the bacteria.

To prevent survival of any pathogens in food in the first place, it is important to cook the sauce thoroughly. If the recipe calls for the use of raw eggs, raw milk or raw milk cheese, safer alternatives like their pasteurised counterparts should be used instead.

2. Cool Sauces Rapidly

After the sauces are cooked thoroughly, they should either be kept at above 60°C, or be cooled down quickly within two hours if they are not intended for immediate use. Pathogens like *Bacillus cereus* and *Clostridium perfringens* can form spores, which is a tough, dormant form of the bacteria that can survive unfavourable conditions like cooking and without nutrients. If cooked sauces stay in the "Temperature Danger Zone" of between 4°C and 60°C for too long (e.g. the whole pot of sauce left at the kitchen overnight to cool down, or sauces left in an underheated steam bath for the whole afternoon), the heat-resistant spores of the pathogens can germinate. They can then multiply rapidly with less competition as most other microorganisms were killed during cooking. Once ingested, these bacteria can produce toxins inside human intestine leading to food poisoning with gastrointestinal symptoms. *Bacillus cereus* can also produce toxins in food and form protective spores when warmed. Therefore, reheating alone cannot render the sauces that are contaminated with spores and toxins safe.

To cool down sauces rapidly, one can take reference from Figure 1 below, where sauces are cooled to 20°C or below within two hours and then cooled further to 4°C in a refrigerator within two to four hours. There are also ways to help speeding up the cooling process, which include preparing sauces in smaller batches, putting the sauce in shallow, covered containers in an area with good air circulation, and placing pans of hot sauces in an ice water bath with stirring. Keep the sauce separate from raw food during cooling. Blast chilling, where smaller portions of food are rapidly chilled to 4°C within 1.5 hours with the use of special chillers, can also be used where available. Sauces should be marked with production date labels and stored separately from raw food in the refrigerator at 4°C or below. Apply the first-in-first-out (FIFO) principle to stock rotation.

氣流通的地方，以及把盛載熱醬汁的平底鍋放入冰水浴後攪拌醬汁。在冷卻過程中，須把醬汁與生的食物分開。如情況許可，亦可使用急速冷凍櫃，把小份食物在1.5小時內迅速冷卻至攝氏4度。醬汁應標明製作日期，並與生的食物分開存放在雪櫃（攝氏4度或以下）。使用時應奉行「先入先出」原則。

3. 適當翻熱

適當地翻熱醬汁是指重新烹煮，而非只是加熱。翻熱時，須把醬汁煮至完全沸騰，或溫度達至少攝氏75度。醬汁只可翻熱一次，經翻熱的醬汁不應再放回雪櫃。醬汁在徹底翻熱至攝氏75度或以上後，才可放在攝氏60度以上的環境下保溫，以確保可供安全食用。切勿使用隔水保溫鍋或類似的設備翻熱醬汁，因為這類設備的設計是用來保溫已加熱的食物。若用於翻熱，會需時過長或加熱能力不足。

4. 預防交叉污染

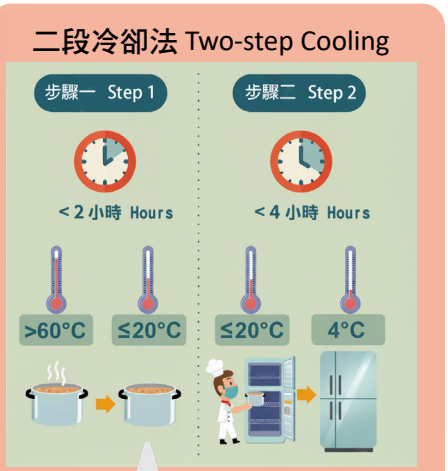
保持良好的衛生習慣（包括良好的個人和環境衛生），以防煮熟的食物被可能帶有沙門氏菌或其他病原體的生肉、家禽、海產、蔬果或蛋類交叉污染。如食物處理人員的雙手、餐具、設備和工作枱表面接觸到污染物後沒有徹底清潔，亦可能造成交叉污染。

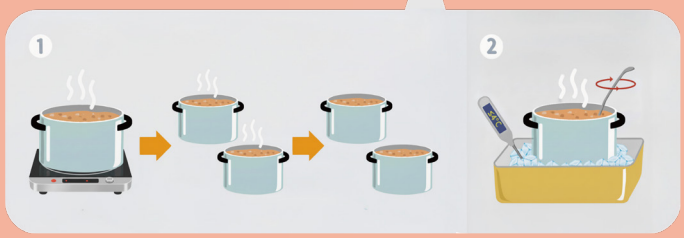
注意事項

為預防醬汁引致的食物中毒，應採取以下措施：

1. 徹底煮熟；
2. 迅速冷卻；
3. 適當翻熱；以及
4. 預防交叉污染。

總括而言，在廚房內須具備相關知識和保持謹慎，才能預防因配製醬汁而引致食源性疾病。只要遵循安全的烹煮和食物處理方法，並採用迅速冷卻的技巧，便能大大減低因進食醬汁引致食物中毒的風險。時刻把食物安全放在首位，可確保食物既美味又安全。





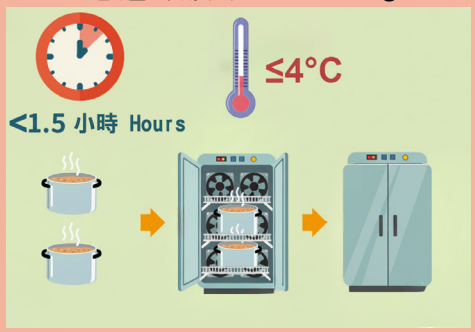


圖1: 醬汁應徹底煮熟（食物中心溫度至少達攝氏75度並維持30秒）；如非即時食用，則應迅速冷卻（在兩小時內冷卻至攝氏20度，然後在雪櫃內於兩至四小時內繼續冷卻至攝氏4度）。食用前須把醬汁翻熱至至少攝氏75度。

Figure 1: Sauces should be cooked thoroughly (to at least 75°C for 30 seconds) and cooled quickly (cooled to 20°C within two hours and then cooled further to 4°C in a refrigerator within two to four hours) if not used immediately. Reheat by cooking them to at least 75°C before use.

3. Reheat Properly

Properly reheating sauces means re-cooking, not just warming them up. Reheat the sauce until full boil or the temperature reaches at least 75°C. Reheat only once and do not put the reheated sauce back in the fridge afterwards. Only after the sauce has been thoroughly reheated to 75°C or above should it be held at a temperature above 60°C to keep it safe for consumption. Do not reheat in a bain marie or with similar equipment that are only designed to hold food at a safe temperature once it is already hot, as it will either take too long or have insufficient power to do so.

4. Prevent Cross-contamination

Maintain good hygiene practices, (including good personal and environmental hygiene) to prevent cross-contamination of cooked food with raw meats, poultry, seafood, produce or eggs that may be contaminated with *Salmonella* or other pathogens. Cross-contamination can also occur when utensils, equipment, surfaces and hands of food handlers which have come into contact with contaminants are not cleaned properly.

Key Points to Note:

To prevent food poisoning from sauces, one should

1. Cook thoroughly;
2. Cool rapidly;
3. Reheat properly; and
4. Prevent cross-contamination.

In conclusion, preventing foodborne illnesses during preparation of sauces requires knowledge and diligence in the kitchen. By adhering to safe cooking and food handling practices and employing rapid cooling techniques, one can significantly reduce the risk of food poisoning from sauces. Always prioritise food safety to ensure that your food is not only delicious but also safe for consumption.

準備軟餐時兼顧食物安全

Preparing Soft Meals with Food Safety in Mind

食物安全中心風險傳達組
科學主任陳蓉蓉女士報告

Reported by Ms. Melva CHEN, Scientific Officer,
Risk Communication Section, Centre for Food Safety

軟餐（在醫療護理界亦稱「照護食」）是指為有進食困難人士（如長者、手術後康復者、或有咀嚼、吞嚥、消化困難者）調整食物質感的膳食。隨着人口老化，軟餐需求急增。為提升軟餐的賣相和味道，部分軟餐會經增稠處理後塑造成雞腿、西蘭花等為人熟悉的形狀。對有需要人士來說，軟餐對維持營養和健康至關重要，但其食物安全亦不容忽視，因軟餐食用者（特別是長者和病人）大多抵抗力較弱，較易受到食源性疾病的影響。

製作軟餐的食物安全考量

圖二展示了一般軟餐的製作流程。軟餐煮熟後，可以：（一）即時上桌、（二）貯存待用、（三）塑形後貯存待用，或（四）塑形後即時上桌。按醫護人員的建議，軟餐經常需要額外處理（如搗碎或打成泥狀），因此注重衛生以防止交叉污染至關重要。由於軟餐通常是

A soft meal (also known as care food in healthcare and caregiving settings) refers to food with a modified texture for individuals who experience eating difficulties, such as the elderly, those recovering from surgery, or those with chewing, swallowing, or digestion difficulties. With an ageing population, the demand for soft meals has surged. To enhance their appearance and taste, some soft meals are thickened and moulded into familiar shapes, such as chicken wings and broccoli florets. Soft meals play a vital role in maintaining the nutrition and well-being of those who rely on them. However, food safety is equally important, as many soft meal consumers, especially the elderly or people with health problems, are more vulnerable to foodborne diseases.

Food Safety Concerns in Soft Meal Preparation

The typical preparation process of a soft meal is shown in Figure 2. After cooking, soft meals may be: (1) served immediately, (2) stored for later use, (3) moulded and stored for later use, or (4) moulded and served immediately. To follow

預先製備後貯存待用，其幼滑濕潤的質地有利細菌滋生，故溫度控制是確保食物安全的關鍵。

生產商在制訂食物安全重點控制（HACCP）計劃時，應考慮軟餐的特點，包括食用者屬高危人士、製作過程使用多種設備、以及成品水分含量高等，確保能妥善識別和管理潛在風險。同樣地，護理中心和在家製備軟餐者亦應遵循安全的食物處理守則，而選購預先包裝軟餐的人士則須依照食物標籤上的貯存和烹煮指示處理食物。

在製作軟餐時應用「食物安全五要點」

安全的食物處理方法可歸納為「食物安全五要點」：精明選擇、保持清潔、生熟分開、煮熟食物和安全溫度：

1. 選擇安全合適的食材：選用新鮮食材，避免高鹽、高糖的加工食品。堅硬（如堅果、種子）、黏稠（如糯米）或纖維粗硬（如西芹梗、韌肉、乾果）的食材難以攪拌均勻，或會引致哽噎，應予避免。遵從醫護人員建議，以合乎個別飲食需要。

2. 保持所有物品清潔：處理食物前後均須徹底洗手。由於製作軟餐時經常需要反覆攪拌，其殘渣容易污染下一批食物。使用攪拌機、食物處理器、濾網、模具、刀具和餐具後應立即清洗及消毒。

3. 分開生熟食物：使用不同的餐具、砧板和攪拌機處理生熟食物，以防交叉污染。製備好的軟餐應存放於有蓋容器內，並與生的食物分開。

4. 徹底煮熟食物：切勿為追求軟腍口感而把食物煮成半生熟（如炒滑蛋），或為保持食物外形而只輕微加熱，因為這些溫度並不足以殺滅細菌。烹煮及翻熱時，確保食物中心溫度達攝氏75度或以上。肉類和蔬菜只應在烹煮後才搗碎或打成泥狀，因為絞碎生肉會令細菌散播；而搗碎未煮熟的蔬菜時，會損壞細胞並釋出會把天然無毒的硝酸鹽轉化為亞硝酸鹽的硝酸鹽還原酶。過量的亞硝酸鹽會帶來健康風險。在搗碎前烹煮蔬菜可使此酶失去活性，從而避免亞硝酸鹽形成。打成泥狀混合後，應將食物（尤其非即時食用的食物）再次煮沸，以消滅處理過程中可能引入的細菌。

5. 保持安全溫度：預先做好的軟餐如果不是即時食用，應放在攝氏4度 或以下冷凍，或在攝氏零下18度或以下冷藏。每批軟餐應標明製備日期，並奉行「先入先出」原則。即時食用的軟餐應在烹煮和／或塑形後立即上桌，並保持在攝氏60度以上。應儘快把塑形軟質食物定型，以防止有害細菌在攝氏4度至60度的危險溫度範圍內滋生。在室溫下放置超過兩小時的軟餐應予丟棄。經常使用食物溫度計量度溫度，切勿食用過期或變壞的食物。

只要遵循正確的食物處理方法，生產商、護理人員和在家製備軟餐者便能確保軟餐安全味美，又富營養。

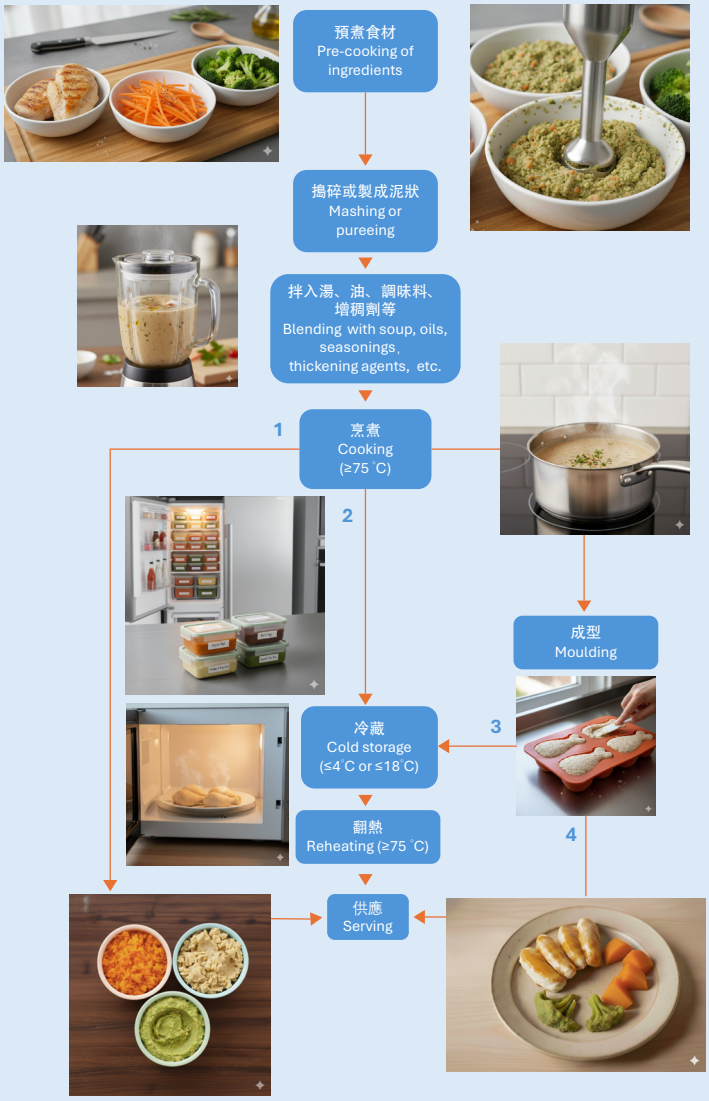


圖2: 軟餐製作流程圖
Figure 2: Flow chart of the preparation of soft meals

the advice of health professionals, soft meals often require additional handling steps such as mashing or pureeing, making hygienic practices crucial to prevent cross-contamination. Since soft foods are usually prepared and stored in advance for later use, their smooth and moist texture can create an ideal environment for bacterial growth, so temperature control is crucial to ensuring food safety.

Manufacturers should consider the unique characteristics of soft meals: vulnerable consumers, the use of multiple processing equipment, and a high-moisture final product when developing HACCP plans to ensure that potential risks are properly identified and managed. Likewise, care centres and home preparers should follow safe food handling practices, and those purchasing pre-packaged soft meals must adhere to the storage and cooking instructions on the food label.

Applying the Five Keys to Food Safety in Soft Meal Preparation

Safe food handling practices can be summarised by the Five Keys to Food Safety: Choose, Clean, Separate, Cook, and Safe Temperature:

1. Choose safe and suitable ingredients: Use fresh ingredients and avoid processed foods high in salt or sugar. Hard (nuts, seeds), sticky (glutinous rice), or fibrous (celery stalk, tough meat, dried fruit) items are unsuitable as they are difficult to blend smoothly and may pose choking hazards. Follow the advice of health professionals for individual dietary needs.

2. Keep everything clean: Wash hands thoroughly before and after handling food. Soft meals often require repeated blending, so residues can easily contaminate later batches. Clean and sanitise blenders, food processors, sieves, moulds, knives, and utensils immediately after use.

3. Separate raw and cooked foods: Use separate utensils, chopping boards, and blenders for raw and cooked foods to prevent cross-contamination. Store prepared soft meals in covered containers away from raw foods.

4. Cook thoroughly: Never undercook food (e.g. soft-scrambled eggs) simply to make it soft, or lightly warm soft meals just to maintain their shape—these temperatures are insufficient to kill bacteria. Ensure food reaches a core temperature of at least 75°C during cooking and reheating. Always cook meats and vegetables before mashing or pureeing, as grinding raw meat can spread bacteria. When raw vegetables are mashed, cell damage releases the enzyme nitrate reductase, which converts naturally occurring, non-toxic nitrate into nitrite. Excessive nitrite can pose health risks. Cooking before blending inactivates this enzyme, preventing nitrite formation. After pureeing and mixing, bring the food to a boil again, especially if it is not served immediately, to destroy any bacteria introduced during processing.

5. Maintain safe temperatures: Soft meals prepared in advance for later use should be refrigerated at 4°C or below, or frozen at -18°C or below. Label each batch with the preparation date and follow the first-in-first-out principle. Soft meals for immediate consumption should be served right after cooking and/or moulding and kept above 60°C. Moulded soft foods should be set quickly to prevent the growth of harmful bacteria in the temperature danger zone (4°C- 60°C). Discard any soft meals left at room temperature for more than two hours. Always measure temperatures with a food thermometer and never use expired or spoiled food.

By following proper food handling practices, manufacturers, caregivers, and home preparers can ensure that soft diets remain safe, appetising, and nutritious.

慎防雪卡毒魚類中毒
Beware of Ciguatera Fish Poisoning

衞生防護中心於2025年9月公布一宗懷疑本地雪卡毒魚類中毒個案，兩人於進食一條星斑後不適，其中一人情況嚴重，須留院治理。

雪卡毒魚類中毒是因進食含雪卡毒素的珊瑚魚所致，毒素源於有毒水藻。中毒症狀包括腹痛、腹瀉，以及頭暈、麻痺等神經系統受損的徵狀。患者通常在進食後30分鐘至24小時內出現急性中毒徵狀。雪卡毒魚類中毒的一個特別病徵是冷熱感覺顛倒，即觸碰冰冷物件時有灼熱感覺。部分患者的病徵或會持續數年，並可能因進食某些食物（如酒、堅果、乳製品和魚類）或因劇烈運動、受陽光照射等因素而復發。

為預防雪卡毒魚類中毒，市民應減少進食大型珊瑚魚，尤其避免進食其頭部、魚皮和內臟，因毒素較常積聚於這些部位。如出現中毒病徵，應立即求醫。市民應向信譽良好的供應商採購魚類，並妥善備存記錄，以確保食物安全。

Earlier in September 2025, the Centre for Health Protection reported a suspected local case of ciguatera fish poisoning (CFP) after two persons consumed a coral trout, one of whom was hospitalised in serious condition.

CFP is caused by consumption of certain coral reef fish contaminated with ciguatoxins, which originate from toxic algae. Symptoms can include abdominal pain, diarrhoea, and neurological effects such as dizziness and numbness. Acute symptoms appear from half to 24 hours after consumption. CFP also has a unique symptom of hot and cold reversal – a burning sensation induced by contact with cold objects. In some patients, symptoms can persist for years. It may also recur from time to time, triggered by eating certain foods (e.g. alcohol, nuts, dairy products and fish), or other factors like intense physical activity and sun exposure.

To prevent CFP, it is advisable to limit the consumption of large coral reef fish, particularly avoiding their head, skin, and internal organs where toxins accumulate. Seek medical attention immediately if symptoms arise. Source fish from reputable suppliers and maintain strict records to ensure food safety.

預製菜—給食物業和消費者的食物安全建議
Prepared Dishes - Food Safety Advice for Food Businesses and Consumers

「預製菜」是近年新興詞彙，國際上未有統一定義。一般而言，預製菜是指以一種或多種食材製成的食品，食材事先已局部或完全烹煮，上桌前僅需翻熱或簡單處理即可食用。許多我們熟悉的菜式，例如溏心蛋和麻辣小龍蝦，都屬此類食品。預製菜方便快捷，深受消費者和食物業經營者歡迎，但亦引起了食物安全疑慮。

在香港銷售的所有食物，無論是否屬預製菜，均須遵從相關食物安全法例。食物業經營者必須保持良好衞生，並採納最佳做法以管理風險。食物安全中心已發布有關預製菜的指引，強調衞生和適當溫度控制的重要性，有助業界推行更有效的安全措施，並為消費者提供正確處理及貯存預製菜的建議。

"Prepared dishes" is a relatively new term without a standardised international definition. Generally, it refers to foods made from one or more ingredients that are partially or fully cooked beforehand and need only reheating or simple finishing before serving. Many familiar items, such as soft-centred eggs and spicy crayfish fall under this category. Their convenience makes them popular with both consumers and food business operators (FBOs), but this popularity raises food-safety concerns.

All food items sold in Hong Kong, whether they are "prepared dishes" or not, must comply with food safety regulations. FBOs are required to maintain good hygiene and follow best practices to manage risks. The Centre for Food Safety has issued guidance on Prepared Dishes, emphasising hygiene and proper temperature control to help FBOs implement effective safety measures and to advise consumers on correct handling and storage.

風險傳達工作一覽（二零二五年十月）
Summary of Risk Communication Work (October 2025)

事故/ 食物安全個案 Incidents/ Food Safety Cases: 611	公眾查詢 Public Enquiries: 111	業界查詢 Trade Enquiries: 160	食物投訴 Food Complaints: 589
給業界的快速警報 Rapid Alerts to Trade: 1	給消費者的食物警報 Food Alerts to Consumers: 1	教育研討會/ 演講/ 講座/ 輔導 Educational Seminars/ Lectures/ Talks/ Counselling: 79	上載到食物安全中心網頁的新訊息 New Messages Put on the CFS Website: 48