

# 安全烹製牛肉漢堡包的業界指引

## Trade guidelines on safe preparation of beef burgers

業界諮詢論壇 2022年6月30日  
Trade Consultation Forum 30 June 2022



# 背景 Background

- 近年「豪華風格」的漢堡包餐廳在本港興起
- 有些餐廳供應生或半生熟的漢堡包，認為在味道及口感上與全熟的截然不同
- 2020 年食安中心的消費者聯繫小組成員的調查：  
**96 人中的 37 人 (39%)** 認為吃未煮熟的牛肉漢堡是安全的
- In recent years, there has been a trend for 'gourmet-style' burger restaurants in HK
- Some of them sell rare or medium burgers that give a taste and mouthfeel considered to be distinct from their well-done counterparts
- A survey on CFS's consumer liaison group members in 2020:  
**37 out of 96 people (39%)** thought it was safe to eat undercooked beef burgers

# 漢堡扒易受污染

## Burger patties are susceptible to contamination



Upon slaughter, harmful bacteria e.g. pathogenic *E.coli* from cattle's gut may contaminate the meat

When meat is minced to produce burger patties, harmful bacteria from the raw meat's surface are mixed throughout the whole piece

Unless the burger patty is cooked right through, these bacteria can remain alive on the inside

Ground beef should be cooked until the internal temperature reaches at least 75°C for 30 seconds or equivalent temperature-time combinations

# 致病性大腸桿菌可以致命

## Pathogenic *E. coli* can be fatal

- 牛的腸道是致病性大腸桿菌的主要來源
  - 可引致急性腎衰竭，幼童及長者屬高危
- 90年代，美國一家連鎖快餐店的漢堡包感染數百人
  - 年齡大多在10歲以下 → 當中有人死亡，部分患者腎臟永久受損
- 類似的中毒事故在歐美等地仍不時發生
- The **intestinal tracts** of cattle is the main reservoir of **pathogenic *E. coli* bacteria**
  - May cause acute renal failure, particular in young children and the elderly
- In the 90s, contaminated burgers from a fast food chain restaurant infected hundreds of people in USA
  - Majority of the victims < 10 years old → **some dead or left with permanent kidney damage**
- Similar food poisoning incidents still occurred in Europe USA from time to time

# 本地情況 Local situation

- 過去曾接報零星與進食未煮熟的牛肉或牛肉漢堡包有關的大腸桿菌及沙門氏菌感染個案
- 未煮熟的漢堡扒可能帶有一些具有**抗菌素耐藥性的細菌**，會減低抗生素的藥效，導致感染情況更為複雜，難以治療
- Sporadic cases of E. coli and Salmonella infections linked to undercooked beef or beef burgers reported in the past
- Undercooked burger patties may contain some bacteria that even carry **antimicrobial resistance (AMR)**. AMR results in reduced efficacy of antibiotics, resulting in more complicated infections that are difficult to treat

# 研究目的 Objectives

- 探討食物處理人員對於**烹製漢堡包的食安知識、態度和做法**
- 協助食物業處所在配製食物的過程中採取適當的措施，以烹製和售賣可供安全食用的牛肉漢堡包
  - 研究結果有助中心推廣食物安全及就高風險食物與公眾和食物業界進行溝通
- To explore **knowledge, attitudes and practices of food on the preparation of beef burgers**
- Help food premises implement appropriate measures in the course of food preparation to produce and sell safe beef burgers
  - Study findings help CFS in promoting safe cooking of burgers and communicate with the public and food trade about high-risk foods

# 方法 **Methods**

# 第一階段：電話調查

## Phase 1: Telephone survey

- 2021年2月至4月進行
  - 從本地餐飲資訊網上平台搜尋餐廳
  - 受訪者被問及可否提供未煮熟的漢堡
- 
- Conducted in February to April 2021
  - Potential vendors derived from a food and restaurant guide website
  - Respondents were asked if they could make an order of an undercooked burger





## 第二階段：面對面訪談和觀察

### Phase 2: Face-to-face interview and observation

- 2021年5月至8月進行
  - 隨機抽取24家可提供不全熟漢堡包的餐廳
  - 問卷：餐廳和廚師的基本資料、食安知識、態度、做法等
  - 研究員會根據現場觀察進一步提出後續問題
- 
- Conducted in May to August 2021
  - Random sampled 24 restaurants that can provide less than full cooked burgers
  - Questionnaire: Data of restaurants and chefs, food safety, knowledge, attitudes, practices, etc.
  - Researchers probed further with follow-up questions based on on-site observation



## 第二階段：面對面訪談和觀察

### Phase 2: Face-to-face interview and observation

- 廚師：烹製不同熟度的漢堡扒
  - 5成熟/7成熟/全熟
- 研究人員：在整個烹飪和靜置過程中用數字溫度計測量扒的核心溫度
- Chefs: cooked the burger patties with different doneness
  - Medium/Medium well/Well done
- Researchers: measured the core temperature of patties with a digital thermometer during the entire cooking and resting processes





# 結果及討論

## Results and discussion



# 電話調查的發現

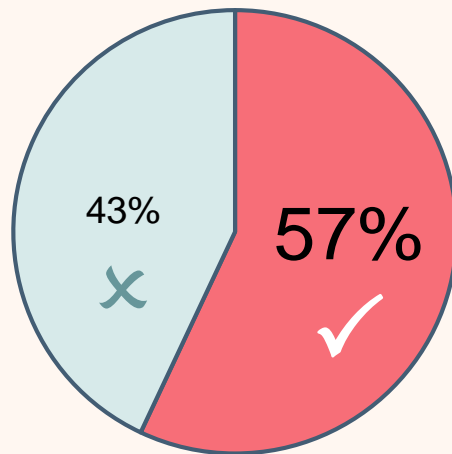
## Findings of telephone survey

# 電話調查結果 Telephone survey results

可否提供不全熟，例如5成熟的漢堡？

May I have my burger not fully cooked such as cooked to medium?

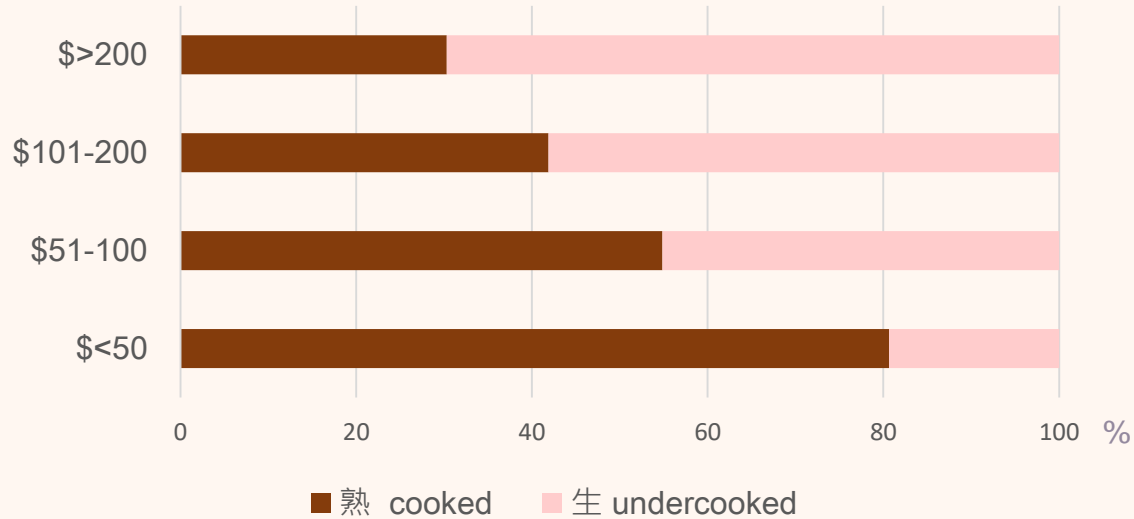
531間\*供應漢堡包的餐廳中，  
近六成可提供不全熟的漢堡。  
In 531 restaurants that serve burgers,  
**nearly 60% of them could serve undercooked burger patties.**



\*受訪餐廳數目:1025  
連鎖店只計算一次後的餐廳數目: 531  
\*No. of restaurants interviewed: 1025  
No. of restaurants after counting chain stores only once: 531

# 提供漢堡包的餐廳的價格比較

## Comparison of price between restaurants that provide burgers



- 餐價與漢堡熟度之間有顯著關係 ( $p < 0.05$ )
- 收取高價格的餐廳更有可能有未煮熟的漢堡以供選擇
- Significant relationship ( $p < 0.05$ ) between meal price and burger doneness
- Restaurants charging higher prices were more likely to offer the option of undercooked burgers



# 面對面訪談的發現

## Findings of Face to face interview

# 食物安全謬誤 Food safety misconceptions

食物處理人員的常見食安謬誤：

- 不熟悉「食物安全五要點」、「未煮熟食物的微生物風險」
- 將未煮熟的肉類引起的食物中毒誤認為是「食物過敏」
- 錯誤地認為生的漢堡扒比生的牛排更安全

Common food safety misconceptions in food handlers:

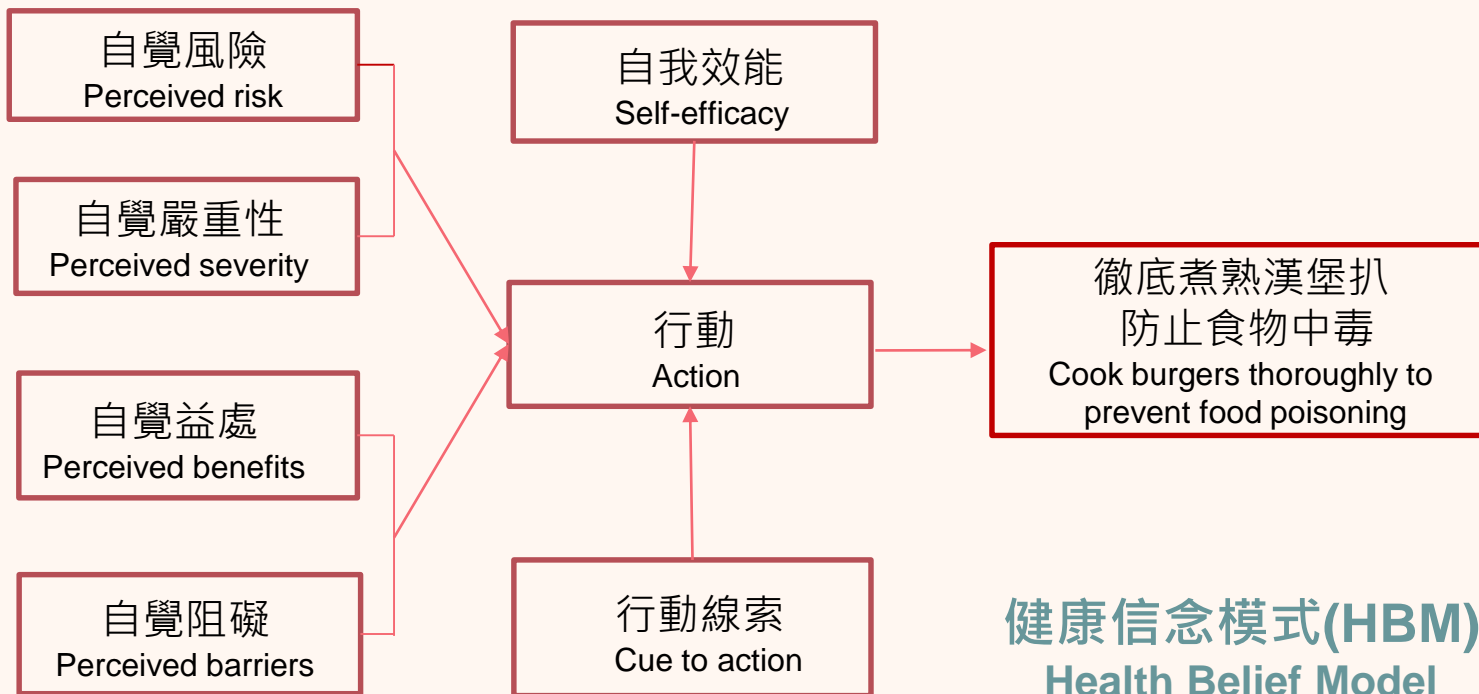
- Unfamiliar with the '5 Keys to Food Safety, ' the microbiological risks of undercooking'
- Food sickness caused by undercooked meat mistaken as a 'food allergy'
- Raw burger patties misbelieved as safer than raw steak





# 對徹底煮熟漢堡扒態度

Attitudes towards thoroughly cooking of burger patties



# 對徹底煮熟漢堡扒態度

## Attitudes towards thoroughly cooking of burger patties

1. 自覺風險：食物中毒在香港並不常見
2. 自覺嚴重性：對於顧客是一個非常嚴重的問題
3. 自覺益處：保護顧客健康/顧客不喜歡有血水的漢堡扒
4. 自覺阻礙：顧客不接受乾漢堡扒/優質牛肉可以生吃
5. 自我效能：有信心提供安全食品
6. 行動線索：需要時才完全煮熟/為孕婦及兒童煮到全熟/發生中毒個案

⇒徹底煮熟漢堡扒的意欲低

1. Perceived risk: food poisoning is not common in HK
2. Perceived severity: food poisoning is a serious matter for my customers
3. Perceived benefits: protect customers' health/customers don't like blood/red juice in burgers
4. Perceived barriers: customers don't like dry burgers/quality beef can be eaten raw
5. Self-efficacy: confidence in providing safe food
6. Cue to action: fully cook only if requested/for pregnant women and kids/food incidents emerge

⇒Low intention to cook burger patties thoroughly

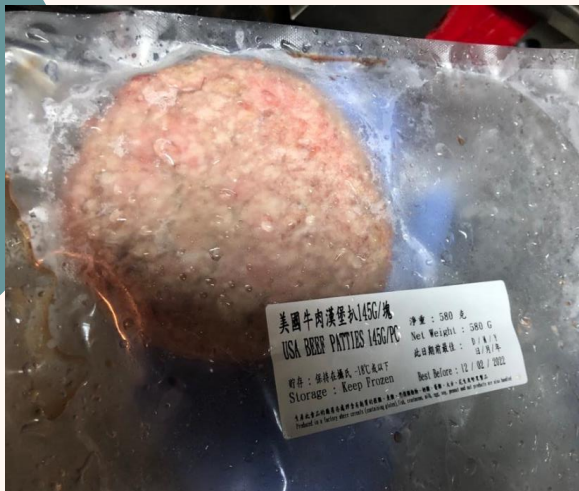


# 實地觀察的發現

## Findings of on-site observation:

# 具食安風險的做法(1)

## Practices that pose food safety risks (1)



致病菌在室溫下可以迅速滋長  
Disease-causing microorganisms can grow rapidly under room temperature

室溫解凍

Defrost **at room temperature**

# 具食安風險的做法 (2)

## Practices that pose food safety risks (2)



增加交叉污染風險  
Increase risk of cross-contamination

即食的醬料及供半生熟食用的漢堡扒和其他生肉放在一起

Ready-to-eat dressings beef patties intended to be eaten undercooked  
are **placed together with raw meat**

# 具食安風險的做法(3)

## Practices that pose food safety risks (3)



以芝士溶化作為煮熟的指標  
Regard melting of cheese as the end-point of thorough cooking



甚至有少數廚師以手背或下巴感應蛋糕測試針插入漢堡扒後的溫度，用作判斷肉的煮熟程度  
Few chefs determined the burger patty's doneness by using the back of hand or chin to feel the heat of a cake tester after inserted into the patty

### 不用溫度計測量漢堡扒中心溫度

使用其他方法: 質地、外觀、單靠預定時間、程序、表觀溫度

**Do not use a thermometer to determine patty doneness**

Other methods used: texture, appearance, pre-determined time alone, procedure, apparent temperature

# 漢堡扒的中心溫度

## Internal temperatures of burger patties

- 漢堡扒煮熟程度——客人要求與餐廳提供情況對照
  - 5成熟: 100%未煮熟
  - 7成熟: 74%未煮熟
  - 全熟: 17%未煮熟
- 5間餐廳不會詢問客人的要求
  - 設定熟度為7成熟，當中3個(60%)未煮熟
  - 消費者有機會在不知情的情況下進食未煮熟的漢堡牛肉
- Patty doneness — Customers' requests vs As served in restaurant
  - Medium: 100% undercooked
  - Medium well: 74% undercooked
  - Well done: 17% undercooked
- 5 restaurants NOT seeking customers' preferences
  - Medium well by default; 3 of them (60%) were undercooked
  - Consumers may have eaten undercooked burger patties unknowingly



討論

Discussion



# 誤解1：以優質或昂貴牛肉製成的漢堡扒無須煮熟

Myth 1: Burger patties made from good quality or expensive beef can be undercooked

- 原塊牛扒經煎烤後，表面的細菌會被殺死
  - 但當肉絞碎製成扒時，生肉表面的細菌會散布至整塊肉餅
  - 如漢堡扒未徹底煮熟，在扒內部的細菌仍可存活
  - 所有生的漢堡扒都可能含有有害細菌，包括以優質或昂貴牛肉製成的漢堡扒
- Harmful bacteria can be carried on the surface of whole cuts of meat. When a rare intact steak is seared these bacteria are killed
  - However, when meat is minced to produce burger patties, any harmful bacteria from the surface of the raw meat spread throughout the patty
  - Unless the burger patty is cooked right through, these bacteria can remain alive on the inside
  - **All raw burger patties may contain harmful bacteria, including those made from good quality or expensive beef**



## 誤解2：有些人對生肉過敏，故吃半生熟漢堡會不適

Myth 2: Some feel unwell after eating undercooked burgers just because they are allergic to raw meat

- 食物過敏
  - 有特定身體狀況的人
  - 免疫系統對特定食物產生不必要的過敏反應時才會發作
- 食物不耐症
  - 通常是對某些營養素的消化問題
  - 例如乳糖不耐症的人不能消化奶內的乳糖
- 食物中毒（食源性疾病）：
  - 任何人（特別是長者、嬰幼兒、孕婦及免疫力弱人士）
  - 病徵：腹痛、肚瀉、噁心、嘔吐等

- Food allergies
  - Consumers with certain body conditions
  - The immune system produces unnecessary immunological response to specific types of food
- Food intolerance
  - Usually a digestive problem towards certain nutrients
  - e.g. people with lactose intolerance cannot digest lactose in milk
- Food poisoning (foodborne diseases).
  - **Everyone, especially the elderly, babies and young children, pregnant women and people with weakened immunity**
  - Symptoms: abdominal pain, diarrhoea, nausea, and vomiting

半生熟漢堡沒有經過足夠烹煮  
殺死致病菌，容易引發食物中毒



Undercooked hamburgers do not undergo sufficient heat treatment to kill germs, and are prone to cause food poisoning

## 誤解3：牛肉呈褐色代表徹底煮熟

### Myth 3: Browning means thorough cooking

- 以褐色作為煮熟的指標並不可靠
  - 肌紅蛋白(肌肉組織的色素蛋白)受化學狀態及酸鹼度等影響→過早褐變
  - 在達到安全溫度之前，已經呈現暗褐色或熟透的外觀
- 為了確保碎肉徹底煮熟，應使用食物溫度計

- The **brown visual colour is not a reliable indicator of doneness**
  - Many factors such as the chemical state of myoglobin, a pigment protein of muscle tissues, and pH affect the occurrence of premature browning
  - A condition in which the interior of cooked patties appear to have a dull brown or well-done appearance before the patties reach a safe temperature
- To ensure thorough cooking of ground meat, **always use a food thermometer**



## 誤解4：漢堡扒煮至全熟會影響其品質

Myth 4: Cooking a burger patty to well-done will compromise its quality

全熟的漢堡扒較為乾  
韌?

全熟 ≠ 過熟

徹底煮熟的漢堡仍然可以  
有多汁的口感

沒有使用食物溫度計

→ 不知道扒溫度是否適當

→ 容易將其煮至遠高於安全  
所需的溫度

→ 導致扒過熟



內部溫度 >85°C · 比安全所需溫度高 10 度的漢堡  
Burger that has internal temperature >85°C, 10  
degree higher than necessary for safety

A well-done burger  
patty is less juicy and  
tender?

Well-done ≠ overcooked  
Thoroughly cooked burgers  
can still be juicy

Without the aid of a food  
thermometer  
→ right temperature  
unknown  
→ likely to cook the burger  
patty to a temperature much  
higher than necessary for  
safety  
→ an overcooked burger  
patty



# 給業界與市民的建議



## Advice for trade and the public

# 給業界的建議 Advice to trade

- 在日常運作中遵循「**食物安全五要點**」：
  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. 分開處理(分開生的食物及即食食物)
  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)
- Follow the '**5 Keys to Food Safety**' in daily operation:
  1. Choose (Choose safe raw materials)
  2. Clean (Keep hands and utensils clean)
  3. Separate (Separate raw and ready-to-eat food)
  4. Cook (Cook thoroughly)
  5. Safe Temperature (Keep food at safe temperature)

# 給業界的建議 Advice to trade

- 漢堡扒及其他碎肉產品應**徹底煮熟**
- **使用溫度計**去確認內部溫度至少達攝氏75度30秒或其他有效的時間與溫度組合才奉客
- Burger patties and other ground meat products should be **thoroughly cooked**
- **Always use a thermometer** to ensure the internal temperature has reached at least 75°C for 30 sec or other effective time-temperature combinations before serving these products to customers

 中心溫度 Internal temperature	 時間(分鐘) Time (minutes)
60°C	45
65°C	10
70°C	2
75°C	0.5 (30秒 secs)
80°C	0.1 (6秒 secs)

# 給業界的建議 Advice to trade

1



使用食物溫度計可避免漢堡肉餅未煮熟或過熟。

Use a food thermometer to prevent under- or over-cooking the burger patties.

2

在製作漢堡肉餅前將水加入肉中，有助於在烹煮過程中保持肉餅的水分。

Adding water into the meat before shaping burger patties helps maintain moisture of the patty during cooking.



3



避免過早在漢堡肉餅中加入調味料，這會吸走肉中的水分。

Avoid seasoning a burger patty too far in advance, which pulls liquid from the meat.

4

烹煮時，避免按壓漢堡肉餅，以免肉汁流失。

Avoid pressing down a cooking burger patty, which drains out its juice.



5



避免使用過高的熱力，以免漢堡肉餅表面過熟，但內部仍未熟透。

Avoid high heat that can overcook the outside of the burger patty while the interior remains underdone.



# 給市民的建議 Advice to the public

- 點餐時應要求漢堡扒煮至**全熟**
- 如果上菜時漢堡扒未有煮熟(內部呈粉紅色)，應要求食肆將之徹底煮熟，確保安全才食用
- 如在家烹煮漢堡扒，應使用溫度計確保中心溫度至少達攝氏75度30秒或其他有效的時間與溫度組合
- When ordering burgers in restaurants, ask for **well-done**
- If a restaurant serves you an undercooked burger (that is pink inside), send it back to be thoroughly cooked until it is safe to eat
- When cooking burger patties at home, always use a thermometer to ensure that the core temperature has reached at least 75°C for 30 seconds or other effective time and temperature combinations



# 中心的計劃

## Our plan

# 1. 對食物處理人員進行安全製作漢堡的教育

## Educating food handlers on the safe preparation of burgers

- 安全烹製牛肉漢堡包的業界指引
- 郵寄給餐廳、講座派發、網上下載等
- Guideline on safe preparation of burgers at food premises
- Send to restaurants by mail, distribute in trade talks, make available on-line, etc.



## 2. 促進良好的衛生習慣

# Promotion of Good Hygiene Practices

- 製作培訓教材，以促進食物管理人員及處理人員應用良好衛生規範
- 會以圖解指南及短片講解食物安全信息
- Produce training materials to promote the application of GHPs by the food handlers and business operators
- Use illustrated guides and short videos will be used to explain food safety information



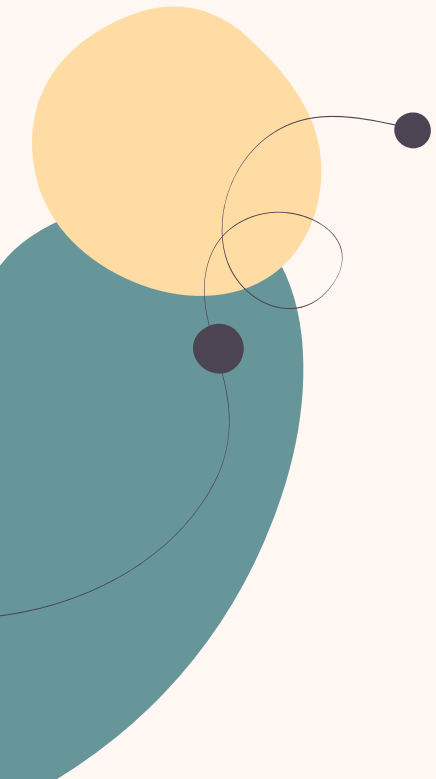
### 3: 加對公眾對強宣傳教育，以提高公眾 Enhance promotion and education to the general public

- 透過不同的渠道包括網頁、臉書、新聞公報、講座和宣傳海報等，加強宣傳教育，以提高公眾對生或未煮熟食物的風險的認識
- Enhance promotion and education to increase public awareness of the risk of raw or undercooked food through various channels including webpages, facebook, press releases, talks, posters, etc.



# 總結 Summary

- 漢堡扒應煮至內部溫度至少達攝氏75度30秒，或相當的溫度與時間組合
- 以顏色、質地等主觀指標判斷生熟程度並不可靠，應使用食物溫度計，以確保徹底煮熟而又不會過熟
- 留意正確解凍的方法，以及將生熟食物分開處理，並應定時進行培訓
- 食安中心製作了《安全烹製牛肉漢堡包的業界指引》，協助食物業界配製可供安全食用的牛肉漢堡包
- Burger patties should be cooked until the internal temperature reaches at least **75°C for 30 seconds** or equivalent temperature/time combinations
- Determining doneness based on subjective indicators such as colour is unreliable. **Using a food thermometer** can ensure that the burger patties are thoroughly cooked without overcooking
- Pay more attention to **the correct thawing methods and separate handling of raw and cooked food**, and should conduct regular training
- The CFS has issued the '**Guideline on safe preparation of burgers at food premises**' to help food businesses to produce safe beef burgers



謝謝!  
Thank you!

