Cover page v2

** Page intentionally left blank. **

Table of Contents

** Page intentionally left blank. **

Site 001

82 Blamey Street
Bentleigh East Vic 3165

** Page intentionally left blank. **

MD2 v2.0 Victoria p2

MD1 v1

** Page intentionally left blank. **

Test large number of pages

1

2

Test large number of pages

3

4

Test large number of pages

5

Test large number of pages

6

7

8

Test large number of pages

9

Test large number of pages

10

Test large number of pages

11

Test large number of pages

12

Test large number of pages

13

14

Test large number of pages

15

Test large number of pages

16

Test large number of pages

17

Test large number of pages

18

Test large number of pages

19

Test large number of pages

20

4.10 Cooling of Food

Overview

This step applies to the cooling of potentially hazardous foods that have been fully or partially cooked on site.

The cooling step technically commences once the cooling food reaches 60°C (the temperature danger zone) and ceases once the cooling food reaches 5°C (out of the temperature danger zone). It is essential that food that has been cooked or partially cooked is chilled as quickly as possible to reduce the opportunity for any remaining pathogenic bacteria to grow. Some bacteria produce spores which can survive the cooking process. If cooked food is not cooled quickly enough, these spores can germinate, grow and produce toxins in the food while it is in the temperature danger zone. Cooked food can also become contaminated during the cooling process from dirty stirring utensils, trays and unhygienic practices by food handlers.

Legislation

Food Standards Code 3.2.2 (Division 3)

7. Food Processing

A food business must, when cooling cooked potentially hazardous food, cool the food:

a) within two hours - from 60°C to 21°C; and

b) Within a further four hours – from 21°C to 5°C.

What are the Hazards?

- **Microbiological Growth of Pathogens** if potentially hazardous food is not cooled quickly enough, allowing any spore-forming pathogens, that survived the cooking process, e.g. *Clostridium perfringens* to germinate, grow and produce toxins;
- **Microbiological, Physical, Chemical and Allergen Contamination** from unclean equipment and utensils, or if food is not adequately protected during the cooling process.

Important Note

The initial drop in temperature from 60°C to 21°C must be faster than the second drop from 21°C to 5°C. This is because the optimum temperature for the growth of food-borne bacteria is between 43°C - 47°C[1].

[1] SAFE FOOD AUSTRALIA, A Guide to the Food Safety Standards, Chapter 3 of the Australia New Zealand Food Standards Code (Australia only) (2016), Food Standards Australia New Zealand, p139

Controls and Monitoring

1. Conventional Cooling

Conventional cooling means cooling potentially hazardous cooked food in a refrigerator or coolroom.

1. Divide large quantities of food into small portions and place in shallow containers;
2. Protect food from contamination while cooling. Where possible, loosely cover food to allow steam to escape and prevent condensation (Note: do not use tea towels or CHUX cloths to cover food);
3. Throughout the cooling process, monitor cooling times and check core food temperatures with a clean and sanitised probe thermometer to ensure that the Cooling Rule is met;

The Cooling Rule

60°C* to 21°C within two (**2**) hours, and then from **21°C to 5°C** within in the next four (**4**) hours

The cooling step can commence at temperatures above 60°C eg 67°C but the food must still cool to 21°C within the first 2 hour, so the closer to 60°C before you start documenting the process, the better.

4. Record cooling times and temperatures on the **Food Processing Record** or **Cooling Food Record** at the frequency stated on the Record;
5. Once food has stopped steaming, label the cooling food (e.g. the tray) with the product name and date. While food is cooling in the refrigerator or coolroom, it must be protected from contamination but does not need to be fully sealed until it has fully cooled.
6. Do not stack cooling containers on top of each other;
7. Continue to monitor and record cooling times and temperatures to check that the Cooling Rule is adhered to;

   Note: *If food cools to below 5°C within the first two hours, no further temperature checks are required.*

8. Once food has cooled to 5°C or below, fully cover food (eg with a lid or plastic wrap). Ensure all cooled food products are labelled with the product name and date labelled as per **7.17 Shelf Life of Foods.**

Important Note

If you will not be available to undertake the 2hr or further 4hr temperature checks, it is important that you arrange for the next shift to monitor and record the cooling times and temperatures on the **Food Processing Record** or **Cooling Food Record** at each specified interval.

9. If food is reheated within the cooling period and prior to reaching 5°C, record the time and temperature that cooling commenced and the time and temperature of the food at the beginning and end of reheating.

4.10 Cooling of Food

Overview

This step applies to the cooling of potentially hazardous foods that have been fully or partially cooked on site.

The cooling step technically commences once the cooling food reaches 60°C (the temperature danger zone) and ceases once the cooling food reaches 5°C (out of the temperature danger zone). It is essential that food that has been cooked or partially cooked is chilled as quickly as possible to reduce the opportunity for any remaining pathogenic bacteria to grow. Some bacteria produce spores which can survive the cooking process. If cooked food is not cooled quickly enough, these spores can germinate, grow and produce toxins in the food while it is in the temperature danger zone. Cooked food can also become contaminated during the cooling process from dirty stirring utensils, trays and unhygienic practices by food handlers.

Legislation

Food Standards Code 3.2.2 (Division 3)

7. Food Processing

A food business must, when cooling cooked potentially hazardous food, cool the food:

a) within two hours - from 60°C to 21°C; and

b) Within a further four hours – from 21°C to 5°C.

What are the Hazards?

- **Microbiological Growth of Pathogens** if potentially hazardous food is not cooled quickly enough, allowing any spore-forming pathogens, that survived the cooking process, e.g. *Clostridium perfringens* to germinate, grow and produce toxins;
- **Microbiological, Physical, Chemical and Allergen Contamination** from unclean equipment and utensils, or if food is not adequately protected during the cooling process.

Important Note

The initial drop in temperature from 60°C to 21°C must be faster than the second drop from 21°C to 5°C. This is because the optimum temperature for the growth of food-borne bacteria is between 43°C - 47°C[1].

[1] SAFE FOOD AUSTRALIA, A Guide to the Food Safety Standards, Chapter 3 of the Australia New Zealand Food Standards Code (Australia only) (2016), Food Standards Australia New Zealand, p139

Controls and Monitoring

1. Conventional Cooling

Conventional cooling means cooling potentially hazardous cooked food in a refrigerator or coolroom.

1. Divide large quantities of food into small portions and place in shallow containers;
2. Protect food from contamination while cooling. Where possible, loosely cover food to allow steam to escape and prevent condensation (Note: do not use tea towels or CHUX cloths to cover food);
3. Throughout the cooling process, monitor cooling times and check core food temperatures with a clean and sanitised probe thermometer to ensure that the Cooling Rule is met;

The Cooling Rule

60°C* to 21°C within two (**2**) hours, and then from **21°C to 5°C** within in the next four (**4**) hours

The cooling step can commence at temperatures above 60°C eg 67°C but the food must still cool to 21°C within the first 2 hour, so the closer to 60°C before you start documenting the process, the better.

4. Record cooling times and temperatures on the **Food Processing Record** or **Cooling Food Record** at the frequency stated on the Record;
5. Once food has stopped steaming, label the cooling food (e.g. the tray) with the product name and date. While food is cooling in the refrigerator or coolroom, it must be protected from contamination but does not need to be fully sealed until it has fully cooled.
6. Do not stack cooling containers on top of each other;
7. Continue to monitor and record cooling times and temperatures to check that the Cooling Rule is adhered to;

   Note: *If food cools to below 5°C within the first two hours, no further temperature checks are required.*

8. Once food has cooled to 5°C or below, fully cover food (eg with a lid or plastic wrap). Ensure all cooled food products are labelled with the product name and date labelled as per **7.17 Shelf Life of Foods.**

Important Note

If you will not be available to undertake the 2hr or further 4hr temperature checks, it is important that you arrange for the next shift to monitor and record the cooling times and temperatures on the **Food Processing Record** or **Cooling Food Record** at each specified interval.

9. If food is reheated within the cooling period and prior to reaching 5°C, record the time and temperature that cooling commenced and the time and temperature of the food at the beginning and end of reheating.

Hints & Tips

- If ice or ice bricks are used to speed up the cooling process, ensure that there is no risk of food contamination from the ice / ice bricks;
- Remember, cooling may take up to **6 hours in total**. Schedule cooking and cooling processes to ensure that there will be someone available to check cooling food times and temperatures.

WHAT IF FOOD DOES NOT COOL IN TIME?

- If food does not cool from 60°C - 21°C within the first 2 hours, the food cannot continue to be cooled for later use. It either needs to be discarded OR it can be reheated immediately (within one hour) to ≥75°C and either served immediately or hot held and served**.** Any remaining food must be discarded.
- If food does not cool from 21°C - 5°C within the subsequent 4 hours, it must be discarded.

2. Blast Chilling

Blast chillers enable potentially hazardous cooked foods to be chilled quickly, often to less than 5˚C within 1 ½ - 2 hours. The inside of the blast chiller must be kept clean and free of mould and other contaminants to prevent contamination of chilling food. If using a blast chiller:

1. Place food into a clean blast chiller as per manufacturer's instructions. If there are any delays between cooking and placing food into the blast chiller, ensure food is protected from contamination;
2. Do not use plastic wrap or foil to cover food when inside the blast chiller as this can be sucked into the fans, become shredded and then contaminate the food as a physical hazard;
3. Check the core food temperature with a clean and sanitised probe thermometer at or within 2 hrs of placing in the blast chiller.
4. Record the cooling time and temperature on the **Food Processing Record** or the **Cooling Food Record** (at the frequency stated on the Record);
5. If food cools to 5°C or less within the first two hours, no further temperature checks are required;
6. If food does not cool to 5°C or less within the first 2 hours, but is less than 21°C, continue to monitor the food to ensure it cools to 5°C or less within the next 4 hours.

Corrective Actions

- Report non-conformances and any concerns about food safety or suitability to the Food Safety Supervisor;
- If potentially hazardous food does not cool from 60°C to 21°C within the initial 2 hours, discard food OR reheat immediately (within one hour) to ≥75°C and either serve immediately or hot hold and serve. Discard any remaining food.
- If potentially hazardous food does not cool from 21°C to 5°C within the subsequent 4 hours, discard food;

4.10 Cooling of Food

Overview

This step applies to the cooling of potentially hazardous foods that have been fully or partially cooked on site.

The cooling step technically commences once the cooling food reaches 60°C (the temperature danger zone) and ceases once the cooling food reaches 5°C (out of the temperature danger zone). It is essential that food that has been cooked or partially cooked is chilled as quickly as possible to reduce the opportunity for any remaining pathogenic bacteria to grow. Some bacteria produce spores which can survive the cooking process. If cooked food is not cooled quickly enough, these spores can germinate, grow and produce toxins in the food while it is in the temperature danger zone. Cooked food can also become contaminated during the cooling process from dirty stirring utensils, trays and unhygienic practices by food handlers.

Legislation

Food Standards Code 3.2.2 (Division 3)

7. Food Processing

A food business must, when cooling cooked potentially hazardous food, cool the food:

a) within two hours - from 60°C to 21°C; and

b) Within a further four hours – from 21°C to 5°C.

What are the Hazards?

- **Microbiological Growth of Pathogens** if potentially hazardous food is not cooled quickly enough, allowing any spore-forming pathogens, that survived the cooking process, e.g. *Clostridium perfringens* to germinate, grow and produce toxins;
- **Microbiological, Physical, Chemical and Allergen Contamination** from unclean equipment and utensils, or if food is not adequately protected during the cooling process.

Important Note

The initial drop in temperature from 60°C to 21°C must be faster than the second drop from 21°C to 5°C. This is because the optimum temperature for the growth of food-borne bacteria is between 43°C - 47°C[1].

[1] SAFE FOOD AUSTRALIA, A Guide to the Food Safety Standards, Chapter 3 of the Australia New Zealand Food Standards Code (Australia only) (2016), Food Standards Australia New Zealand, p139

Controls and Monitoring

1. Conventional Cooling

Conventional cooling means cooling potentially hazardous cooked food in a refrigerator or coolroom.

1. Divide large quantities of food into small portions and place in shallow containers;
2. Protect food from contamination while cooling. Where possible, loosely cover food to allow steam to escape and prevent condensation (Note: do not use tea towels or CHUX cloths to cover food);
3. Throughout the cooling process, monitor cooling times and check core food temperatures with a clean and sanitised probe thermometer to ensure that the Cooling Rule is met;

The Cooling Rule

60°C* to 21°C within two (**2**) hours, and then from **21°C to 5°C** within in the next four (**4**) hours

The cooling step can commence at temperatures above 60°C eg 67°C but the food must still cool to 21°C within the first 2 hour, so the closer to 60°C before you start documenting the process, the better.

4. Record cooling times and temperatures on the **Food Processing Record** or **Cooling Food Record** at the frequency stated on the Record;
5. Once food has stopped steaming, label the cooling food (e.g. the tray) with the product name and date. While food is cooling in the refrigerator or coolroom, it must be protected from contamination but does not need to be fully sealed until it has fully cooled.
6. Do not stack cooling containers on top of each other;
7. Continue to monitor and record cooling times and temperatures to check that the Cooling Rule is adhered to;

   Note: *If food cools to below 5°C within the first two hours, no further temperature checks are required.*

8. Once food has cooled to 5°C or below, fully cover food (eg with a lid or plastic wrap). Ensure all cooled food products are labelled with the product name and date labelled as per **7.17 Shelf Life of Foods.**

Important Note

If you will not be available to undertake the 2hr or further 4hr temperature checks, it is important that you arrange for the next shift to monitor and record the cooling times and temperatures on the **Food Processing Record** or **Cooling Food Record** at each specified interval.

9. If food is reheated within the cooling period and prior to reaching 5°C, record the time and temperature that cooling commenced and the time and temperature of the food at the beginning and end of reheating.

Hints & Tips

- If ice or ice bricks are used to speed up the cooling process, ensure that there is no risk of food contamination from the ice / ice bricks;
- Remember, cooling may take up to **6 hours in total**. Schedule cooking and cooling processes to ensure that there will be someone available to check cooling food times and temperatures.

WHAT IF FOOD DOES NOT COOL IN TIME?

- If food does not cool from 60°C - 21°C within the first 2 hours, the food cannot continue to be cooled for later use. It either needs to be discarded OR it can be reheated immediately (within one hour) to ≥75°C and either served immediately or hot held and served**.** Any remaining food must be discarded.
- If food does not cool from 21°C - 5°C within the subsequent 4 hours, it must be discarded.

2. Blast Chilling

Blast chillers enable potentially hazardous cooked foods to be chilled quickly, often to less than 5˚C within 1 ½ - 2 hours. The inside of the blast chiller must be kept clean and free of mould and other contaminants to prevent contamination of chilling food. If using a blast chiller:

1. Place food into a clean blast chiller as per manufacturer's instructions. If there are any delays between cooking and placing food into the blast chiller, ensure food is protected from contamination;
2. Do not use plastic wrap or foil to cover food when inside the blast chiller as this can be sucked into the fans, become shredded and then contaminate the food as a physical hazard;
3. Check the core food temperature with a clean and sanitised probe thermometer at or within 2 hrs of placing in the blast chiller.
4. Record the cooling time and temperature on the **Food Processing Record** or the **Cooling Food Record** (at the frequency stated on the Record);
5. If food cools to 5°C or less within the first two hours, no further temperature checks are required;
6. If food does not cool to 5°C or less within the first 2 hours, but is less than 21°C, continue to monitor the food to ensure it cools to 5°C or less within the next 4 hours.

Corrective Actions

- Report non-conformances and any concerns about food safety or suitability to the Food Safety Supervisor;
- If potentially hazardous food does not cool from 60°C to 21°C within the initial 2 hours, discard food OR reheat immediately (within one hour) to ≥75°C and either serve immediately or hot hold and serve. Discard any remaining food.
- If potentially hazardous food does not cool from 21°C to 5°C within the subsequent 4 hours, discard food;

- If cooling equipment is faulty, needs repair or replacement immediately inform management / maintenance and complete Maintenance Log;
- Discard food if any evidence or likelihood of contamination;
- Retrain staff if evidence of a lack of food safety skills or knowledge;
- Log corrective actions on the record used to record cooling (**Food Processing Record** or **Cooling Food Record)** or complete a **Corrective Action Record;**
- Optional: complete a **Discarded Food Record** for any bulk food discarded due to safety concerns.

Records for this Process

10.5 Food Processing Record

10.24 Corrective Action Record

Additional Optional Records

Optional:

10.8 Cooling Food Record

10.25 Discarded Food Log

10.1a Daily Consolidated Record – General Business

10.1b Daily Consolidated Record – Retail Outlet

Refer to Support Programs

7.14 Maintenance Program

Additional Information

Cooling

Potentially hazardous food needs to be cooled to 5°C or below as quickly as possible after cooking. The quicker that cooked potentially hazardous food is cooled the less opportunity pathogenic bacteria will have to grow.

Bacteria may be present in cooked food from spores that survived the cooking process and from contamination that occurred after cooking, e.g. if the food was stirred with a contaminated spoon.

Cooking to a pathogen-kill temperature (75°C or 70°C for 2 minutes) will destroy live cells of food-borne bacteria, but it will not destroy the spores of some food-borne pathogens when potentially hazardous food is left to cool too slowly, either at room temperature or in a fridge or coolroom. The spores of these pathogens can germinate and then multiply to dangerous levels.

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

- If cooling equipment is faulty, needs repair or replacement immediately inform management / maintenance and complete Maintenance Log;
- Discard food if any evidence or likelihood of contamination;
- Retrain staff if evidence of a lack of food safety skills or knowledge;
- Log corrective actions on the record used to record cooling (**Food Processing Record** or **Cooling Food Record)** or complete a **Corrective Action Record;**
- Optional: complete a **Discarded Food Record** for any bulk food discarded due to safety concerns.

Records for this Process

10.5 Food Processing Record

10.24 Corrective Action Record

Additional Optional Records

Optional:

10.8 Cooling Food Record

10.25 Discarded Food Log

10.1a Daily Consolidated Record – General Business

10.1b Daily Consolidated Record – Retail Outlet

Refer to Support Programs

7.14 Maintenance Program

Additional Information

Cooling

Potentially hazardous food needs to be cooled to 5°C or below as quickly as possible after cooking. The quicker that cooked potentially hazardous food is cooled the less opportunity pathogenic bacteria will have to grow.

Bacteria may be present in cooked food from spores that survived the cooking process and from contamination that occurred after cooking, e.g. if the food was stirred with a contaminated spoon.

Cooking to a pathogen-kill temperature (75°C or 70°C for 2 minutes) will destroy live cells of food-borne bacteria, but it will not destroy the spores of some food-borne pathogens when potentially hazardous food is left to cool too slowly, either at room temperature or in a fridge or coolroom. The spores of these pathogens can germinate and then multiply to dangerous levels.

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

Hints & Tips

- If ice or ice bricks are used to speed up the cooling process, ensure that there is no risk of food contamination from the ice / ice bricks;
- Remember, cooling may take up to **6 hours in total**. Schedule cooking and cooling processes to ensure that there will be someone available to check cooling food times and temperatures.

WHAT IF FOOD DOES NOT COOL IN TIME?

- If food does not cool from 60°C - 21°C within the first 2 hours, the food cannot continue to be cooled for later use. It either needs to be discarded OR it can be reheated immediately (within one hour) to ≥75°C and either served immediately or hot held and served**.** Any remaining food must be discarded.
- If food does not cool from 21°C - 5°C within the subsequent 4 hours, it must be discarded.

2. Blast Chilling

Blast chillers enable potentially hazardous cooked foods to be chilled quickly, often to less than 5˚C within 1 ½ - 2 hours. The inside of the blast chiller must be kept clean and free of mould and other contaminants to prevent contamination of chilling food. If using a blast chiller:

1. Place food into a clean blast chiller as per manufacturer's instructions. If there are any delays between cooking and placing food into the blast chiller, ensure food is protected from contamination;
2. Do not use plastic wrap or foil to cover food when inside the blast chiller as this can be sucked into the fans, become shredded and then contaminate the food as a physical hazard;
3. Check the core food temperature with a clean and sanitised probe thermometer at or within 2 hrs of placing in the blast chiller.
4. Record the cooling time and temperature on the **Food Processing Record** or the **Cooling Food Record** (at the frequency stated on the Record);
5. If food cools to 5°C or less within the first two hours, no further temperature checks are required;
6. If food does not cool to 5°C or less within the first 2 hours, but is less than 21°C, continue to monitor the food to ensure it cools to 5°C or less within the next 4 hours.

Corrective Actions

- Report non-conformances and any concerns about food safety or suitability to the Food Safety Supervisor;
- If potentially hazardous food does not cool from 60°C to 21°C within the initial 2 hours, discard food OR reheat immediately (within one hour) to ≥75°C and either serve immediately or hot hold and serve. Discard any remaining food.
- If potentially hazardous food does not cool from 21°C to 5°C within the subsequent 4 hours, discard food;

4.10 Cooling of Food

Overview

This step applies to the cooling of potentially hazardous foods that have been fully or partially cooked on site.

The cooling step technically commences once the cooling food reaches 60°C (the temperature danger zone) and ceases once the cooling food reaches 5°C (out of the temperature danger zone). It is essential that food that has been cooked or partially cooked is chilled as quickly as possible to reduce the opportunity for any remaining pathogenic bacteria to grow. Some bacteria produce spores which can survive the cooking process. If cooked food is not cooled quickly enough, these spores can germinate, grow and produce toxins in the food while it is in the temperature danger zone. Cooked food can also become contaminated during the cooling process from dirty stirring utensils, trays and unhygienic practices by food handlers.

Legislation

Food Standards Code 3.2.2 (Division 3)

7. Food Processing

A food business must, when cooling cooked potentially hazardous food, cool the food:

a) within two hours - from 60°C to 21°C; and

b) Within a further four hours – from 21°C to 5°C.

What are the Hazards?

- **Microbiological Growth of Pathogens** if potentially hazardous food is not cooled quickly enough, allowing any spore-forming pathogens, that survived the cooking process, e.g. *Clostridium perfringens* to germinate, grow and produce toxins;
- **Microbiological, Physical, Chemical and Allergen Contamination** from unclean equipment and utensils, or if food is not adequately protected during the cooling process.

Important Note

The initial drop in temperature from 60°C to 21°C must be faster than the second drop from 21°C to 5°C. This is because the optimum temperature for the growth of food-borne bacteria is between 43°C - 47°C[1].

[1] SAFE FOOD AUSTRALIA, A Guide to the Food Safety Standards, Chapter 3 of the Australia New Zealand Food Standards Code (Australia only) (2016), Food Standards Australia New Zealand, p139

Controls and Monitoring

1. Conventional Cooling

Conventional cooling means cooling potentially hazardous cooked food in a refrigerator or coolroom.

1. Divide large quantities of food into small portions and place in shallow containers;
2. Protect food from contamination while cooling. Where possible, loosely cover food to allow steam to escape and prevent condensation (Note: do not use tea towels or CHUX cloths to cover food);
3. Throughout the cooling process, monitor cooling times and check core food temperatures with a clean and sanitised probe thermometer to ensure that the Cooling Rule is met;

The Cooling Rule

60°C* to 21°C within two (**2**) hours, and then from **21°C to 5°C** within in the next four (**4**) hours

The cooling step can commence at temperatures above 60°C eg 67°C but the food must still cool to 21°C within the first 2 hour, so the closer to 60°C before you start documenting the process, the better.

4. Record cooling times and temperatures on the **Food Processing Record** or **Cooling Food Record** at the frequency stated on the Record;
5. Once food has stopped steaming, label the cooling food (e.g. the tray) with the product name and date. While food is cooling in the refrigerator or coolroom, it must be protected from contamination but does not need to be fully sealed until it has fully cooled.
6. Do not stack cooling containers on top of each other;
7. Continue to monitor and record cooling times and temperatures to check that the Cooling Rule is adhered to;

   Note: *If food cools to below 5°C within the first two hours, no further temperature checks are required.*

8. Once food has cooled to 5°C or below, fully cover food (eg with a lid or plastic wrap). Ensure all cooled food products are labelled with the product name and date labelled as per **7.17 Shelf Life of Foods.**

Important Note

If you will not be available to undertake the 2hr or further 4hr temperature checks, it is important that you arrange for the next shift to monitor and record the cooling times and temperatures on the **Food Processing Record** or **Cooling Food Record** at each specified interval.

9. If food is reheated within the cooling period and prior to reaching 5°C, record the time and temperature that cooling commenced and the time and temperature of the food at the beginning and end of reheating.

Hints & Tips

- If ice or ice bricks are used to speed up the cooling process, ensure that there is no risk of food contamination from the ice / ice bricks;
- Remember, cooling may take up to **6 hours in total**. Schedule cooking and cooling processes to ensure that there will be someone available to check cooling food times and temperatures.

WHAT IF FOOD DOES NOT COOL IN TIME?

- If food does not cool from 60°C - 21°C within the first 2 hours, the food cannot continue to be cooled for later use. It either needs to be discarded OR it can be reheated immediately (within one hour) to ≥75°C and either served immediately or hot held and served**.** Any remaining food must be discarded.
- If food does not cool from 21°C - 5°C within the subsequent 4 hours, it must be discarded.

2. Blast Chilling

Blast chillers enable potentially hazardous cooked foods to be chilled quickly, often to less than 5˚C within 1 ½ - 2 hours. The inside of the blast chiller must be kept clean and free of mould and other contaminants to prevent contamination of chilling food. If using a blast chiller:

1. Place food into a clean blast chiller as per manufacturer's instructions. If there are any delays between cooking and placing food into the blast chiller, ensure food is protected from contamination;
2. Do not use plastic wrap or foil to cover food when inside the blast chiller as this can be sucked into the fans, become shredded and then contaminate the food as a physical hazard;
3. Check the core food temperature with a clean and sanitised probe thermometer at or within 2 hrs of placing in the blast chiller.
4. Record the cooling time and temperature on the **Food Processing Record** or the **Cooling Food Record** (at the frequency stated on the Record);
5. If food cools to 5°C or less within the first two hours, no further temperature checks are required;
6. If food does not cool to 5°C or less within the first 2 hours, but is less than 21°C, continue to monitor the food to ensure it cools to 5°C or less within the next 4 hours.

Corrective Actions

- Report non-conformances and any concerns about food safety or suitability to the Food Safety Supervisor;
- If potentially hazardous food does not cool from 60°C to 21°C within the initial 2 hours, discard food OR reheat immediately (within one hour) to ≥75°C and either serve immediately or hot hold and serve. Discard any remaining food.
- If potentially hazardous food does not cool from 21°C to 5°C within the subsequent 4 hours, discard food;

- If cooling equipment is faulty, needs repair or replacement immediately inform management / maintenance and complete Maintenance Log;
- Discard food if any evidence or likelihood of contamination;
- Retrain staff if evidence of a lack of food safety skills or knowledge;
- Log corrective actions on the record used to record cooling (**Food Processing Record** or **Cooling Food Record)** or complete a **Corrective Action Record;**
- Optional: complete a **Discarded Food Record** for any bulk food discarded due to safety concerns.

Records for this Process

10.5 Food Processing Record

10.24 Corrective Action Record

Additional Optional Records

Optional:

10.8 Cooling Food Record

10.25 Discarded Food Log

10.1a Daily Consolidated Record – General Business

10.1b Daily Consolidated Record – Retail Outlet

Refer to Support Programs

7.14 Maintenance Program

Additional Information

Cooling

Potentially hazardous food needs to be cooled to 5°C or below as quickly as possible after cooking. The quicker that cooked potentially hazardous food is cooled the less opportunity pathogenic bacteria will have to grow.

Bacteria may be present in cooked food from spores that survived the cooking process and from contamination that occurred after cooking, e.g. if the food was stirred with a contaminated spoon.

Cooking to a pathogen-kill temperature (75°C or 70°C for 2 minutes) will destroy live cells of food-borne bacteria, but it will not destroy the spores of some food-borne pathogens when potentially hazardous food is left to cool too slowly, either at room temperature or in a fridge or coolroom. The spores of these pathogens can germinate and then multiply to dangerous levels.

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

4.10 Cooling of Food

Overview

This step applies to the cooling of potentially hazardous foods that have been fully or partially cooked on site.

The cooling step technically commences once the cooling food reaches 60°C (the temperature danger zone) and ceases once the cooling food reaches 5°C (out of the temperature danger zone). It is essential that food that has been cooked or partially cooked is chilled as quickly as possible to reduce the opportunity for any remaining pathogenic bacteria to grow. Some bacteria produce spores which can survive the cooking process. If cooked food is not cooled quickly enough, these spores can germinate, grow and produce toxins in the food while it is in the temperature danger zone. Cooked food can also become contaminated during the cooling process from dirty stirring utensils, trays and unhygienic practices by food handlers.

Legislation

Food Standards Code 3.2.2 (Division 3)

7. Food Processing

A food business must, when cooling cooked potentially hazardous food, cool the food:

a) within two hours - from 60°C to 21°C; and

b) Within a further four hours – from 21°C to 5°C.

What are the Hazards?

- **Microbiological Growth of Pathogens** if potentially hazardous food is not cooled quickly enough, allowing any spore-forming pathogens, that survived the cooking process, e.g. *Clostridium perfringens* to germinate, grow and produce toxins;
- **Microbiological, Physical, Chemical and Allergen Contamination** from unclean equipment and utensils, or if food is not adequately protected during the cooling process.

Important Note

The initial drop in temperature from 60°C to 21°C must be faster than the second drop from 21°C to 5°C. This is because the optimum temperature for the growth of food-borne bacteria is between 43°C - 47°C[1].

[1] SAFE FOOD AUSTRALIA, A Guide to the Food Safety Standards, Chapter 3 of the Australia New Zealand Food Standards Code (Australia only) (2016), Food Standards Australia New Zealand, p139

Controls and Monitoring

1. Conventional Cooling

Conventional cooling means cooling potentially hazardous cooked food in a refrigerator or coolroom.

1. Divide large quantities of food into small portions and place in shallow containers;
2. Protect food from contamination while cooling. Where possible, loosely cover food to allow steam to escape and prevent condensation (Note: do not use tea towels or CHUX cloths to cover food);
3. Throughout the cooling process, monitor cooling times and check core food temperatures with a clean and sanitised probe thermometer to ensure that the Cooling Rule is met;

The Cooling Rule

60°C* to 21°C within two (**2**) hours, and then from **21°C to 5°C** within in the next four (**4**) hours

The cooling step can commence at temperatures above 60°C eg 67°C but the food must still cool to 21°C within the first 2 hour, so the closer to 60°C before you start documenting the process, the better.

4. Record cooling times and temperatures on the **Food Processing Record** or **Cooling Food Record** at the frequency stated on the Record;
5. Once food has stopped steaming, label the cooling food (e.g. the tray) with the product name and date. While food is cooling in the refrigerator or coolroom, it must be protected from contamination but does not need to be fully sealed until it has fully cooled.
6. Do not stack cooling containers on top of each other;
7. Continue to monitor and record cooling times and temperatures to check that the Cooling Rule is adhered to;

   Note: *If food cools to below 5°C within the first two hours, no further temperature checks are required.*

8. Once food has cooled to 5°C or below, fully cover food (eg with a lid or plastic wrap). Ensure all cooled food products are labelled with the product name and date labelled as per **7.17 Shelf Life of Foods.**

Important Note

If you will not be available to undertake the 2hr or further 4hr temperature checks, it is important that you arrange for the next shift to monitor and record the cooling times and temperatures on the **Food Processing Record** or **Cooling Food Record** at each specified interval.

9. If food is reheated within the cooling period and prior to reaching 5°C, record the time and temperature that cooling commenced and the time and temperature of the food at the beginning and end of reheating.

Hints & Tips

- If ice or ice bricks are used to speed up the cooling process, ensure that there is no risk of food contamination from the ice / ice bricks;
- Remember, cooling may take up to **6 hours in total**. Schedule cooking and cooling processes to ensure that there will be someone available to check cooling food times and temperatures.

WHAT IF FOOD DOES NOT COOL IN TIME?

- If food does not cool from 60°C - 21°C within the first 2 hours, the food cannot continue to be cooled for later use. It either needs to be discarded OR it can be reheated immediately (within one hour) to ≥75°C and either served immediately or hot held and served**.** Any remaining food must be discarded.
- If food does not cool from 21°C - 5°C within the subsequent 4 hours, it must be discarded.

2. Blast Chilling

Blast chillers enable potentially hazardous cooked foods to be chilled quickly, often to less than 5˚C within 1 ½ - 2 hours. The inside of the blast chiller must be kept clean and free of mould and other contaminants to prevent contamination of chilling food. If using a blast chiller:

1. Place food into a clean blast chiller as per manufacturer's instructions. If there are any delays between cooking and placing food into the blast chiller, ensure food is protected from contamination;
2. Do not use plastic wrap or foil to cover food when inside the blast chiller as this can be sucked into the fans, become shredded and then contaminate the food as a physical hazard;
3. Check the core food temperature with a clean and sanitised probe thermometer at or within 2 hrs of placing in the blast chiller.
4. Record the cooling time and temperature on the **Food Processing Record** or the **Cooling Food Record** (at the frequency stated on the Record);
5. If food cools to 5°C or less within the first two hours, no further temperature checks are required;
6. If food does not cool to 5°C or less within the first 2 hours, but is less than 21°C, continue to monitor the food to ensure it cools to 5°C or less within the next 4 hours.

Corrective Actions

- Report non-conformances and any concerns about food safety or suitability to the Food Safety Supervisor;
- If potentially hazardous food does not cool from 60°C to 21°C within the initial 2 hours, discard food OR reheat immediately (within one hour) to ≥75°C and either serve immediately or hot hold and serve. Discard any remaining food.
- If potentially hazardous food does not cool from 21°C to 5°C within the subsequent 4 hours, discard food;

- If cooling equipment is faulty, needs repair or replacement immediately inform management / maintenance and complete Maintenance Log;
- Discard food if any evidence or likelihood of contamination;
- Retrain staff if evidence of a lack of food safety skills or knowledge;
- Log corrective actions on the record used to record cooling (**Food Processing Record** or **Cooling Food Record)** or complete a **Corrective Action Record;**
- Optional: complete a **Discarded Food Record** for any bulk food discarded due to safety concerns.

Records for this Process

10.5 Food Processing Record

10.24 Corrective Action Record

Additional Optional Records

Optional:

10.8 Cooling Food Record

10.25 Discarded Food Log

10.1a Daily Consolidated Record – General Business

10.1b Daily Consolidated Record – Retail Outlet

Refer to Support Programs

7.14 Maintenance Program

Additional Information

Cooling

Potentially hazardous food needs to be cooled to 5°C or below as quickly as possible after cooking. The quicker that cooked potentially hazardous food is cooled the less opportunity pathogenic bacteria will have to grow.

Bacteria may be present in cooked food from spores that survived the cooking process and from contamination that occurred after cooking, e.g. if the food was stirred with a contaminated spoon.

Cooking to a pathogen-kill temperature (75°C or 70°C for 2 minutes) will destroy live cells of food-borne bacteria, but it will not destroy the spores of some food-borne pathogens when potentially hazardous food is left to cool too slowly, either at room temperature or in a fridge or coolroom. The spores of these pathogens can germinate and then multiply to dangerous levels.

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

- If cooling equipment is faulty, needs repair or replacement immediately inform management / maintenance and complete Maintenance Log;
- Discard food if any evidence or likelihood of contamination;
- Retrain staff if evidence of a lack of food safety skills or knowledge;
- Log corrective actions on the record used to record cooling (**Food Processing Record** or **Cooling Food Record)** or complete a **Corrective Action Record;**
- Optional: complete a **Discarded Food Record** for any bulk food discarded due to safety concerns.

Records for this Process

10.5 Food Processing Record

10.24 Corrective Action Record

Additional Optional Records

Optional:

10.8 Cooling Food Record

10.25 Discarded Food Log

10.1a Daily Consolidated Record – General Business

10.1b Daily Consolidated Record – Retail Outlet

Refer to Support Programs

7.14 Maintenance Program

Additional Information

Cooling

Potentially hazardous food needs to be cooled to 5°C or below as quickly as possible after cooking. The quicker that cooked potentially hazardous food is cooled the less opportunity pathogenic bacteria will have to grow.

Bacteria may be present in cooked food from spores that survived the cooking process and from contamination that occurred after cooking, e.g. if the food was stirred with a contaminated spoon.

Cooking to a pathogen-kill temperature (75°C or 70°C for 2 minutes) will destroy live cells of food-borne bacteria, but it will not destroy the spores of some food-borne pathogens when potentially hazardous food is left to cool too slowly, either at room temperature or in a fridge or coolroom. The spores of these pathogens can germinate and then multiply to dangerous levels.

4.10 Cooling of Food

Overview

This step applies to the cooling of potentially hazardous foods that have been fully or partially cooked on site.

The cooling step technically commences once the cooling food reaches 60°C (the temperature danger zone) and ceases once the cooling food reaches 5°C (out of the temperature danger zone). It is essential that food that has been cooked or partially cooked is chilled as quickly as possible to reduce the opportunity for any remaining pathogenic bacteria to grow. Some bacteria produce spores which can survive the cooking process. If cooked food is not cooled quickly enough, these spores can germinate, grow and produce toxins in the food while it is in the temperature danger zone. Cooked food can also become contaminated during the cooling process from dirty stirring utensils, trays and unhygienic practices by food handlers.

Legislation

Food Standards Code 3.2.2 (Division 3)

7. Food Processing

A food business must, when cooling cooked potentially hazardous food, cool the food:

a) within two hours - from 60°C to 21°C; and

b) Within a further four hours – from 21°C to 5°C.

What are the Hazards?

- **Microbiological Growth of Pathogens** if potentially hazardous food is not cooled quickly enough, allowing any spore-forming pathogens, that survived the cooking process, e.g. *Clostridium perfringens* to germinate, grow and produce toxins;
- **Microbiological, Physical, Chemical and Allergen Contamination** from unclean equipment and utensils, or if food is not adequately protected during the cooling process.

Important Note

The initial drop in temperature from 60°C to 21°C must be faster than the second drop from 21°C to 5°C. This is because the optimum temperature for the growth of food-borne bacteria is between 43°C - 47°C[1].

[1] SAFE FOOD AUSTRALIA, A Guide to the Food Safety Standards, Chapter 3 of the Australia New Zealand Food Standards Code (Australia only) (2016), Food Standards Australia New Zealand, p139

Controls and Monitoring

1. Conventional Cooling

Conventional cooling means cooling potentially hazardous cooked food in a refrigerator or coolroom.

1. Divide large quantities of food into small portions and place in shallow containers;
2. Protect food from contamination while cooling. Where possible, loosely cover food to allow steam to escape and prevent condensation (Note: do not use tea towels or CHUX cloths to cover food);
3. Throughout the cooling process, monitor cooling times and check core food temperatures with a clean and sanitised probe thermometer to ensure that the Cooling Rule is met;

The Cooling Rule

60°C* to 21°C within two (**2**) hours, and then from **21°C to 5°C** within in the next four (**4**) hours

The cooling step can commence at temperatures above 60°C eg 67°C but the food must still cool to 21°C within the first 2 hour, so the closer to 60°C before you start documenting the process, the better.

4. Record cooling times and temperatures on the **Food Processing Record** or **Cooling Food Record** at the frequency stated on the Record;
5. Once food has stopped steaming, label the cooling food (e.g. the tray) with the product name and date. While food is cooling in the refrigerator or coolroom, it must be protected from contamination but does not need to be fully sealed until it has fully cooled.
6. Do not stack cooling containers on top of each other;
7. Continue to monitor and record cooling times and temperatures to check that the Cooling Rule is adhered to;

   Note: *If food cools to below 5°C within the first two hours, no further temperature checks are required.*

8. Once food has cooled to 5°C or below, fully cover food (eg with a lid or plastic wrap). Ensure all cooled food products are labelled with the product name and date labelled as per **7.17 Shelf Life of Foods.**

Important Note

If you will not be available to undertake the 2hr or further 4hr temperature checks, it is important that you arrange for the next shift to monitor and record the cooling times and temperatures on the **Food Processing Record** or **Cooling Food Record** at each specified interval.

9. If food is reheated within the cooling period and prior to reaching 5°C, record the time and temperature that cooling commenced and the time and temperature of the food at the beginning and end of reheating.

Hints & Tips

- If ice or ice bricks are used to speed up the cooling process, ensure that there is no risk of food contamination from the ice / ice bricks;
- Remember, cooling may take up to **6 hours in total**. Schedule cooking and cooling processes to ensure that there will be someone available to check cooling food times and temperatures.

WHAT IF FOOD DOES NOT COOL IN TIME?

- If food does not cool from 60°C - 21°C within the first 2 hours, the food cannot continue to be cooled for later use. It either needs to be discarded OR it can be reheated immediately (within one hour) to ≥75°C and either served immediately or hot held and served**.** Any remaining food must be discarded.
- If food does not cool from 21°C - 5°C within the subsequent 4 hours, it must be discarded.

2. Blast Chilling

Blast chillers enable potentially hazardous cooked foods to be chilled quickly, often to less than 5˚C within 1 ½ - 2 hours. The inside of the blast chiller must be kept clean and free of mould and other contaminants to prevent contamination of chilling food. If using a blast chiller:

1. Place food into a clean blast chiller as per manufacturer's instructions. If there are any delays between cooking and placing food into the blast chiller, ensure food is protected from contamination;
2. Do not use plastic wrap or foil to cover food when inside the blast chiller as this can be sucked into the fans, become shredded and then contaminate the food as a physical hazard;
3. Check the core food temperature with a clean and sanitised probe thermometer at or within 2 hrs of placing in the blast chiller.
4. Record the cooling time and temperature on the **Food Processing Record** or the **Cooling Food Record** (at the frequency stated on the Record);
5. If food cools to 5°C or less within the first two hours, no further temperature checks are required;
6. If food does not cool to 5°C or less within the first 2 hours, but is less than 21°C, continue to monitor the food to ensure it cools to 5°C or less within the next 4 hours.

Corrective Actions

- Report non-conformances and any concerns about food safety or suitability to the Food Safety Supervisor;
- If potentially hazardous food does not cool from 60°C to 21°C within the initial 2 hours, discard food OR reheat immediately (within one hour) to ≥75°C and either serve immediately or hot hold and serve. Discard any remaining food.
- If potentially hazardous food does not cool from 21°C to 5°C within the subsequent 4 hours, discard food;

- If cooling equipment is faulty, needs repair or replacement immediately inform management / maintenance and complete Maintenance Log;
- Discard food if any evidence or likelihood of contamination;
- Retrain staff if evidence of a lack of food safety skills or knowledge;
- Log corrective actions on the record used to record cooling (**Food Processing Record** or **Cooling Food Record)** or complete a **Corrective Action Record;**
- Optional: complete a **Discarded Food Record** for any bulk food discarded due to safety concerns.

Records for this Process

10.5 Food Processing Record

10.24 Corrective Action Record

Additional Optional Records

Optional:

10.8 Cooling Food Record

10.25 Discarded Food Log

10.1a Daily Consolidated Record – General Business

10.1b Daily Consolidated Record – Retail Outlet

Refer to Support Programs

7.14 Maintenance Program

Additional Information

Cooling

Potentially hazardous food needs to be cooled to 5°C or below as quickly as possible after cooking. The quicker that cooked potentially hazardous food is cooled the less opportunity pathogenic bacteria will have to grow.

Bacteria may be present in cooked food from spores that survived the cooking process and from contamination that occurred after cooking, e.g. if the food was stirred with a contaminated spoon.

Cooking to a pathogen-kill temperature (75°C or 70°C for 2 minutes) will destroy live cells of food-borne bacteria, but it will not destroy the spores of some food-borne pathogens when potentially hazardous food is left to cool too slowly, either at room temperature or in a fridge or coolroom. The spores of these pathogens can germinate and then multiply to dangerous levels.

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

4.10 Cooling of Food

Overview

This step applies to the cooling of potentially hazardous foods that have been fully or partially cooked on site.

The cooling step technically commences once the cooling food reaches 60°C (the temperature danger zone) and ceases once the cooling food reaches 5°C (out of the temperature danger zone). It is essential that food that has been cooked or partially cooked is chilled as quickly as possible to reduce the opportunity for any remaining pathogenic bacteria to grow. Some bacteria produce spores which can survive the cooking process. If cooked food is not cooled quickly enough, these spores can germinate, grow and produce toxins in the food while it is in the temperature danger zone. Cooked food can also become contaminated during the cooling process from dirty stirring utensils, trays and unhygienic practices by food handlers.

Legislation

Food Standards Code 3.2.2 (Division 3)

7. Food Processing

A food business must, when cooling cooked potentially hazardous food, cool the food:

a) within two hours - from 60°C to 21°C; and

b) Within a further four hours – from 21°C to 5°C.

What are the Hazards?

- **Microbiological Growth of Pathogens** if potentially hazardous food is not cooled quickly enough, allowing any spore-forming pathogens, that survived the cooking process, e.g. *Clostridium perfringens* to germinate, grow and produce toxins;
- **Microbiological, Physical, Chemical and Allergen Contamination** from unclean equipment and utensils, or if food is not adequately protected during the cooling process.

Important Note

The initial drop in temperature from 60°C to 21°C must be faster than the second drop from 21°C to 5°C. This is because the optimum temperature for the growth of food-borne bacteria is between 43°C - 47°C[1].

[1] SAFE FOOD AUSTRALIA, A Guide to the Food Safety Standards, Chapter 3 of the Australia New Zealand Food Standards Code (Australia only) (2016), Food Standards Australia New Zealand, p139

4.10 Cooling of Food

Overview

This step applies to the cooling of potentially hazardous foods that have been fully or partially cooked on site.

The cooling step technically commences once the cooling food reaches 60°C (the temperature danger zone) and ceases once the cooling food reaches 5°C (out of the temperature danger zone). It is essential that food that has been cooked or partially cooked is chilled as quickly as possible to reduce the opportunity for any remaining pathogenic bacteria to grow. Some bacteria produce spores which can survive the cooking process. If cooked food is not cooled quickly enough, these spores can germinate, grow and produce toxins in the food while it is in the temperature danger zone. Cooked food can also become contaminated during the cooling process from dirty stirring utensils, trays and unhygienic practices by food handlers.

Legislation

Food Standards Code 3.2.2 (Division 3)

7. Food Processing

A food business must, when cooling cooked potentially hazardous food, cool the food:

a) within two hours - from 60°C to 21°C; and

b) Within a further four hours – from 21°C to 5°C.

What are the Hazards?

- **Microbiological Growth of Pathogens** if potentially hazardous food is not cooled quickly enough, allowing any spore-forming pathogens, that survived the cooking process, e.g. *Clostridium perfringens* to germinate, grow and produce toxins;
- **Microbiological, Physical, Chemical and Allergen Contamination** from unclean equipment and utensils, or if food is not adequately protected during the cooling process.

Important Note

The initial drop in temperature from 60°C to 21°C must be faster than the second drop from 21°C to 5°C. This is because the optimum temperature for the growth of food-borne bacteria is between 43°C - 47°C[1].

[1] SAFE FOOD AUSTRALIA, A Guide to the Food Safety Standards, Chapter 3 of the Australia New Zealand Food Standards Code (Australia only) (2016), Food Standards Australia New Zealand, p139

Controls and Monitoring

1. Conventional Cooling

Conventional cooling means cooling potentially hazardous cooked food in a refrigerator or coolroom.

1. Divide large quantities of food into small portions and place in shallow containers;
2. Protect food from contamination while cooling. Where possible, loosely cover food to allow steam to escape and prevent condensation (Note: do not use tea towels or CHUX cloths to cover food);
3. Throughout the cooling process, monitor cooling times and check core food temperatures with a clean and sanitised probe thermometer to ensure that the Cooling Rule is met;

The Cooling Rule

60°C* to 21°C within two (**2**) hours, and then from **21°C to 5°C** within in the next four (**4**) hours

The cooling step can commence at temperatures above 60°C eg 67°C but the food must still cool to 21°C within the first 2 hour, so the closer to 60°C before you start documenting the process, the better.

4. Record cooling times and temperatures on the **Food Processing Record** or **Cooling Food Record** at the frequency stated on the Record;
5. Once food has stopped steaming, label the cooling food (e.g. the tray) with the product name and date. While food is cooling in the refrigerator or coolroom, it must be protected from contamination but does not need to be fully sealed until it has fully cooled.
6. Do not stack cooling containers on top of each other;
7. Continue to monitor and record cooling times and temperatures to check that the Cooling Rule is adhered to;

   Note: *If food cools to below 5°C within the first two hours, no further temperature checks are required.*

8. Once food has cooled to 5°C or below, fully cover food (eg with a lid or plastic wrap). Ensure all cooled food products are labelled with the product name and date labelled as per **7.17 Shelf Life of Foods.**

Important Note

If you will not be available to undertake the 2hr or further 4hr temperature checks, it is important that you arrange for the next shift to monitor and record the cooling times and temperatures on the **Food Processing Record** or **Cooling Food Record** at each specified interval.

9. If food is reheated within the cooling period and prior to reaching 5°C, record the time and temperature that cooling commenced and the time and temperature of the food at the beginning and end of reheating.

Hints & Tips

- If ice or ice bricks are used to speed up the cooling process, ensure that there is no risk of food contamination from the ice / ice bricks;
- Remember, cooling may take up to **6 hours in total**. Schedule cooking and cooling processes to ensure that there will be someone available to check cooling food times and temperatures.

WHAT IF FOOD DOES NOT COOL IN TIME?

- If food does not cool from 60°C - 21°C within the first 2 hours, the food cannot continue to be cooled for later use. It either needs to be discarded OR it can be reheated immediately (within one hour) to ≥75°C and either served immediately or hot held and served**.** Any remaining food must be discarded.
- If food does not cool from 21°C - 5°C within the subsequent 4 hours, it must be discarded.

2. Blast Chilling

Blast chillers enable potentially hazardous cooked foods to be chilled quickly, often to less than 5˚C within 1 ½ - 2 hours. The inside of the blast chiller must be kept clean and free of mould and other contaminants to prevent contamination of chilling food. If using a blast chiller:

1. Place food into a clean blast chiller as per manufacturer's instructions. If there are any delays between cooking and placing food into the blast chiller, ensure food is protected from contamination;
2. Do not use plastic wrap or foil to cover food when inside the blast chiller as this can be sucked into the fans, become shredded and then contaminate the food as a physical hazard;
3. Check the core food temperature with a clean and sanitised probe thermometer at or within 2 hrs of placing in the blast chiller.
4. Record the cooling time and temperature on the **Food Processing Record** or the **Cooling Food Record** (at the frequency stated on the Record);
5. If food cools to 5°C or less within the first two hours, no further temperature checks are required;
6. If food does not cool to 5°C or less within the first 2 hours, but is less than 21°C, continue to monitor the food to ensure it cools to 5°C or less within the next 4 hours.

Corrective Actions

- Report non-conformances and any concerns about food safety or suitability to the Food Safety Supervisor;
- If potentially hazardous food does not cool from 60°C to 21°C within the initial 2 hours, discard food OR reheat immediately (within one hour) to ≥75°C and either serve immediately or hot hold and serve. Discard any remaining food.
- If potentially hazardous food does not cool from 21°C to 5°C within the subsequent 4 hours, discard food;

- If cooling equipment is faulty, needs repair or replacement immediately inform management / maintenance and complete Maintenance Log;
- Discard food if any evidence or likelihood of contamination;
- Retrain staff if evidence of a lack of food safety skills or knowledge;
- Log corrective actions on the record used to record cooling (**Food Processing Record** or **Cooling Food Record)** or complete a **Corrective Action Record;**
- Optional: complete a **Discarded Food Record** for any bulk food discarded due to safety concerns.

Records for this Process

10.5 Food Processing Record

10.24 Corrective Action Record

Additional Optional Records

Optional:

10.8 Cooling Food Record

10.25 Discarded Food Log

10.1a Daily Consolidated Record – General Business

10.1b Daily Consolidated Record – Retail Outlet

Refer to Support Programs

7.14 Maintenance Program

Additional Information

Cooling

Potentially hazardous food needs to be cooled to 5°C or below as quickly as possible after cooking. The quicker that cooked potentially hazardous food is cooled the less opportunity pathogenic bacteria will have to grow.

Bacteria may be present in cooked food from spores that survived the cooking process and from contamination that occurred after cooking, e.g. if the food was stirred with a contaminated spoon.

Cooking to a pathogen-kill temperature (75°C or 70°C for 2 minutes) will destroy live cells of food-borne bacteria, but it will not destroy the spores of some food-borne pathogens when potentially hazardous food is left to cool too slowly, either at room temperature or in a fridge or coolroom. The spores of these pathogens can germinate and then multiply to dangerous levels.

- If cooling equipment is faulty, needs repair or replacement immediately inform management / maintenance and complete Maintenance Log;
- Discard food if any evidence or likelihood of contamination;
- Retrain staff if evidence of a lack of food safety skills or knowledge;
- Log corrective actions on the record used to record cooling (**Food Processing Record** or **Cooling Food Record)** or complete a **Corrective Action Record;**
- Optional: complete a **Discarded Food Record** for any bulk food discarded due to safety concerns.

Records for this Process

10.5 Food Processing Record

10.24 Corrective Action Record

Additional Optional Records

Optional:

10.8 Cooling Food Record

10.25 Discarded Food Log

10.1a Daily Consolidated Record – General Business

10.1b Daily Consolidated Record – Retail Outlet

Refer to Support Programs

7.14 Maintenance Program

Additional Information

Cooling

Potentially hazardous food needs to be cooled to 5°C or below as quickly as possible after cooking. The quicker that cooked potentially hazardous food is cooled the less opportunity pathogenic bacteria will have to grow.

Bacteria may be present in cooked food from spores that survived the cooking process and from contamination that occurred after cooking, e.g. if the food was stirred with a contaminated spoon.

Cooking to a pathogen-kill temperature (75°C or 70°C for 2 minutes) will destroy live cells of food-borne bacteria, but it will not destroy the spores of some food-borne pathogens when potentially hazardous food is left to cool too slowly, either at room temperature or in a fridge or coolroom. The spores of these pathogens can germinate and then multiply to dangerous levels.

- If cooling equipment is faulty, needs repair or replacement immediately inform management / maintenance and complete Maintenance Log;
- Discard food if any evidence or likelihood of contamination;
- Retrain staff if evidence of a lack of food safety skills or knowledge;
- Log corrective actions on the record used to record cooling (**Food Processing Record** or **Cooling Food Record)** or complete a **Corrective Action Record;**
- Optional: complete a **Discarded Food Record** for any bulk food discarded due to safety concerns.

Records for this Process

10.5 Food Processing Record

10.24 Corrective Action Record

Additional Optional Records

Optional:

10.8 Cooling Food Record

10.25 Discarded Food Log

10.1a Daily Consolidated Record – General Business

10.1b Daily Consolidated Record – Retail Outlet

Refer to Support Programs

7.14 Maintenance Program

Additional Information

Cooling

Potentially hazardous food needs to be cooled to 5°C or below as quickly as possible after cooking. The quicker that cooked potentially hazardous food is cooled the less opportunity pathogenic bacteria will have to grow.

Bacteria may be present in cooked food from spores that survived the cooking process and from contamination that occurred after cooking, e.g. if the food was stirred with a contaminated spoon.

Cooking to a pathogen-kill temperature (75°C or 70°C for 2 minutes) will destroy live cells of food-borne bacteria, but it will not destroy the spores of some food-borne pathogens when potentially hazardous food is left to cool too slowly, either at room temperature or in a fridge or coolroom. The spores of these pathogens can germinate and then multiply to dangerous levels.

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

- If cooling equipment is faulty, needs repair or replacement immediately inform management / maintenance and complete Maintenance Log;
- Discard food if any evidence or likelihood of contamination;
- Retrain staff if evidence of a lack of food safety skills or knowledge;
- Log corrective actions on the record used to record cooling (**Food Processing Record** or **Cooling Food Record)** or complete a **Corrective Action Record;**
- Optional: complete a **Discarded Food Record** for any bulk food discarded due to safety concerns.

Records for this Process

10.5 Food Processing Record

10.24 Corrective Action Record

Additional Optional Records

Optional:

10.8 Cooling Food Record

10.25 Discarded Food Log

10.1a Daily Consolidated Record – General Business

10.1b Daily Consolidated Record – Retail Outlet

Refer to Support Programs

7.14 Maintenance Program

Additional Information

Cooling

Potentially hazardous food needs to be cooled to 5°C or below as quickly as possible after cooking. The quicker that cooked potentially hazardous food is cooled the less opportunity pathogenic bacteria will have to grow.

Bacteria may be present in cooked food from spores that survived the cooking process and from contamination that occurred after cooking, e.g. if the food was stirred with a contaminated spoon.

Cooking to a pathogen-kill temperature (75°C or 70°C for 2 minutes) will destroy live cells of food-borne bacteria, but it will not destroy the spores of some food-borne pathogens when potentially hazardous food is left to cool too slowly, either at room temperature or in a fridge or coolroom. The spores of these pathogens can germinate and then multiply to dangerous levels.

- If cooling equipment is faulty, needs repair or replacement immediately inform management / maintenance and complete Maintenance Log;
- Discard food if any evidence or likelihood of contamination;
- Retrain staff if evidence of a lack of food safety skills or knowledge;
- Log corrective actions on the record used to record cooling (**Food Processing Record** or **Cooling Food Record)** or complete a **Corrective Action Record;**
- Optional: complete a **Discarded Food Record** for any bulk food discarded due to safety concerns.

Records for this Process

10.5 Food Processing Record

10.24 Corrective Action Record

Additional Optional Records

Optional:

10.8 Cooling Food Record

10.25 Discarded Food Log

10.1a Daily Consolidated Record – General Business

10.1b Daily Consolidated Record – Retail Outlet

Refer to Support Programs

7.14 Maintenance Program

Additional Information

Cooling

Potentially hazardous food needs to be cooled to 5°C or below as quickly as possible after cooking. The quicker that cooked potentially hazardous food is cooled the less opportunity pathogenic bacteria will have to grow.

Bacteria may be present in cooked food from spores that survived the cooking process and from contamination that occurred after cooking, e.g. if the food was stirred with a contaminated spoon.

Cooking to a pathogen-kill temperature (75°C or 70°C for 2 minutes) will destroy live cells of food-borne bacteria, but it will not destroy the spores of some food-borne pathogens when potentially hazardous food is left to cool too slowly, either at room temperature or in a fridge or coolroom. The spores of these pathogens can germinate and then multiply to dangerous levels.

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

Controls and Monitoring

1. Conventional Cooling

Conventional cooling means cooling potentially hazardous cooked food in a refrigerator or coolroom.

1. Divide large quantities of food into small portions and place in shallow containers;
2. Protect food from contamination while cooling. Where possible, loosely cover food to allow steam to escape and prevent condensation (Note: do not use tea towels or CHUX cloths to cover food);
3. Throughout the cooling process, monitor cooling times and check core food temperatures with a clean and sanitised probe thermometer to ensure that the Cooling Rule is met;

The Cooling Rule

60°C* to 21°C within two (**2**) hours, and then from **21°C to 5°C** within in the next four (**4**) hours

The cooling step can commence at temperatures above 60°C eg 67°C but the food must still cool to 21°C within the first 2 hour, so the closer to 60°C before you start documenting the process, the better.

4. Record cooling times and temperatures on the **Food Processing Record** or **Cooling Food Record** at the frequency stated on the Record;
5. Once food has stopped steaming, label the cooling food (e.g. the tray) with the product name and date. While food is cooling in the refrigerator or coolroom, it must be protected from contamination but does not need to be fully sealed until it has fully cooled.
6. Do not stack cooling containers on top of each other;
7. Continue to monitor and record cooling times and temperatures to check that the Cooling Rule is adhered to;

   Note: *If food cools to below 5°C within the first two hours, no further temperature checks are required.*

8. Once food has cooled to 5°C or below, fully cover food (eg with a lid or plastic wrap). Ensure all cooled food products are labelled with the product name and date labelled as per **7.17 Shelf Life of Foods.**

Important Note

If you will not be available to undertake the 2hr or further 4hr temperature checks, it is important that you arrange for the next shift to monitor and record the cooling times and temperatures on the **Food Processing Record** or **Cooling Food Record** at each specified interval.

9. If food is reheated within the cooling period and prior to reaching 5°C, record the time and temperature that cooling commenced and the time and temperature of the food at the beginning and end of reheating.

Hints & Tips

- If ice or ice bricks are used to speed up the cooling process, ensure that there is no risk of food contamination from the ice / ice bricks;
- Remember, cooling may take up to **6 hours in total**. Schedule cooking and cooling processes to ensure that there will be someone available to check cooling food times and temperatures.

WHAT IF FOOD DOES NOT COOL IN TIME?

- If food does not cool from 60°C - 21°C within the first 2 hours, the food cannot continue to be cooled for later use. It either needs to be discarded OR it can be reheated immediately (within one hour) to ≥75°C and either served immediately or hot held and served**.** Any remaining food must be discarded.
- If food does not cool from 21°C - 5°C within the subsequent 4 hours, it must be discarded.

2. Blast Chilling

Blast chillers enable potentially hazardous cooked foods to be chilled quickly, often to less than 5˚C within 1 ½ - 2 hours. The inside of the blast chiller must be kept clean and free of mould and other contaminants to prevent contamination of chilling food. If using a blast chiller:

1. Place food into a clean blast chiller as per manufacturer's instructions. If there are any delays between cooking and placing food into the blast chiller, ensure food is protected from contamination;
2. Do not use plastic wrap or foil to cover food when inside the blast chiller as this can be sucked into the fans, become shredded and then contaminate the food as a physical hazard;
3. Check the core food temperature with a clean and sanitised probe thermometer at or within 2 hrs of placing in the blast chiller.
4. Record the cooling time and temperature on the **Food Processing Record** or the **Cooling Food Record** (at the frequency stated on the Record);
5. If food cools to 5°C or less within the first two hours, no further temperature checks are required;
6. If food does not cool to 5°C or less within the first 2 hours, but is less than 21°C, continue to monitor the food to ensure it cools to 5°C or less within the next 4 hours.

Corrective Actions

- Report non-conformances and any concerns about food safety or suitability to the Food Safety Supervisor;
- If potentially hazardous food does not cool from 60°C to 21°C within the initial 2 hours, discard food OR reheat immediately (within one hour) to ≥75°C and either serve immediately or hot hold and serve. Discard any remaining food.
- If potentially hazardous food does not cool from 21°C to 5°C within the subsequent 4 hours, discard food;

- If cooling equipment is faulty, needs repair or replacement immediately inform management / maintenance and complete Maintenance Log;
- Discard food if any evidence or likelihood of contamination;
- Retrain staff if evidence of a lack of food safety skills or knowledge;
- Log corrective actions on the record used to record cooling (**Food Processing Record** or **Cooling Food Record)** or complete a **Corrective Action Record;**
- Optional: complete a **Discarded Food Record** for any bulk food discarded due to safety concerns.

Records for this Process

10.5 Food Processing Record

10.24 Corrective Action Record

Additional Optional Records

Optional:

10.8 Cooling Food Record

10.25 Discarded Food Log

10.1a Daily Consolidated Record – General Business

10.1b Daily Consolidated Record – Retail Outlet

Refer to Support Programs

7.14 Maintenance Program

Additional Information

Cooling

Potentially hazardous food needs to be cooled to 5°C or below as quickly as possible after cooking. The quicker that cooked potentially hazardous food is cooled the less opportunity pathogenic bacteria will have to grow.

Bacteria may be present in cooked food from spores that survived the cooking process and from contamination that occurred after cooking, e.g. if the food was stirred with a contaminated spoon.

Cooking to a pathogen-kill temperature (75°C or 70°C for 2 minutes) will destroy live cells of food-borne bacteria, but it will not destroy the spores of some food-borne pathogens when potentially hazardous food is left to cool too slowly, either at room temperature or in a fridge or coolroom. The spores of these pathogens can germinate and then multiply to dangerous levels.

- If cooling equipment is faulty, needs repair or replacement immediately inform management / maintenance and complete Maintenance Log;
- Discard food if any evidence or likelihood of contamination;
- Retrain staff if evidence of a lack of food safety skills or knowledge;
- Log corrective actions on the record used to record cooling (**Food Processing Record** or **Cooling Food Record)** or complete a **Corrective Action Record;**
- Optional: complete a **Discarded Food Record** for any bulk food discarded due to safety concerns.

Records for this Process

10.5 Food Processing Record

10.24 Corrective Action Record

Additional Optional Records

Optional:

10.8 Cooling Food Record

10.25 Discarded Food Log

10.1a Daily Consolidated Record – General Business

10.1b Daily Consolidated Record – Retail Outlet

Refer to Support Programs

7.14 Maintenance Program

Additional Information

Cooling

Potentially hazardous food needs to be cooled to 5°C or below as quickly as possible after cooking. The quicker that cooked potentially hazardous food is cooled the less opportunity pathogenic bacteria will have to grow.

Bacteria may be present in cooked food from spores that survived the cooking process and from contamination that occurred after cooking, e.g. if the food was stirred with a contaminated spoon.

Cooking to a pathogen-kill temperature (75°C or 70°C for 2 minutes) will destroy live cells of food-borne bacteria, but it will not destroy the spores of some food-borne pathogens when potentially hazardous food is left to cool too slowly, either at room temperature or in a fridge or coolroom. The spores of these pathogens can germinate and then multiply to dangerous levels.

- If cooling equipment is faulty, needs repair or replacement immediately inform management / maintenance and complete Maintenance Log;
- Discard food if any evidence or likelihood of contamination;
- Retrain staff if evidence of a lack of food safety skills or knowledge;
- Log corrective actions on the record used to record cooling (**Food Processing Record** or **Cooling Food Record)** or complete a **Corrective Action Record;**
- Optional: complete a **Discarded Food Record** for any bulk food discarded due to safety concerns.

Records for this Process

10.5 Food Processing Record

10.24 Corrective Action Record

Additional Optional Records

Optional:

10.8 Cooling Food Record

10.25 Discarded Food Log

10.1a Daily Consolidated Record – General Business

10.1b Daily Consolidated Record – Retail Outlet

Refer to Support Programs

7.14 Maintenance Program

Additional Information

Cooling

Potentially hazardous food needs to be cooled to 5°C or below as quickly as possible after cooking. The quicker that cooked potentially hazardous food is cooled the less opportunity pathogenic bacteria will have to grow.

Bacteria may be present in cooked food from spores that survived the cooking process and from contamination that occurred after cooking, e.g. if the food was stirred with a contaminated spoon.

Cooking to a pathogen-kill temperature (75°C or 70°C for 2 minutes) will destroy live cells of food-borne bacteria, but it will not destroy the spores of some food-borne pathogens when potentially hazardous food is left to cool too slowly, either at room temperature or in a fridge or coolroom. The spores of these pathogens can germinate and then multiply to dangerous levels.

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

- If cooling equipment is faulty, needs repair or replacement immediately inform management / maintenance and complete Maintenance Log;
- Discard food if any evidence or likelihood of contamination;
- Retrain staff if evidence of a lack of food safety skills or knowledge;
- Log corrective actions on the record used to record cooling (**Food Processing Record** or **Cooling Food Record)** or complete a **Corrective Action Record;**
- Optional: complete a **Discarded Food Record** for any bulk food discarded due to safety concerns.

Records for this Process

10.5 Food Processing Record

10.24 Corrective Action Record

Additional Optional Records

Optional:

10.8 Cooling Food Record

10.25 Discarded Food Log

10.1a Daily Consolidated Record – General Business

10.1b Daily Consolidated Record – Retail Outlet

Refer to Support Programs

7.14 Maintenance Program

Additional Information

Cooling

Potentially hazardous food needs to be cooled to 5°C or below as quickly as possible after cooking. The quicker that cooked potentially hazardous food is cooled the less opportunity pathogenic bacteria will have to grow.

Bacteria may be present in cooked food from spores that survived the cooking process and from contamination that occurred after cooking, e.g. if the food was stirred with a contaminated spoon.

Cooking to a pathogen-kill temperature (75°C or 70°C for 2 minutes) will destroy live cells of food-borne bacteria, but it will not destroy the spores of some food-borne pathogens when potentially hazardous food is left to cool too slowly, either at room temperature or in a fridge or coolroom. The spores of these pathogens can germinate and then multiply to dangerous levels.

- If cooling equipment is faulty, needs repair or replacement immediately inform management / maintenance and complete Maintenance Log;
- Discard food if any evidence or likelihood of contamination;
- Retrain staff if evidence of a lack of food safety skills or knowledge;
- Log corrective actions on the record used to record cooling (**Food Processing Record** or **Cooling Food Record)** or complete a **Corrective Action Record;**
- Optional: complete a **Discarded Food Record** for any bulk food discarded due to safety concerns.

Records for this Process

10.5 Food Processing Record

10.24 Corrective Action Record

Additional Optional Records

Optional:

10.8 Cooling Food Record

10.25 Discarded Food Log

10.1a Daily Consolidated Record – General Business

10.1b Daily Consolidated Record – Retail Outlet

Refer to Support Programs

7.14 Maintenance Program

Additional Information

Cooling

Potentially hazardous food needs to be cooled to 5°C or below as quickly as possible after cooking. The quicker that cooked potentially hazardous food is cooled the less opportunity pathogenic bacteria will have to grow.

Bacteria may be present in cooked food from spores that survived the cooking process and from contamination that occurred after cooking, e.g. if the food was stirred with a contaminated spoon.

Cooking to a pathogen-kill temperature (75°C or 70°C for 2 minutes) will destroy live cells of food-borne bacteria, but it will not destroy the spores of some food-borne pathogens when potentially hazardous food is left to cool too slowly, either at room temperature or in a fridge or coolroom. The spores of these pathogens can germinate and then multiply to dangerous levels.

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

4.10 Cooling of Food

Overview

This step applies to the cooling of potentially hazardous foods that have been fully or partially cooked on site.

The cooling step technically commences once the cooling food reaches 60°C (the temperature danger zone) and ceases once the cooling food reaches 5°C (out of the temperature danger zone). It is essential that food that has been cooked or partially cooked is chilled as quickly as possible to reduce the opportunity for any remaining pathogenic bacteria to grow. Some bacteria produce spores which can survive the cooking process. If cooked food is not cooled quickly enough, these spores can germinate, grow and produce toxins in the food while it is in the temperature danger zone. Cooked food can also become contaminated during the cooling process from dirty stirring utensils, trays and unhygienic practices by food handlers.

Legislation

Food Standards Code 3.2.2 (Division 3)

7. Food Processing

A food business must, when cooling cooked potentially hazardous food, cool the food:

a) within two hours - from 60°C to 21°C; and

b) Within a further four hours – from 21°C to 5°C.

What are the Hazards?

- **Microbiological Growth of Pathogens** if potentially hazardous food is not cooled quickly enough, allowing any spore-forming pathogens, that survived the cooking process, e.g. *Clostridium perfringens* to germinate, grow and produce toxins;
- **Microbiological, Physical, Chemical and Allergen Contamination** from unclean equipment and utensils, or if food is not adequately protected during the cooling process.

Important Note

The initial drop in temperature from 60°C to 21°C must be faster than the second drop from 21°C to 5°C. This is because the optimum temperature for the growth of food-borne bacteria is between 43°C - 47°C[1].

[1] SAFE FOOD AUSTRALIA, A Guide to the Food Safety Standards, Chapter 3 of the Australia New Zealand Food Standards Code (Australia only) (2016), Food Standards Australia New Zealand, p139

Controls and Monitoring

1. Conventional Cooling

Conventional cooling means cooling potentially hazardous cooked food in a refrigerator or coolroom.

1. Divide large quantities of food into small portions and place in shallow containers;
2. Protect food from contamination while cooling. Where possible, loosely cover food to allow steam to escape and prevent condensation (Note: do not use tea towels or CHUX cloths to cover food);
3. Throughout the cooling process, monitor cooling times and check core food temperatures with a clean and sanitised probe thermometer to ensure that the Cooling Rule is met;

The Cooling Rule

60°C* to 21°C within two (**2**) hours, and then from **21°C to 5°C** within in the next four (**4**) hours

The cooling step can commence at temperatures above 60°C eg 67°C but the food must still cool to 21°C within the first 2 hour, so the closer to 60°C before you start documenting the process, the better.

4. Record cooling times and temperatures on the **Food Processing Record** or **Cooling Food Record** at the frequency stated on the Record;
5. Once food has stopped steaming, label the cooling food (e.g. the tray) with the product name and date. While food is cooling in the refrigerator or coolroom, it must be protected from contamination but does not need to be fully sealed until it has fully cooled.
6. Do not stack cooling containers on top of each other;
7. Continue to monitor and record cooling times and temperatures to check that the Cooling Rule is adhered to;

   Note: *If food cools to below 5°C within the first two hours, no further temperature checks are required.*

8. Once food has cooled to 5°C or below, fully cover food (eg with a lid or plastic wrap). Ensure all cooled food products are labelled with the product name and date labelled as per **7.17 Shelf Life of Foods.**

Important Note

If you will not be available to undertake the 2hr or further 4hr temperature checks, it is important that you arrange for the next shift to monitor and record the cooling times and temperatures on the **Food Processing Record** or **Cooling Food Record** at each specified interval.

9. If food is reheated within the cooling period and prior to reaching 5°C, record the time and temperature that cooling commenced and the time and temperature of the food at the beginning and end of reheating.

Hints & Tips

- If ice or ice bricks are used to speed up the cooling process, ensure that there is no risk of food contamination from the ice / ice bricks;
- Remember, cooling may take up to **6 hours in total**. Schedule cooking and cooling processes to ensure that there will be someone available to check cooling food times and temperatures.

WHAT IF FOOD DOES NOT COOL IN TIME?

- If food does not cool from 60°C - 21°C within the first 2 hours, the food cannot continue to be cooled for later use. It either needs to be discarded OR it can be reheated immediately (within one hour) to ≥75°C and either served immediately or hot held and served**.** Any remaining food must be discarded.
- If food does not cool from 21°C - 5°C within the subsequent 4 hours, it must be discarded.

2. Blast Chilling

Blast chillers enable potentially hazardous cooked foods to be chilled quickly, often to less than 5˚C within 1 ½ - 2 hours. The inside of the blast chiller must be kept clean and free of mould and other contaminants to prevent contamination of chilling food. If using a blast chiller:

1. Place food into a clean blast chiller as per manufacturer's instructions. If there are any delays between cooking and placing food into the blast chiller, ensure food is protected from contamination;
2. Do not use plastic wrap or foil to cover food when inside the blast chiller as this can be sucked into the fans, become shredded and then contaminate the food as a physical hazard;
3. Check the core food temperature with a clean and sanitised probe thermometer at or within 2 hrs of placing in the blast chiller.
4. Record the cooling time and temperature on the **Food Processing Record** or the **Cooling Food Record** (at the frequency stated on the Record);
5. If food cools to 5°C or less within the first two hours, no further temperature checks are required;
6. If food does not cool to 5°C or less within the first 2 hours, but is less than 21°C, continue to monitor the food to ensure it cools to 5°C or less within the next 4 hours.

Corrective Actions

- Report non-conformances and any concerns about food safety or suitability to the Food Safety Supervisor;
- If potentially hazardous food does not cool from 60°C to 21°C within the initial 2 hours, discard food OR reheat immediately (within one hour) to ≥75°C and either serve immediately or hot hold and serve. Discard any remaining food.
- If potentially hazardous food does not cool from 21°C to 5°C within the subsequent 4 hours, discard food;

- If cooling equipment is faulty, needs repair or replacement immediately inform management / maintenance and complete Maintenance Log;
- Discard food if any evidence or likelihood of contamination;
- Retrain staff if evidence of a lack of food safety skills or knowledge;
- Log corrective actions on the record used to record cooling (**Food Processing Record** or **Cooling Food Record)** or complete a **Corrective Action Record;**
- Optional: complete a **Discarded Food Record** for any bulk food discarded due to safety concerns.

Records for this Process

10.5 Food Processing Record

10.24 Corrective Action Record

Additional Optional Records

Optional:

10.8 Cooling Food Record

10.25 Discarded Food Log

10.1a Daily Consolidated Record – General Business

10.1b Daily Consolidated Record – Retail Outlet

Refer to Support Programs

7.14 Maintenance Program

Additional Information

Cooling

Potentially hazardous food needs to be cooled to 5°C or below as quickly as possible after cooking. The quicker that cooked potentially hazardous food is cooled the less opportunity pathogenic bacteria will have to grow.

Bacteria may be present in cooked food from spores that survived the cooking process and from contamination that occurred after cooking, e.g. if the food was stirred with a contaminated spoon.

Cooking to a pathogen-kill temperature (75°C or 70°C for 2 minutes) will destroy live cells of food-borne bacteria, but it will not destroy the spores of some food-borne pathogens when potentially hazardous food is left to cool too slowly, either at room temperature or in a fridge or coolroom. The spores of these pathogens can germinate and then multiply to dangerous levels.

- If cooling equipment is faulty, needs repair or replacement immediately inform management / maintenance and complete Maintenance Log;
- Discard food if any evidence or likelihood of contamination;
- Retrain staff if evidence of a lack of food safety skills or knowledge;
- Log corrective actions on the record used to record cooling (**Food Processing Record** or **Cooling Food Record)** or complete a **Corrective Action Record;**
- Optional: complete a **Discarded Food Record** for any bulk food discarded due to safety concerns.

Records for this Process

10.5 Food Processing Record

10.24 Corrective Action Record

Additional Optional Records

Optional:

10.8 Cooling Food Record

10.25 Discarded Food Log

10.1a Daily Consolidated Record – General Business

10.1b Daily Consolidated Record – Retail Outlet

Refer to Support Programs

7.14 Maintenance Program

Additional Information

Cooling

Potentially hazardous food needs to be cooled to 5°C or below as quickly as possible after cooking. The quicker that cooked potentially hazardous food is cooled the less opportunity pathogenic bacteria will have to grow.

Bacteria may be present in cooked food from spores that survived the cooking process and from contamination that occurred after cooking, e.g. if the food was stirred with a contaminated spoon.

Cooking to a pathogen-kill temperature (75°C or 70°C for 2 minutes) will destroy live cells of food-borne bacteria, but it will not destroy the spores of some food-borne pathogens when potentially hazardous food is left to cool too slowly, either at room temperature or in a fridge or coolroom. The spores of these pathogens can germinate and then multiply to dangerous levels.

- If cooling equipment is faulty, needs repair or replacement immediately inform management / maintenance and complete Maintenance Log;
- Discard food if any evidence or likelihood of contamination;
- Retrain staff if evidence of a lack of food safety skills or knowledge;
- Log corrective actions on the record used to record cooling (**Food Processing Record** or **Cooling Food Record)** or complete a **Corrective Action Record;**
- Optional: complete a **Discarded Food Record** for any bulk food discarded due to safety concerns.

Records for this Process

10.5 Food Processing Record

10.24 Corrective Action Record

Additional Optional Records

Optional:

10.8 Cooling Food Record

10.25 Discarded Food Log

10.1a Daily Consolidated Record – General Business

10.1b Daily Consolidated Record – Retail Outlet

Refer to Support Programs

7.14 Maintenance Program

Additional Information

Cooling

Potentially hazardous food needs to be cooled to 5°C or below as quickly as possible after cooking. The quicker that cooked potentially hazardous food is cooled the less opportunity pathogenic bacteria will have to grow.

Bacteria may be present in cooked food from spores that survived the cooking process and from contamination that occurred after cooking, e.g. if the food was stirred with a contaminated spoon.

Cooking to a pathogen-kill temperature (75°C or 70°C for 2 minutes) will destroy live cells of food-borne bacteria, but it will not destroy the spores of some food-borne pathogens when potentially hazardous food is left to cool too slowly, either at room temperature or in a fridge or coolroom. The spores of these pathogens can germinate and then multiply to dangerous levels.

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

- If cooling equipment is faulty, needs repair or replacement immediately inform management / maintenance and complete Maintenance Log;
- Discard food if any evidence or likelihood of contamination;
- Retrain staff if evidence of a lack of food safety skills or knowledge;
- Log corrective actions on the record used to record cooling (**Food Processing Record** or **Cooling Food Record)** or complete a **Corrective Action Record;**
- Optional: complete a **Discarded Food Record** for any bulk food discarded due to safety concerns.

Records for this Process

10.5 Food Processing Record

10.24 Corrective Action Record

Additional Optional Records

Optional:

10.8 Cooling Food Record

10.25 Discarded Food Log

10.1a Daily Consolidated Record – General Business

10.1b Daily Consolidated Record – Retail Outlet

Refer to Support Programs

7.14 Maintenance Program

Additional Information

Cooling

Potentially hazardous food needs to be cooled to 5°C or below as quickly as possible after cooking. The quicker that cooked potentially hazardous food is cooled the less opportunity pathogenic bacteria will have to grow.

Bacteria may be present in cooked food from spores that survived the cooking process and from contamination that occurred after cooking, e.g. if the food was stirred with a contaminated spoon.

Cooking to a pathogen-kill temperature (75°C or 70°C for 2 minutes) will destroy live cells of food-borne bacteria, but it will not destroy the spores of some food-borne pathogens when potentially hazardous food is left to cool too slowly, either at room temperature or in a fridge or coolroom. The spores of these pathogens can germinate and then multiply to dangerous levels.

The University Of Queensland
AUSTRALIA

CREATE CHANGE

Australian Institute for Business and Economics
Centre for Gender Equality in the Workplace

Hands up for Gender Equality: A Major Study into Confidence and Career Intentions of Adolescent Girls and Boys

THE UNIVERSITY OF QUEENSLAND
AUSTRALIA
CREATE CHANGE

AUSTRALIAN GENDER EQUALITY COUNCIL
working for balance

Towards encouraging the use and citation of the report it should be referenced as:

Fitzsimmons, T.W., Yates, M. S., & Callan, V. (2018). Hands Up for Gender Equality: A Major Study into Confidence and Career Intentions of Adolescent Girls and Boys. Brisbane, Qld: AIBE Centre for Gender Equality in the Workplace – The University of Queensland.

Provided in Table 6 below is the number of girls and boys who indicated spending time without adult supervision undertaking activities in their daily lives. Overall, 82.20% of boys surveyed reported engaging in activities that were unsupervised by adults, relative to 79.20% of girls that were surveyed. While there is a slight difference between boys and girls with regard to levels of adult supervision, these figures indicate that relative to past studies (Fitzsimmons, 2011), girls today are being granted more unsupervised time than in previous generations. Nonetheless, it is possible that the difference observed may indicate that boys are still subject to slightly less adult scrutiny than girls.

Table 6: Frequency of Boys and Girls who Report Unsupervised Activities

Gender	Supervision of Activities	N
Boys	Yes	2820
	No	610
Girls	Yes	4234
	No	1114

Note: Total number of respondents: Girls = 5348, Boys = 3430.

Building Responsibility & Leadership Capability in Students

Chores at Home

Chores at home were identified as a key factor that helped to promote the development of skills, capabilities and autonomy in the childhoods of female CEOs (Fitzsimmons, 2011). Importantly, past research has also shown that boys and girls receive disparate pocket money (Westpac, 2015; Heritage Bank, 2015) for these chores. Given the value of chores for childhood development, combined with the inequality in pocket money evidenced in past research, we were interested to explore the types of chores that boys and girls reported doing within their homes.

Our student sample nominated a range of different chores they were responsible for and these included: sweeping, mopping, vacuuming or dusting certain areas of their homes, different aspects of laundry or assisting with home maintenance like mowing, raking or tending to gardens.

Provided below in Figure 13 is the frequency of responses from boys and girls regarding the amount of time they spend undertaking chores at home.

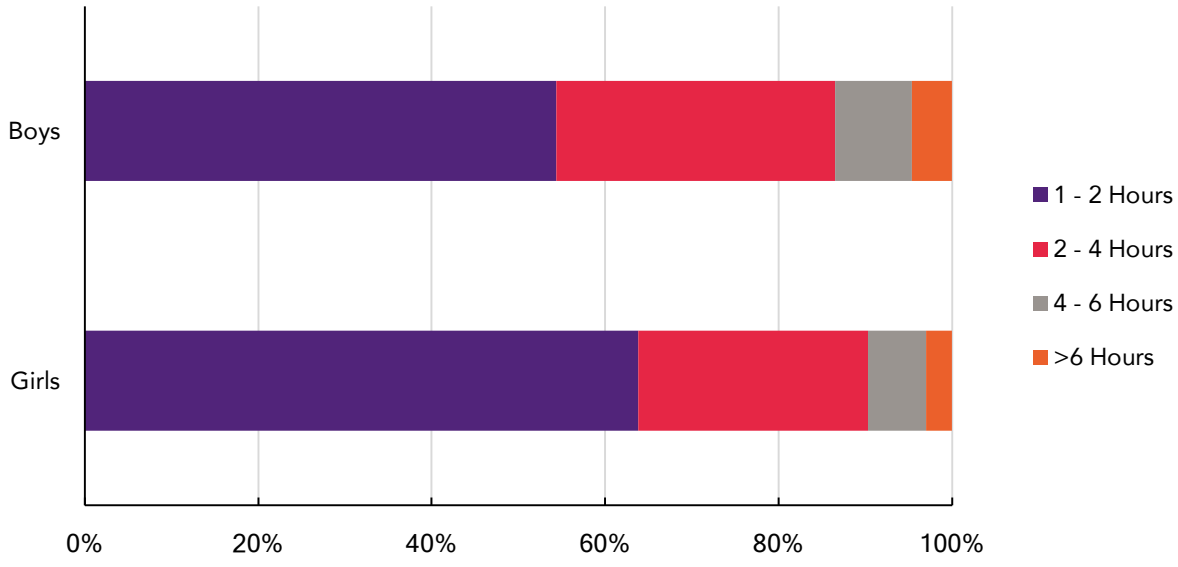


Figure 13: Frequency of Responses to Time Spent on Chores

When we compared the amount of time that boys and girls spend completing chores, there was a clear and significant difference.

Results show there was a significant difference between boys and girls in the amount of time they reported engaging in chores, with boys reporting a greater amount of time spent on chores relative to girls (Girls: M = 1.49; Boys: M = 1.64, see Figure 14).

Noting that these numbers relate to categories of time (e.g., 1-2hrs, 2-4hrs etc.), while we cannot state the exact number of minutes that boys and girls engage in chores, it is clear that boys are spending more time (this is also substantiated by the percentage of boys who reported spending 4-6 Hours and >6 Hours, respectively in Figure 15 below). Combined with the indoor/outdoor disparity discussed earlier, perhaps the outdoor chores that boys are undertaking require greater time dedicated to completion.

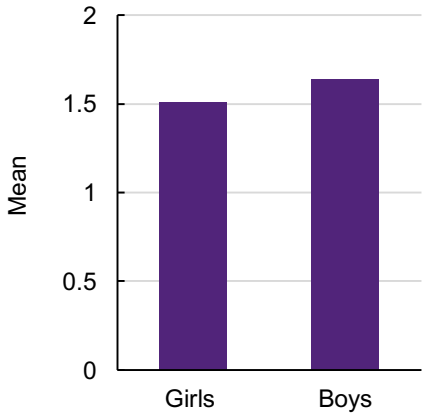


Figure 14: Time Spent on Chores by Students

Figure 15 below, shows that undertaking chores in the home contributes to greater self-confidence in children where they undertake 1-5 hours of chores. The effect begins to decline with 6 hours or more of chores.

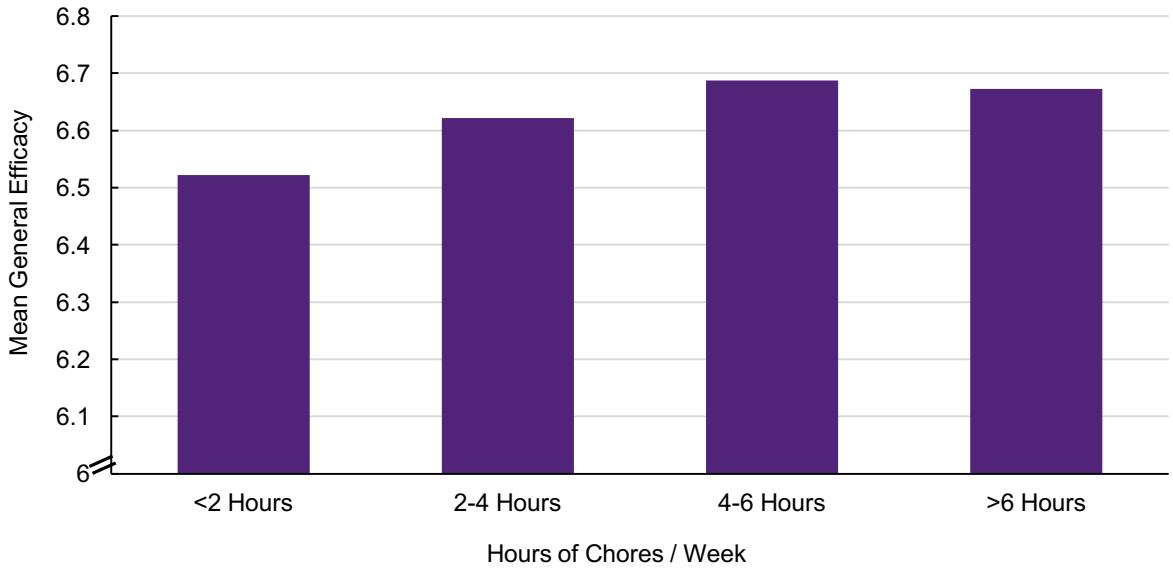


Figure 15: Mean General Efficacy as a Function of Hours on Chores/Week

On balance, there were a range of activities reported by both boys and girls that on first glance seemed equivalent in description. On closer examination however, interesting patterns emerged. When responses were coded with >50% of chores named outside the home (-1) versus >50% of chores named inside the home (1), there was a significant difference observed between boys and girls (See Figure 16). In fact, girls in our sample were significantly more likely than boys to report the majority of their chores being concentrated inside the home.

Interestingly, while the chores boys reported were not necessarily completely concentrated outside (as indicated by the positive valence of scores across the age span), there was a tendency for their responses to include both chores inside and outside the home. This net gender effect is clear in the qualitative responses where boys spoke of chores being focused solely on activities outside the home (e.g., washing cars, cleaning the boat, mowing the lawn, etc.), whereas girls' responses largely contained a majority of indoor activities (e.g., vacuuming, mopping, doing the dishes, caring for siblings, etc.).

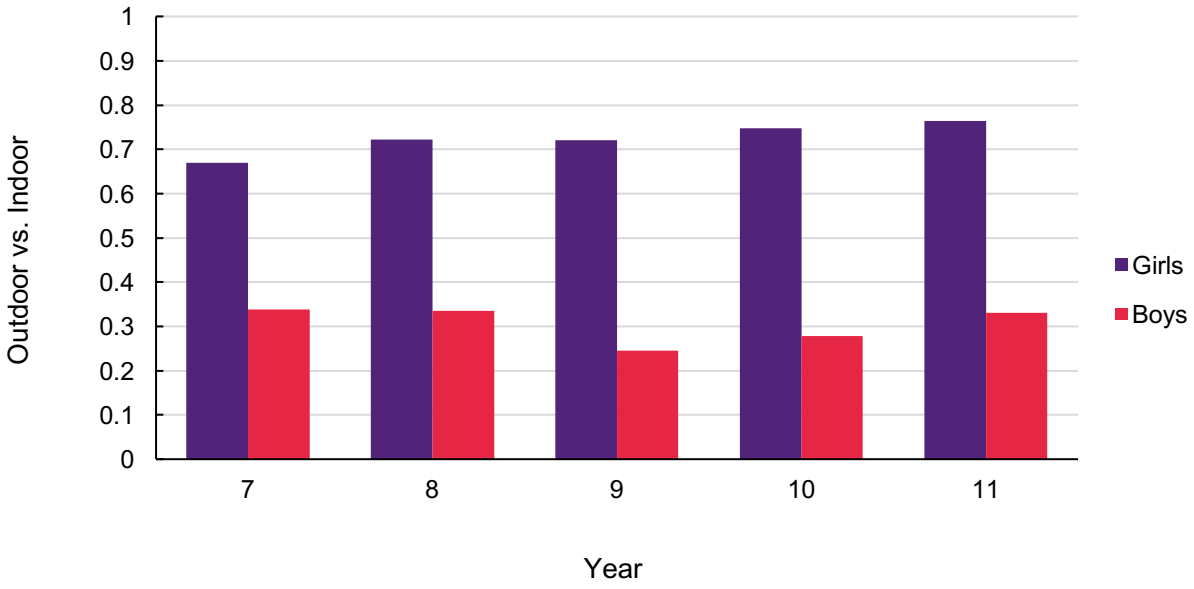


Figure 16: Proportion of Chores Inside vs Outside the Home

This may, at face value, seem like a trivial detail to focus our attention on. However, we know that from much of the leadership literature, and gender role attitude literatures, that internalised beliefs about 'what men should do' and 'how women should behave' do indeed translate into downstream career outcomes via a range of different mechanisms and processes within workplaces. Where boys and girls develop gendered understandings of the tasks and responsibilities that each should engage with through the chores they are assigned during adolescence, this would suggest greater compliance with these gender rules moving into adulthood.

Likewise, coupled with data from the Westpac (2016) and Heritage Bank (2015) pocket money surveys, the identified pocket money gender pay gap of 27% may relate to boys being paid more because they engage in the 'more physical' outdoor chores. Again, this sets up expectations about the value of work and the potentially tacit acceptance of the gender pay gap later in life.

Finally, there was also evidence of an effect of age on time reported undertaking chores. Illustrated in Figure 17, there is a spike in the time spent doing chores for students in Year 8, though this decreased significantly between Years 9 and 10 coinciding with the increasing time and dedication required within senior schooling.

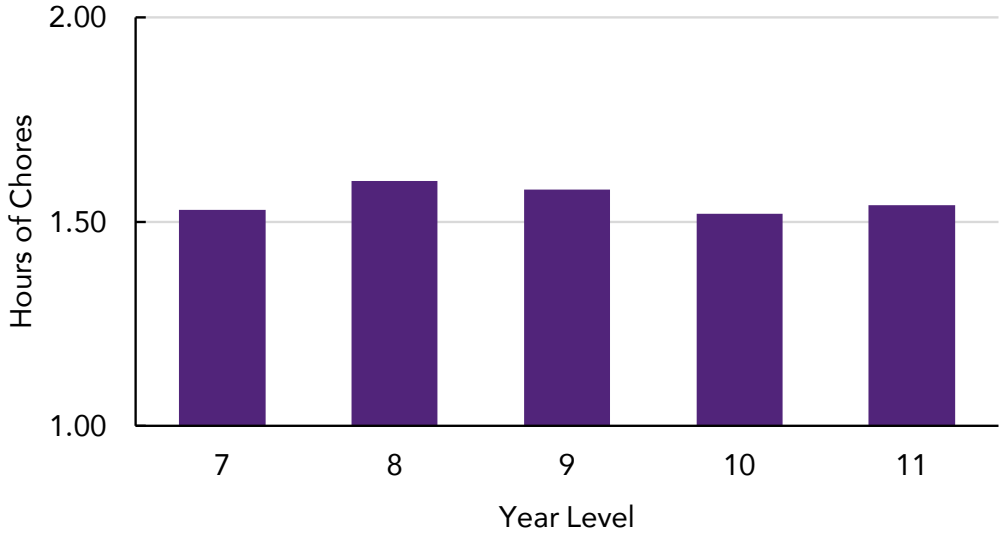


Figure 17: Time Spent on Chores across Years 7 – 11

Time Spent on Studying

The study habits of boys and girls within our sample were also discussed within the survey. Students were asked to indicate whether they had access to a dedicated study space at home (see Table 7 below) and the amount of time they spent studying each week (see Figure 18 below). Overall, 93.20% of girls sampled had access to a dedicated study space relative to 89.20% of boys surveyed.

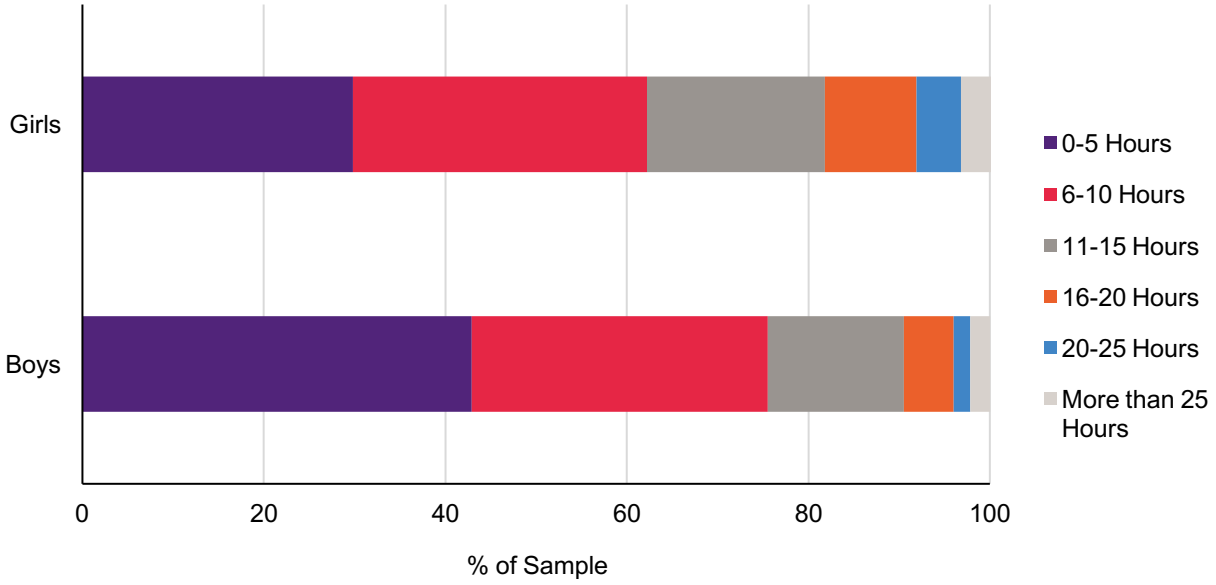
Table 7: Dedicated study space available

Gender	Study Space	N
Boys	Yes	3082
	No	375
Girls	Yes	5049
	No	368

Note: Samples size for Boys = 3457, Girls = 5417.

To understand the differences between boys and girls in study habits, we computed the frequency of responses (see Figure 18.) to average time spent studying by both boys and girls and explored the mean differences between each. Represented below in Figure 18., the results suggest there are differing studying habits between boys and girls.[18]

18 To measure the difference in study habits between boys and girls, responses to the hours of study were treated as nominal data. As a result, we cannot state the difference between boys and girls in hours, however we can show clear differences particularly when evaluating the frequency of responses to each category (as represented in Figure X.). The categories that sit behind our nominal variable are: 1 = 0-5 hours; 2 = 6-10 hours; 3 = 11-15 hours; 4 = 16-20 hours; 5 = 20-25 hours, and; 6=>25 hours.



Sample size: Boys = 3474; Girls = 5438

Figure 18: Proportion of Boys and Girls who Reported Weekly Studying Habits

As shown in Figure 19 (below), **girls spend significantly more time engaged in study than boys at all ages and the difference increases with age**. While the size of the difference is strong, these results are not surprising and align with the proportion of women emerging as degree qualified workers relative to men over the past 40 years. Women have exceeded men in graduating from university since 1985. At present 31.4% of women over 20 years old hold a bachelor's degree or higher relative to only 24.4% of men (ABS, 2018).

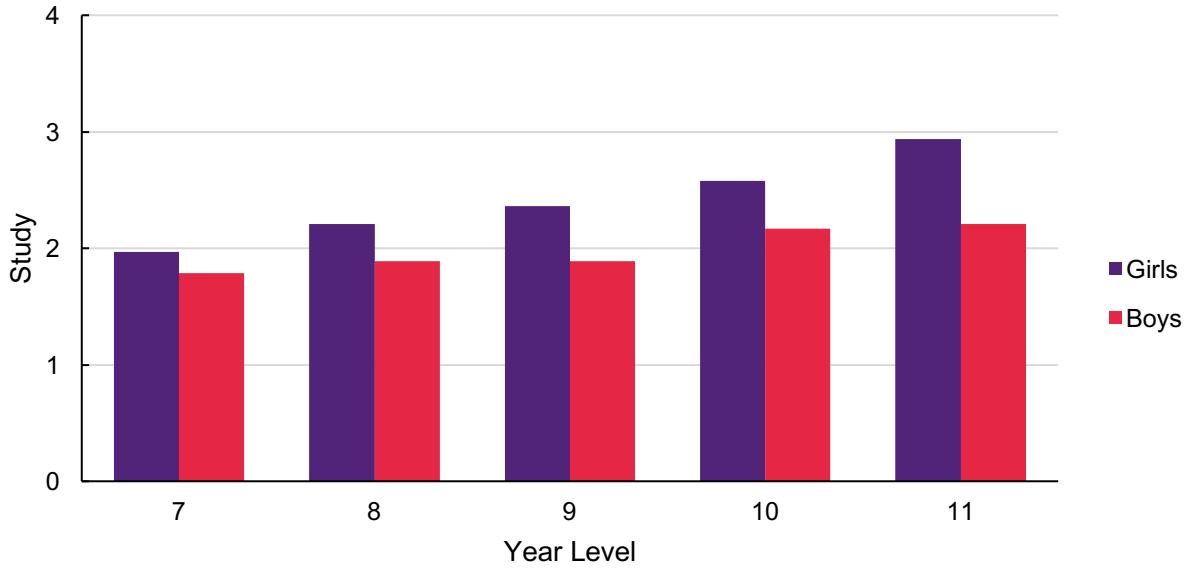


Figure 19: Studying Habits of Boys and Girls at each Year Level

Part-Time Work

Managing part-time work alongside schooling requirements throughout adolescence affords girls and boys the opportunity to develop a wide range of skills and capabilities (e.g., time-management, effectively prioritising of competing demands, inter-personal skills, knowledge of the work environment etc.). We identified that when students hold a part-time job, they are significantly more socially confident relative to their jobless peers[19]. That is to say, having a part-time job informs the extent to which students are able to work in a team, interpersonally relate to others and make new friends, for example.

Importantly, **the positive benefits of part-time work on social confidence were consistent for boys and girls across all ages**. Overall, having a part time job was more important to social confidence than were age related developments in social confidence. Nevertheless, Table 8 below, shows that having a part-time job was less common for this sample overall with the majority of students not engaging in part-time jobs outside of school.

Table 8: Average Social Efficacy for Part-Time Job Holders

Age	Part-Time Job	Mean	SD	N
7	No	6.63	1.40	1855
	Yes	6.67	1.36	168
8	No	6.37	1.43	1737
	Yes	6.61	1.30	249
9	No	6.32	1.37	1235
	Yes	6.60	1.33	393
10	No	6.19	1.40	1076
	Yes	6.36	1.35	527
11	No	6.25	1.37	914
	Yes	6.54	1.31	671

Note: This table is entirely for illustrative purposes. There were no significant differences in social efficacy outcomes on the basis of age. There was a positive net effect of having a part-time job on self-efficacy outcomes reported.

The net positive effect of having a part-time job (vs. not) on social self-efficacy evaluations is represented in Figure 20 below. Importantly, we recognise that not all students may have the opportunity to engage with part-time work. Nevertheless, there remains some relationship between social efficacy and part-time work that if replicable in alternate contexts, may offer adolescents supplementary pathways to growing their skill base and confidence here.

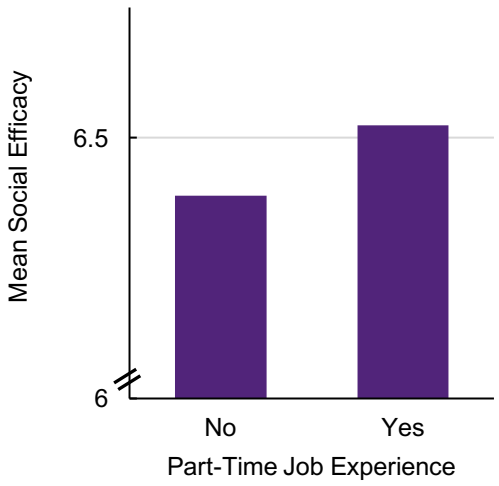


Figure 20: Social Efficacy as a Function of Part-Time Work Experience

19 Students who held part-time jobs also reported higher overall efficacy however this effect was largely driven by social efficacy improvements (by virtue of this being a composite measure). Within the model tested, we obtained the following results on the measure of Social Efficacy, Gender: F (1,8823) = .37, p = 544, η^2 < .001: boys (M = 6.41); girls (M = 6.43); Year Level: F (4,8803) = 7.76, p <.001, η^2= .004: Year 7 (M = 6.63); Year 8 (M = 6.40); Year 9 (M = 6.39); Year 10 (M = 6.25); Year 11 (M = 6.37); Part Time Job: : F (1,8823) = 25.51, p< .001, η^2 = .003: Yes (M = 6.52); No (M = 6.39). No significant interaction effects identified.

Travel (State, National and International)

Travel of all types is an important contributor to broadening cultural awareness, independence and problem solving for adolescents (Gardiner & Kwek, 2017). We asked boys and girls within our sample to indicate the extent to which they had travelled within Queensland, throughout Australia and internationally. Results show that the larger portion of our students had travelled recently, though girls reported travelling nationally and internationally, more than boys and these differences were significant (see Table 9 below)[20].

As discussed above, the study also modelled the relative contribution of each of these activities towards the formation of self-confidence. **Of all of the activities examined, intra and inter-state travel, both in the form of excursions and family holidays showed the greatest positive effect upon self-confidence**. It is likely that intra-state travel, particularly on family holidays allows a high degree of unsupervised freedom to explore new environments and meet new people. These are factors that are well researched as providing positive contributions to the development of self-confidence (Bandura, 1995; 1997).

Table 9: State, National and International Travel Frequency of Boys & Girls

Travel Type	Girls	Boys
Intrastate	91.20%	91.10%
Interstate	74.70%	70.40%
Overseas	59.50%	54.20%

Data were further examined to produce the frequency of responses to each travel type for each year level we surveyed (See Table 10 below). Across the sample of boys and girls, international travel was the least frequent of all forms across all year levels. One noteworthy result is that of Year 11s, of whom 61.90% reported travelling overseas within the past 12 months. This may be a reflection of school-based exchange programs that students take part in or other mechanisms through which students travel overseas (e.g., family, extended family, extra-curricular activities). There is also little doubt that the higher socio-economic demographic represented by top matriculating single-sex school students is a significant contributor to this high percentage.

Table 10: Number of Students by Grade Level and Travel Type

Age	Travel	Intrastate	Interstate	International
7	Yes	1704	1382	1039
	No	172	476	801
8	Yes	1691	1352	963
	No	157	472	838
9	Yes	1377	1085	848
	No	120	386	640
10	Yes	1350	1065	892
	No	150	415	613
11	Yes	1359	1023	928
	No	125	432	572

Across all year levels, intrastate travel was the most common, ranging from 90.00% (Year 10s) to 92.00% (Year 9s) who reportedly travelled outside of Brisbane but within Queensland in the past twelve months. Rates of interstate travel within our sample ranged from 70.30% (Year 11s) to 74.40% (Year 7s). Overseas travel was least frequent, ranging from 53.50% (Year 8s) to 61.90% (Year 11s).

20 This percentage refers to the portion of total valid responses to each question. Interstate: $t(8128)=-4.35$, $p<.001$, boys: $M=.41$, $SD=.91$ and girls: $M=.49$, $SD=.87$; International: $t(8175)=-4.74$, $p<.001$, boys: $M=.08$, $SD=1.00$ and girls: $M=.19$, $SD=.98$.

As shown in Figures 21 and 22 below, different modes of travel were linked with different levels of social and general efficacy reported by students.[21] The effect of travel on social efficacy reported was consistent across boys and girls.

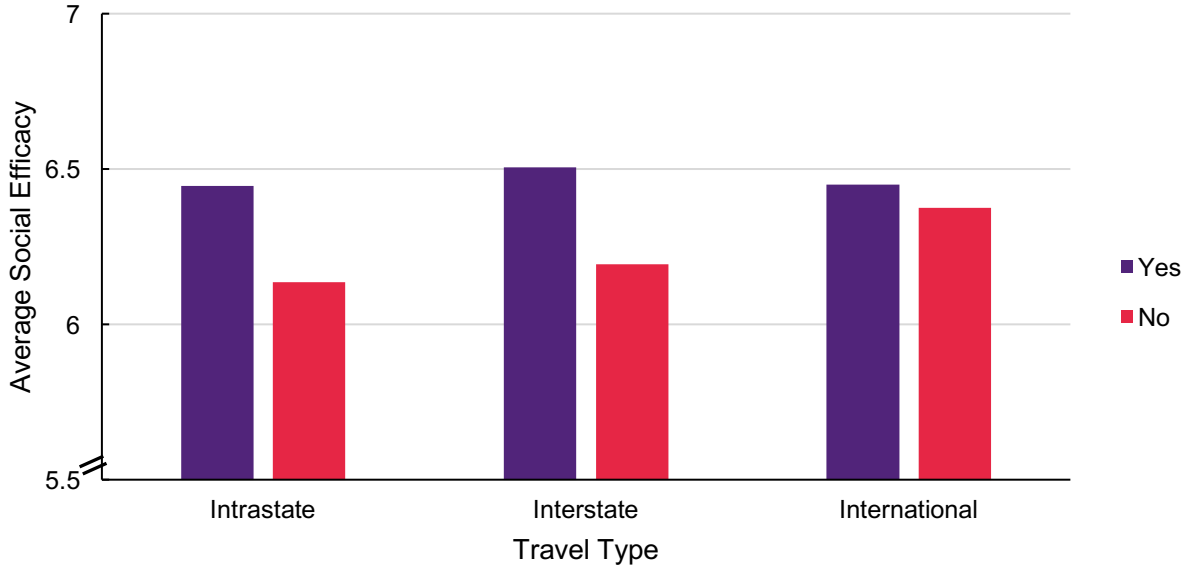


Figure 21: Travel Types and Average Social Self-Efficacy

Figure 21 illustrates the significant differences in social efficacy reported by students who travel intrastate and interstate relative to those students who may travel overseas. This pattern of effects (at least in this particular sample) can be interpreted as suggesting that social efficacy is not boosted by international travel. There were no significant differences in the average social efficacy reported by boys and girls on the basis of different types of travel. This pattern of effects was slightly different for general efficacy that students reported (see below Figure 22).

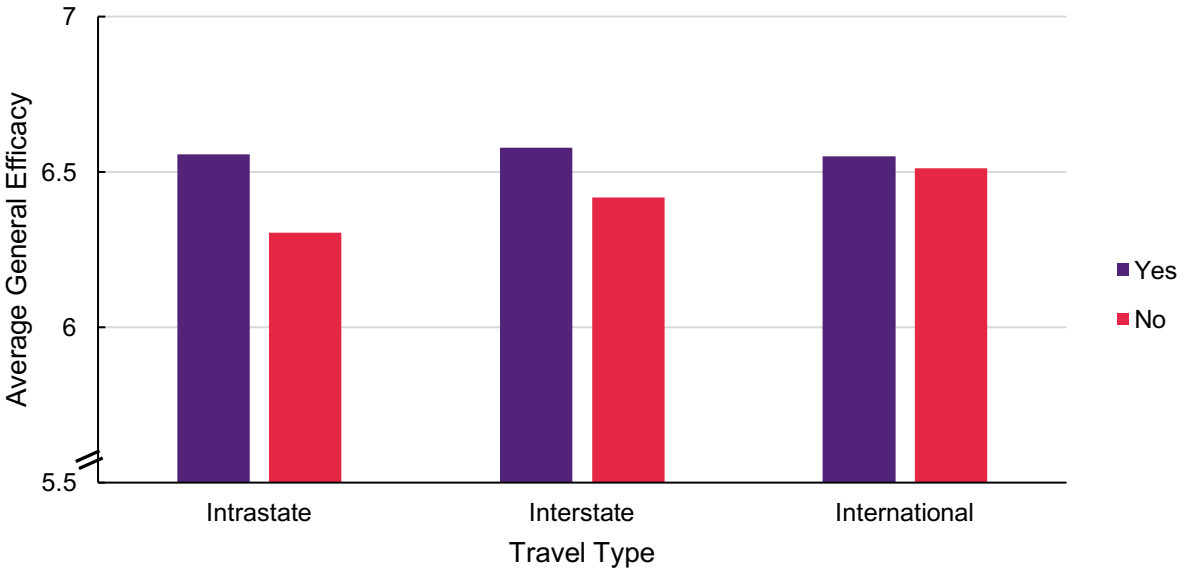


Figure 22: Travel Types and Average General Self-efficacy

21 Social Efficacy, Intrastate Travel: F (1,7563) = 7.49, p = .006, η^2 = .001: Yes (M = 6.45); No (M = 6.14); Interstate Travel: F (1, 7563) = 30.25, p <.001, η^2= .004: Yes (M = 6.51); No (M = 6.20); International Travel: F (1, 7563) = 1.01, p = .316, η^2 < .001: Yes (M = 6.45); No (M = 6.38). General Efficacy, Intrastate Travel: F (1,7563) = 23.93, p <.001,η^2 = .003: Yes (M = 6.56); No (M = 6.30); Interstate Travel: F (1, 7563) = 7.86, p =.005, η^2= .001: Yes (M = 6.58); No (M = 6.42); International Travel: F (1, 7563) = 4.27, p = .039, η^2 = .001: Yes (M = 6.55); No (M = 6.51).

Closer examination of the effects of different types of travel suggest that all three types (intrastate, interstate and international) significantly predict general efficacy outcomes. The third type of travel – international travel – despite being significant, does not reflect the stark contrast evidenced by students who reported travelling intrastate and interstate (see Figure 22 above). When returning to the earlier depiction of overall general efficacy (see Figure 4) the sample average including all boys and girls is consistent with that reflected by international travel above. This considered, we cannot be certain that international travel provides additive benefits to general efficacy to a similar extent that we can with intrastate and interstate travel. This particular result, might be explored further within additional research beyond that presented here.

When looking across both Figures 21 and 22 and considering these averaged as an indicator of overall efficacy in the context of travel, the benefit of students who do travel interstate appears to be larger than intrastate and international.

Careers

Reasons for Working

Throughout any career, there may be a multiplicity of drivers that inform career choices and reasons for working. To the extent that individuals endorse traditional gender role attitudes (e.g., male breadwinner and female caregiver) it is likely that their reasons for working will also align with these expectations (Eagly & Carli, 2007). In spite of these attitudes being reported in many previous studies, the existing literature has not yet investigated the extent to which boys and girls actually espouse these beliefs in the reasons they provide for wanting to work and to get a job.

We provided students in our sample with the opportunity to nominate their own reasons for working from a possible list of 14 commonly provided justifications (JIIG-CAL, 1993). **The top three reasons for wanting to work which were endorsed by both boys and girls were identical (see Figures 23 & 24)** and were 'having a secure job and income', 'enjoying the tasks I work on' and 'using my talents'. The first important difference between boys and girls arises in the fourth preference. Girls nominated 'helping others', whereas boys recorded this as a lower, seventh placed priority.

In terms of the dominant reasons for wanting to work, the results appear to stand at odds with claims that men and women have different reasons for wanting to work (Becker, 1985). However, society more broadly still generally associates women with the domestic role which involves child rearing and maintaining the family unit (Hoobler, Wayne & Lemmon, 2009).These caring responsibilities are associated with nurturance, sensitivity, helping and compassion (Eagly, Wood & Diekman, 2000). Therefore, people expect women to have superior social skills and to be involved in occupations congenial to these attributes including, in particular, helping others (Wood & Eagly, 2002). Consultation with AGSA, would suggest that single-sex girls' schools are intentionally teaching their students to understand the gendered world and are encouraged to ignore gender stereotypes and pursue any career they want. With this in mind, we might expect an alternate pattern of effects in co-educational learning contexts or contexts where there is less emphasis on the rejection of a gendered world. Such a hypothesis remains to be tested in the future.

People become accustomed to seeing differences in the tasks undertaken by men and women and they are often transformed into widely shared beliefs that come to form the cultural status quo (Cejka & Eagly, 1999). Women receive societal approval when they act stereotypically and this in turn bolsters their traditional obligations. Conversely, awareness of a stereotype and concern about fulfilling it can interfere with a person's ability to perform tasks that are contrary to the stereotype's views and therefore add further barriers to career progression (Jackman, 1994; Schmader & Johns, 2005). Such a difference, though only in the fourth order score, may go some way to explain gender differences in career preferences and activity priorities explored later in this report.

The University Of Queensland
AUSTRALIA

CREATE CHANGE

Australian Institute for Business and Economics
Centre for Gender Equality in the Workplace

Hands up for Gender Equality: A Major Study into Confidence and Career Intentions of Adolescent Girls and Boys

THE UNIVERSITY OF QUEENSLAND
AUSTRALIA
CREATE CHANGE

AUSTRALIAN GENDER EQUALITY COUNCIL
working for balance

Towards encouraging the use and citation of the report it should be referenced as:

Fitzsimmons, T.W., Yates, M. S., & Callan, V. (2018). Hands Up for Gender Equality: A Major Study into Confidence and Career Intentions of Adolescent Girls and Boys. Brisbane, Qld: AIBE Centre for Gender Equality in the Workplace – The University of Queensland.

Tables

Figures

- If cooling equipment is faulty, needs repair or replacement immediately inform management / maintenance and complete Maintenance Log;
- Discard food if any evidence or likelihood of contamination;
- Retrain staff if evidence of a lack of food safety skills or knowledge;
- Log corrective actions on the record used to record cooling (**Food Processing Record** or **Cooling Food Record)** or complete a **Corrective Action Record;**
- Optional: complete a **Discarded Food Record** for any bulk food discarded due to safety concerns.

Records for this Process

10.5 Food Processing Record

10.24 Corrective Action Record

Additional Optional Records

Optional:

10.8 Cooling Food Record

10.25 Discarded Food Log

10.1a Daily Consolidated Record – General Business

10.1b Daily Consolidated Record – Retail Outlet

Refer to Support Programs

7.14 Maintenance Program

Additional Information

Cooling

Potentially hazardous food needs to be cooled to 5°C or below as quickly as possible after cooking. The quicker that cooked potentially hazardous food is cooled the less opportunity pathogenic bacteria will have to grow.

Bacteria may be present in cooked food from spores that survived the cooking process and from contamination that occurred after cooking, e.g. if the food was stirred with a contaminated spoon.

Cooking to a pathogen-kill temperature (75°C or 70°C for 2 minutes) will destroy live cells of food-borne bacteria, but it will not destroy the spores of some food-borne pathogens when potentially hazardous food is left to cool too slowly, either at room temperature or in a fridge or coolroom. The spores of these pathogens can germinate and then multiply to dangerous levels.

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

This page has been intentionally left blank

Rapid Chilling

To assist with rapid chilling:

- Whenever possible, chill product in shallow trays (the greater the surface area the quicker the cooling time);
- Use shallow tubs or trays. Do not use buckets;
- Chill food on shelves in the cool room, not on the floor;
- Do not overload cold storage areas – ensure the cold air can circulate;
- Stir soups and wet products regularly with clean utensils.

Dangers

Food can become contaminated during the cooling process. You must make sure:

- No foreign matter or other food can fall into the cooling food;
- All containers and utensils are clean, sanitised and dry before use;
- Spoons that are used to stir cooling food are clean & sanitised.

Freezing Cooled Food

Food that has been prepared onsite (cooked and cooled) can be frozen once the cooling step has completed. When preparing food for freezing, ensure:

1. All products are clearly labelled with:
    a) Date produced;
    b) Date frozen and use by date*;
    c) Product description;
2. The product is correctly wrapped or packaged to avoid damage, e.g. freezer burn or contamination;

*Refer to **7.17 Shelf Life of Food**

This page has been intentionally left blank

MD2 v1

** Page intentionally left blank. **

Plan PTEST1 Template 1 v1

** Page intentionally left blank. **

4.11 Reheating of Food

Overview

This step applies to the reheating of potentially hazardous food items.

The reheating step applies to food that has previously been cooked and cooled. Like cooking, reheating is also used as a 'pathogen kill step'. Reheating potentially hazardous foods quickly to the correct temperature aims to destroy or reduce any food-poisoning bacteria and other pathogens that may have contaminated food after the cooking and /or cooling steps. All food handlers involved in the reheating of food need to understand correct reheating temperatures and be trained to follow correct procedures, including how to correctly measure and record reheating temperature.

Important Note

It is important to note that if food has not first been cooked or cooled correctly, and spore forming bacteria have germinated and grown such as *Clostridium perfringens*, rapid reheating is critical to ensure these bacteria are destroyed. If poor post-cooking handling and/or time and temperature abuse has allowed toxin-producing bacteria such as *Bacillus cereus* or *Staphylococcus aureus* to produce toxins in the food, **the reheating process will not remove or destroy these toxins.**

Legislation

Food Standards Code 3.2.2 (Division 3)

7. Food Processing

1) A food business must:

   (a) take all practicable measures to process only safe and suitable food; and

   (b) when processing food:

      (i) take all necessary steps to prevent the likelihood of food being contaminated; and where a process step is needed to reduce to safe levels any pathogens that may be present in the food – use a process step that is reasonably known to achieve the microbiological safety of the food.

What are the Hazards?

- **Microbiological – Survival of Pathogens** if food has been contaminated with bacteria prior to reheating and food is not reheated to the temperatures required to destroy pathogens;
- **Microbiological – Growth of Pathogens** if food is in the temperature danger zone too long or on multiple occasions, e.g. if food is reheated too slowly or if reheated more than once;
- **Physical and Chemical Contamination** if food is not adequately protected during the reheating process from, for example, pests, hair, chemicals, or is reheated in faulty, broken or unclean equipment.

Controls and Monitoring

1. Ensure cooked and frozen foods are thoroughly thawed prior to reheating, unless the product is intended to be reheated from the frozen state, in which case the manufacturer's instructions should be followed carefully;
2. Preheat reheating equipment such as ovens and grills before use;
3. Only use equipment designed for cooking and reheating to reheat food; hot holding equipment, such as bain-maries, hot boxes, pie warmers and soup tureens must *never* be used to reheat food;
4. Quickly reheat all potentially hazardous foods to a minimum core temperature of least 75°C or 70°C for 2 minutes[1], or as per the manufacturer's instructions;
5. Measure the core temperature of potentially hazardous food with a clean and sanitised probe thermometer at the thickest part of the food. Record the end of reheating temperature on the **Food Processing Record** or **Cooking/Reheating Food Record** at the frequency stated on the record;
6. For small items that may be reheated in a microwave, take multiple temperature checks to ensure even reheating throughout;
7. **Additional Product-specific Checks:**
    - Liquids (soups, sauces, gravies, casseroles, etc.) must be brought to the boil and bubble rapidly. Stir regularly to avoid cold spots;
    - Ensure the largest piece of meat in stews and curries is fully reheated through;
    - Combination dishes (e.g. lasagne and shepherd's pie) must be steaming in the centre;
8. Where possible, stir or turn the food during reheating to ensure thorough and efficient heating;
9. Do not use stirring utensils to taste food; always use a clean spoon for tasting and never place this used spoon back into food after use;
10. After reheating, use utensils designated for use with ready-to-eat foods (clean tongs, forks, spoons or fresh food handling gloves); do not touch food directly with hands or use utensils that are also used for raw foods;

[1] [1] SAFE FOOD AUSTRALIA, A Guide to the Food Safety Standards, Chapter 3 of the Australia New Zealand Food Standards Code (Australia only) (2016), Food Standards Australia New Zealand, p159

11. Never place reheated food on a surface or tray that previously held potentially hazardous raw food;
12. Only reheat food items once and discard any leftovers.

Corrective Actions

- Report non-conformances and any concerns about food safety or suitability to the Food Safety Supervisor;
- If reheated food does not reach 75°C or 70°C for 2 minutes, return to heat and continue reheating;
- If reheating equipment is faulty, needs repair or replacement immediately, inform management / maintenance and complete a Maintenance Log;
- Discard food if any evidence or likelihood of contamination;
- Retrain staff if evidence of lack of food safety skills or knowledge;
- Repair or replace faulty equipment, utensils & kitchenware and complete a Maintenance Log;
- Log corrective actions on the **Food Processing Record, Cooking/Reheating Food Record** or **Corrective Action Record;**
- Optional: complete a **Discarded Food Record** for any bulk food discarded due to safety concerns.

Records for this Process

10.5 Food Processing Record

10.6 Cooking/Reheating Food Record

10.24 Corrective Action Record

Refer to Support Programs

7.14 Maintenance

7.3 Food Safety Training

Additional Supporting Documents

Optional:

10.25 Discarded Food Log

10.1a Daily Consolidated Record – General Business

10.1b Daily Consolidated Record – Retail Outlet

10.1c Daily Consolidated Record – Service Kitchen

Additional Information

Reheating

Reheating food, such as a previously cooked and cooled pasta dish or a chicken soup enables the food to be served at a desirable temperature for taste and quality reasons. Reheating is also a 'pathogen kill step' when reheating potentially hazardous foods and dishes.

Controlling the Risk

It is important to make sure food is thoroughly heated as quickly as possible without affecting the quality of the product. Reheat food to 75°C or 70°C for 2 minutes. Sauces and soups must be brought to the boil. Stirring the food will facilitate even heating.

The Don'ts

- Never heat food in bain-marie units. They are designed to hold food at above 60°C, not to reheat food;
- Food that is reheated slowly may spend too long in the temperature danger zone, giving food-poisoning bacteria the opportunity to multiply and cause the food to be unsafe;
- Food that has been reheated once cannot be reheated a second time;
- Pies (and other pastry products) are not to be reheated in a warming oven, hot box or pie oven **unless** stated by the equipment manufacturer that they are specifically designed to reheat food. Hot holding equipment that is designed to reheat food must be able to reheat cold food to 75°C or 70°C for 2 minutes within 1 hour. If this equipment is capable of being used for reheating, the process must be monitored and recorded to show that the temperature is achieved within the 1 hour limit.

Preventing Contamination After Reheating

Cross-contamination of reheated food can occur when additional processing, such as slicing, chopping, mixing or portioning, takes place.

- Trays, tongs, processing equipment (food processors, slicers etc.) must be clean, sanitised and dry before use;
- Pay particular attention to knives and chopping boards;
- Prevent cross-contamination of ready-to eat cooked or reheated foods from potentially hazardous Raw food – especially unwashed fruit, vegetables and herbs, raw meat, poultry, seafood and raw eggs;
- Ensure that hands are clean and dry. Food-handling gloves should be used when handling ready-to-eat reheated food.