

Section 2: Hazard Analysis Critical Control Points (HACCP)

What this section aims to do

- To introduce and describe the concept of HACCP.
- To analyse potential food hazards within the food production system.
- To identify points which are critical for food safety – the Critical Control Points (CCPs).
- To specify control measures and Critical limits for the CCPs.
- To specify corrective action if the CCP critical limit is exceeded.
- To record HACCP reviews.
- To ensure compliance with EC Regulation 852/2004 as implemented by the Food Hygiene (England)(Scotland)(Wales)(Northern Ireland) Regulations 2006.

Contents

- Food operational flowcharts.
- Hazard analysis and identification of Critical Control Points (CCPs) for food operations.

What you need to do

- Decide who will be in your HACCP team and complete the details in **Form 1.1**.
- Someone within the business should be trained in HACCP techniques and its application.
- The flowchart boxes need to be completed to indicate high-risk foods that are handled within the food operation. These are foods that are high in protein (such as meat, dairy, stock etc.) and are ready to eat. Rice should be included due to the potential hazard of *Bacillus cereus*.
- The HACCP should be studied and its contents known about.
- The Critical Control Points (CCPs) must be monitored – see Section 3 of the manual.
- Reviews of the HACCP should be recorded on **Form 1.2**.

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What is HACCP?

Hazard Analysis Critical Control Points is a Food Safety Management System that we use to ensure the food we sell to our customers is safe to eat.

Essentially, it identifies what (and where) things can go wrong (the hazards) and where it is critical that we control it for food safety. The implementation of a Food Safety Management System based on these principles is a legal requirement.

It is important to note that we must document our HACCP and keep records to demonstrate that it is working effectively.

The 7 HACCP principles

1. Conduct a hazard analysis (prepare a flow diagram, identify the hazards and specify the control measures).
2. Determine the Critical Control Points (CCPs).
3. Establish the critical limits.
4. Establish a monitoring system for each CCP.
5. Establish corrective actions to be taken when a CCP is breached.
6. Establish verification procedures to confirm the HACCP is working effectively.
7. Establish documentation and records concerning all procedures appropriate to these principles and application.

Some important terminology

Flow diagram

A systematic representation of the sequence of steps or operations used in the production of the food.

Step

A point in the food operation from purchase through to serving the customer. For example, chilled storage.

Hazard

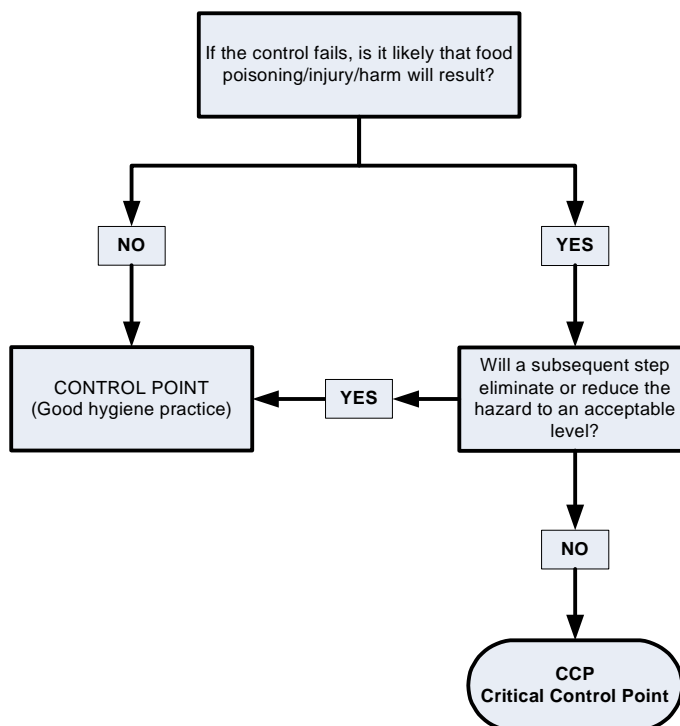
Something with the potential to cause harm to the consumer – microbiological (e.g. bacteria, viruses), physical (e.g. glass), chemical (e.g. cleaning agent) or allergens (e.g. nuts)

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Critical Control Point (CCP)

A step at which control must be applied in order to prevent or eliminate a food safety hazard or reduce it to an acceptable level as it will not be removed at a later step. For example, the chilled storage of high-risk food.

Simplified CCP decision chart:



Control measure

Any action and activity that can be used to prevent or eliminate a food safety hazard or reduce it to an acceptable level. For example, keeping the high-risk food chilled effectively.

Critical limit

The safety level, outside of which is unacceptable and corrective action must be taken. For example, the maximum temperature of high-risk food in a fridge is 8°C.

Corrective action

Any action to be taken when the results of monitoring at the CCP indicate failure of control (i.e. the critical limit has been breached). For example, discarding contaminated food.

Monitoring

The checks we make to assess whether a CCP is under control. For example, daily fridge monitoring checks with a probe thermometer.

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Verification

Obtaining evidence that the HACCP is working properly. For example, by carrying out audits or monitoring customer complaints.

Prerequisite controls

Example of good hygiene practice that applies throughout the food operation enabling the numbers of CCPs to be kept manageable. For example, high standards of cleanliness or personal hygiene.

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Forms

Form number	Form title
2.1	HACCP team
2.2	HACCP reviews

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Form 2.1 HACCP team

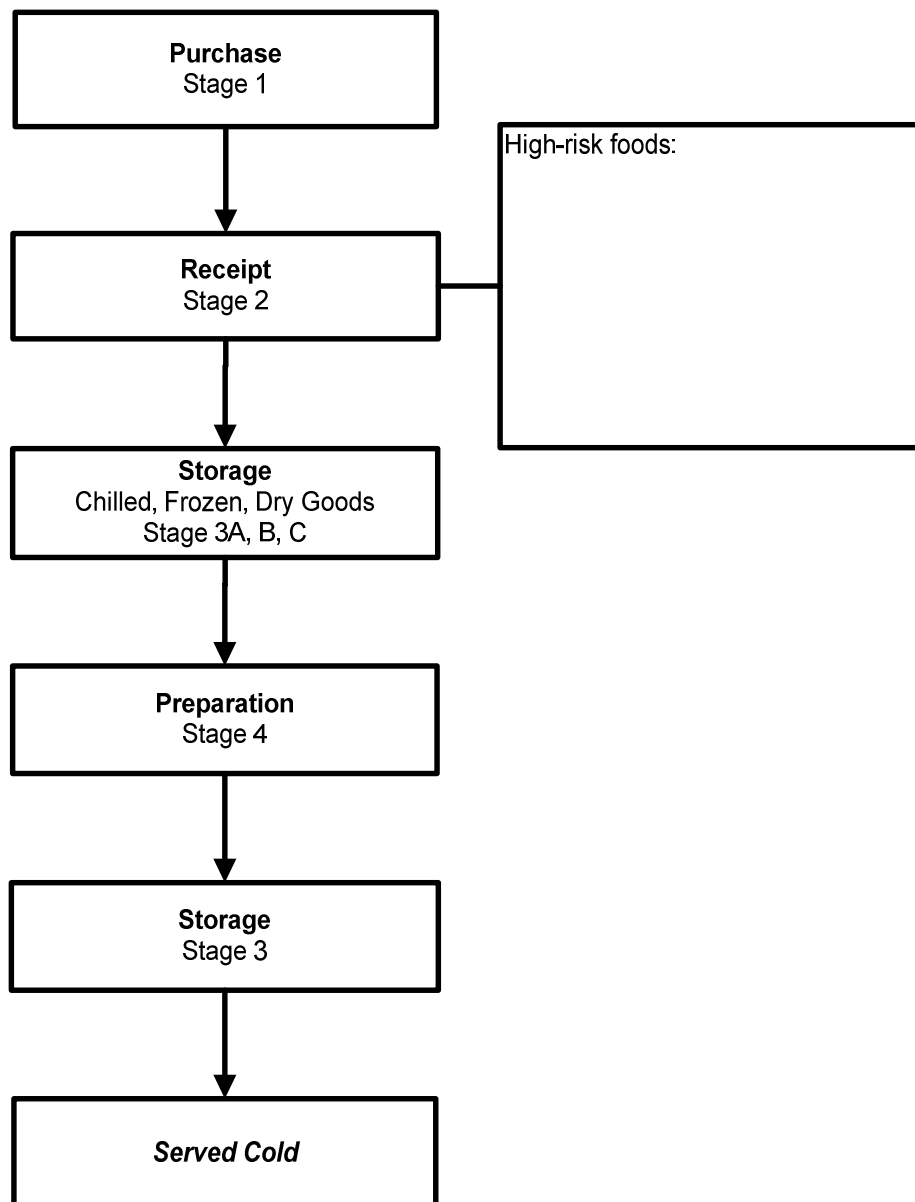
Team member	Position	Competency

Form 2.2 HACCP reviews

Date	Reason for review	Reviewed by

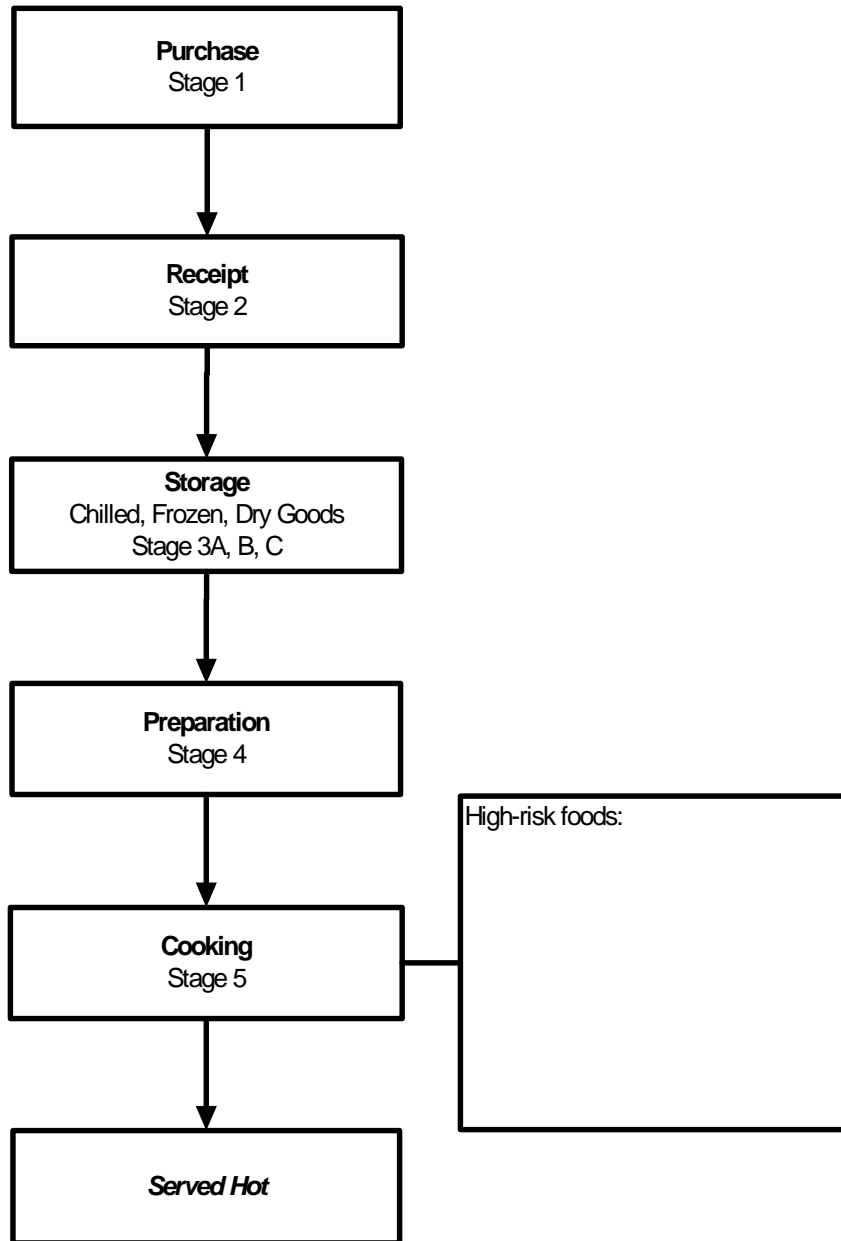
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Flowchart 1: Received, stored, prepared and served cold



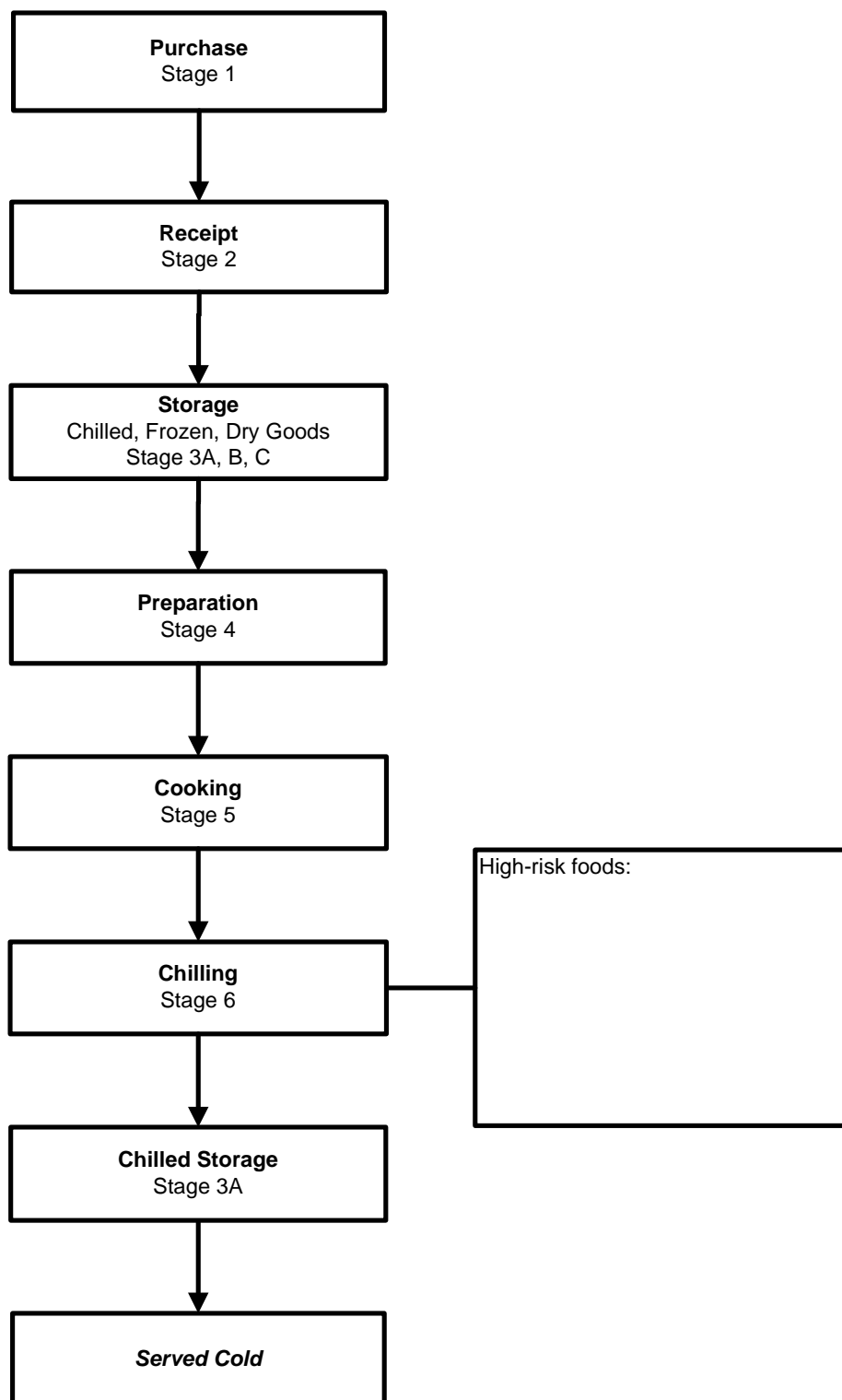
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Flowchart 2: Cooked to order



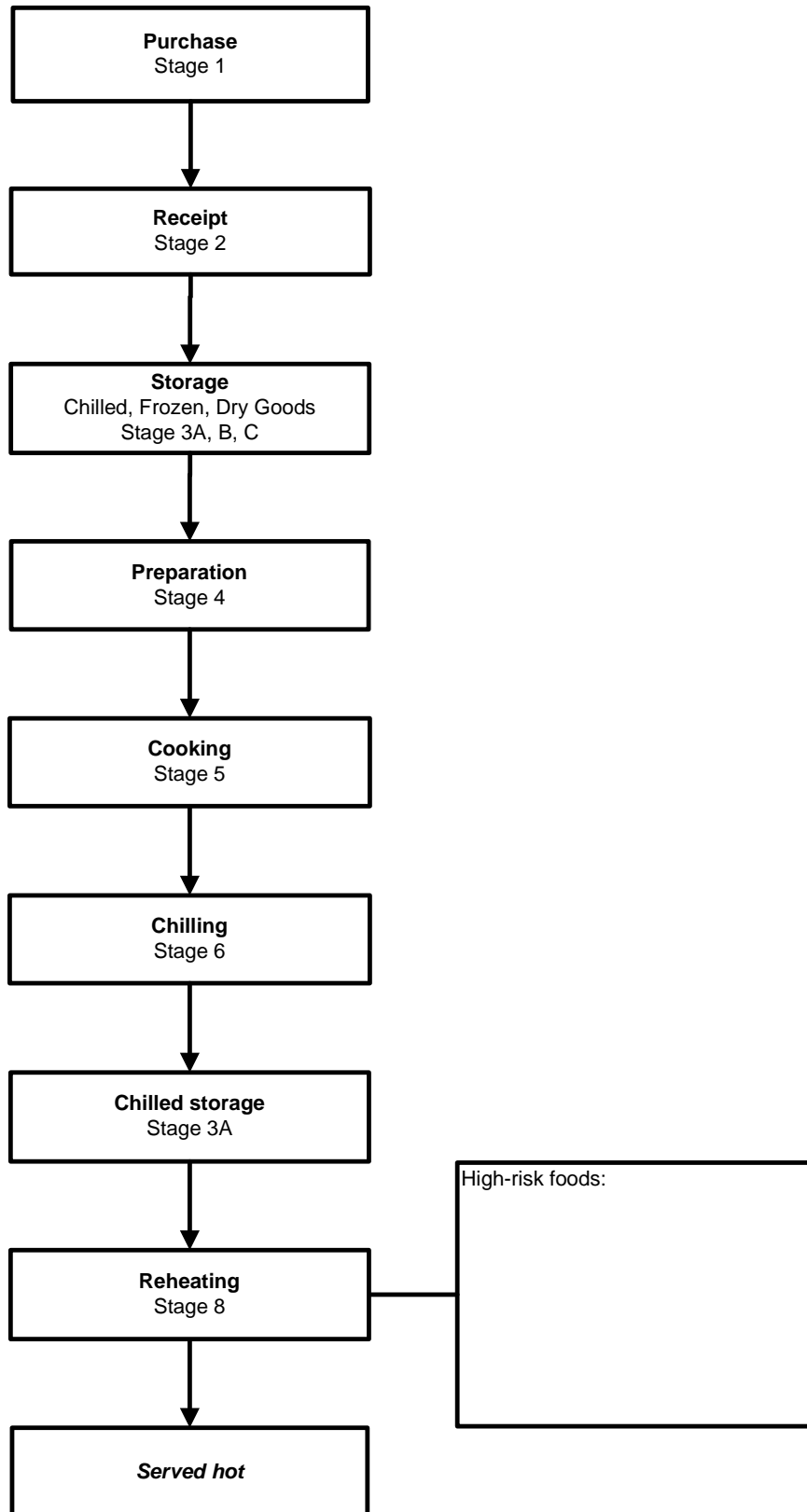
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Flowchart 3: Cooked, chilled and served cold



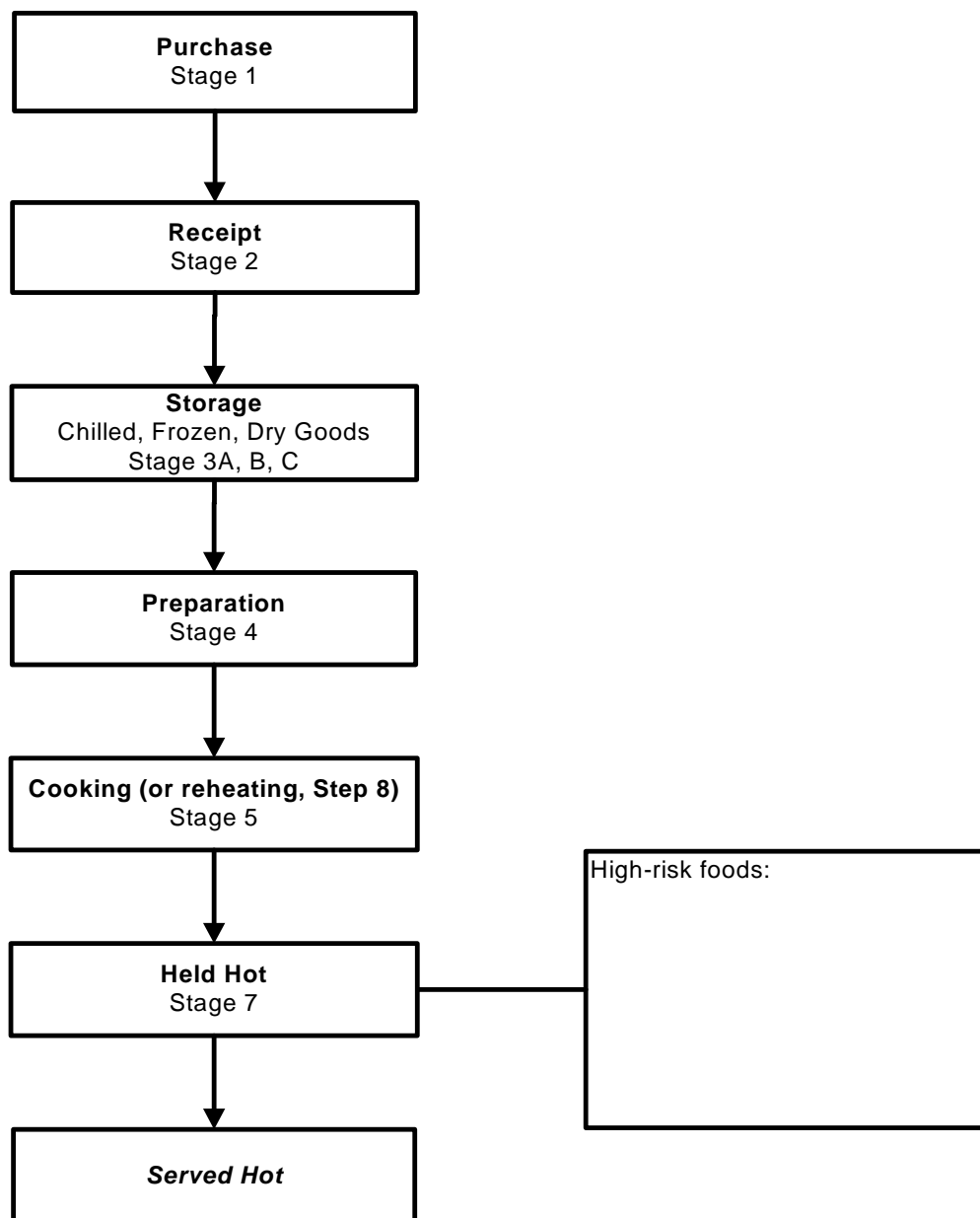
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Flowchart 4: Cooked, chilled and reheated



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Flowchart 5: Cooked and held hot



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Pre-requisite controls

Hazard	Control	Summary	Section
<ul style="list-style-type: none"> Lack of linear workflow/separation of activities Lack of adequate space Premises difficult to clean Physical contamination of food by loose parts of structure 	<ul style="list-style-type: none"> Premises design, construction and maintenance. 	<ul style="list-style-type: none"> Premises design takes into account the need for separation of activities and appropriate workflow from raw to cooked. All premises structure is checked on a day-to-day basis by management and staff within the business. Any remedial actions required to prevent physical contamination are taken. Internal inspections are undertaken and recorded. 	4
<ul style="list-style-type: none"> Physical contamination of food by loose parts of equipment. Difficulty in adequate cleaning and disinfection of equipment and utensils. 	<ul style="list-style-type: none"> Equipment – design, construction and maintenance. 	<ul style="list-style-type: none"> Only food-grade equipment used. All equipment is checked on a day-to-day basis by management and staff within the business. Any remedial actions required to prevent physical contamination are taken. Internal inspections are undertaken and recorded. 	4
<ul style="list-style-type: none"> Bacterial or chemical contamination of food by unfit water. 	<ul style="list-style-type: none"> Potable water supply 	<ul style="list-style-type: none"> The mains water supply can be considered as potable. 	
<ul style="list-style-type: none"> Inadequate cleaning and disinfection 	<ul style="list-style-type: none"> Adequate facilities provided for cleaning and disinfection of equipment, food and hands 	<ul style="list-style-type: none"> Dishwashers, glass-washers, dedicated sinks and basins installed. 	
<ul style="list-style-type: none"> Contamination of high-risk foods supplied to the restaurant Growth of pathogenic bacteria in high-risk foods supplied to the restaurant 	<ul style="list-style-type: none"> Approval of suppliers and monitoring of performance 	<ul style="list-style-type: none"> All high-risk food suppliers are subject to an approval procedure that includes a review of their policies, procedures and documentation. In some cases, additional inspections of their operations are carried out. Setting of purchase specifications with suppliers including delivery temperatures and delivery conditions for high protein foods (meat, poultry, fish, shellfish, meat products and dairy products). Specification that products which contain eggs and require no cooking, are made with pasteurised eggs. 	3

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Hazard	Control	Summary	Section
<ul style="list-style-type: none"> Growth of bacteria, moulds and yeasts due to shelf-life of foods being exceeded. Deterioration of long shelf-life products 	<ul style="list-style-type: none"> Stock rotation. 	<ul style="list-style-type: none"> All high-risk foods that carry a 'use-by' from the supplier are sold prior to the expiry of the shelf-life. High-risk foods prepared on the premise are provided with an internal 'use-by' date: Foods cooked and cooled without a blast chiller: Day of cook plus 2 Foods cooked and cooled with a blast chiller: Day of cook plus 3 Cooked foods that are vacuum packed: Day of cook plus 4 Foods defrosted under refrigeration on the premises; day of defrost plus 2 Foods prepared on the premises: day of production plus 2 NB No prepared foods must exceed their original shelf-life. Foods that have a shelf-life after opening specified by the supplier must be adhered to. Chilled foods that are frozen on the premises: Day of freeze plus 3 months (marked with a 'Best Before date) Foods that carry a Best Before date from the supplier (e.g. dry foods, frozen foods) are used prior to expiry of the shelf-life. 	
<ul style="list-style-type: none"> Risk of cross-contamination of bacteria from raw foods on to high-risk, ready-to-eat foods during storage 	<ul style="list-style-type: none"> Separation of raw and cooked foods during storage 	<ul style="list-style-type: none"> Separate storage of raw and cooked foods. Raw foods stored below cooked foods. 	
<ul style="list-style-type: none"> Risk of cross-contamination of bacteria from raw foods on to high-risk, ready-to-eat foods during preparation and handling using equipment 	<ul style="list-style-type: none"> Separate equipment used 	<ul style="list-style-type: none"> Separate chopping boards for different types of food. Cleaning and disinfection in between use of utensils used for both raw and cooked foods, e.g. knives (food-contact surfaces). Cleaning and disinfection of hand-contact surfaces e.g. taps and basins, fridge door handles. 	
<ul style="list-style-type: none"> Risk of contamination from bacteria on hands and uniform 	<ul style="list-style-type: none"> Hand washing regime in place and enforced Jewellery and watches minimised 	<ul style="list-style-type: none"> Adequate washing of hands between handling raw and cooked foods and at other times , as per policy. Jewellery policy in place. 	

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Hazard	Control	Summary	Section
<ul style="list-style-type: none"> Risk of contamination of bacteria from cloths 	<ul style="list-style-type: none"> Separation of cloths/use of disposable cloths Limited use of tea towels Storage of scourers in sanitiser 	<ul style="list-style-type: none"> Separation of cloths used for different purposes. 	
<ul style="list-style-type: none"> Risk of contamination of bacteria from vacuum packers 	<ul style="list-style-type: none"> Separation of vacuum packers Cleaning and disinfection 	<ul style="list-style-type: none"> Where vacuum packers are used for both raw and cooked foods, then ideally 2 machines used. Failing that, thorough cleaning and disinfection must take place in between use (display signage, train staff). 	
<ul style="list-style-type: none"> Physical and/or bacterial contamination of uncovered food 	<ul style="list-style-type: none"> Protection of food during storage 	<ul style="list-style-type: none"> All foods are covered during storage. Foods that are displayed for customers will be protected by appropriate sneeze-screens or covers. Foods that have damaged packaging (including dented cans) are rejected at delivery. 	
<ul style="list-style-type: none"> Physical contamination of food by broken glass 	<ul style="list-style-type: none"> Control over glass Glass eliminated or minimised as far as possible in food handling areas 	<ul style="list-style-type: none"> A glass policy is in place and is enforced. 	1
<ul style="list-style-type: none"> Contamination of food by dirty structure and equipment. 	<ul style="list-style-type: none"> Effective, planned cleaning and disinfection 	<ul style="list-style-type: none"> A cleaning schedule is documented and implemented to ensure the highest possible standards of cleanliness within the operation. 	5
<ul style="list-style-type: none"> Inaccurate monitoring of food and water temperatures 	<ul style="list-style-type: none"> Calibration of monitoring equipment 	<ul style="list-style-type: none"> Critical monitoring equipment such as temperature probes are checked on a monthly basis for accuracy. Where deviations are identified then the piece of equipment in question is recalibrated by the supplier or it is replaced. 	3
<ul style="list-style-type: none"> Inadequate disinfection of food equipment during machine dishwashing. Inadequate removal of grease and dirt during cleaning regimes. Reduction in likelihood and effectiveness of hand washing due to low temperature of water at basin. 	<ul style="list-style-type: none"> Adequate temperature of hot water for washing 	<ul style="list-style-type: none"> Wash cycle of dishwashers to achieve at least 55°C. Rinse cycle of dishwashers to achieve at least 82°C. Supply of hot water to wash hand basins and sinks to achieve at least 50°C (allowing for mixed water temperature of approximately 40-45°C at the wash hand basin). 	

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Hazard	Control	Summary	Section
<ul style="list-style-type: none"> Contamination of food arising from inadequate knowledge of food handling staff. Inadequate cooking, cooling, reheating, and cleaning arising from inadequate knowledge of food handling staff. 	<ul style="list-style-type: none"> Training of food handlers and managers 	<ul style="list-style-type: none"> A food hygiene training policy is in place and records are kept of the training that has been carried out. 	1, 6
<ul style="list-style-type: none"> Bacterial or physical contamination of food by food handlers. 	<ul style="list-style-type: none"> Controls over personal hygiene standards 	<ul style="list-style-type: none"> A personal hygiene policy is in place and is enforced. 	1
<ul style="list-style-type: none"> Overloading of equipment can affect airflow and performance 	<ul style="list-style-type: none"> Correct use of chilled and frozen storage equipment 	<ul style="list-style-type: none"> Fridges and freezers are not overloaded. Air-flows are not blocked. Regular defrosting of freezers. 	
<ul style="list-style-type: none"> Deterioration of ambient food due to moisture or excessive temperatures 	<ul style="list-style-type: none"> Correct storage of dried foods 	<ul style="list-style-type: none"> Dry stores kept clean, dry and well ventilated. Dry stores kept cool. Use of stock before expiry of 'Best Before' dates. 	
<ul style="list-style-type: none"> Presence of intrinsic contamination of raw ingredients in the finished food, ready for consumption e.g. insects, stones, oil, bones, shell. 	<ul style="list-style-type: none"> Effective washing of fruit and vegetables 	<ul style="list-style-type: none"> Fruit and vegetables are thoroughly washed in clean water prior to use. Use of chlorine dip or salt 	
<ul style="list-style-type: none"> Contamination of food by pests 	<ul style="list-style-type: none"> Pest control arrangements in place 	<ul style="list-style-type: none"> Pest control contract and follow up of recommendations Training of staff regarding pests Premise kept clean with food covered Premise proofed 	
<ul style="list-style-type: none"> Attraction of pests to poorly managed refuse. 	<ul style="list-style-type: none"> Effective waste management 	<ul style="list-style-type: none"> All waste and refuse in the kitchen is stored in liners and transferred to the storage area when full. Stored refuse is placed in a designated area, away from the food preparation areas and is covered to prevent the attraction of pests and generation of odours. Regular collections are made to remove the refuse. 	4

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Hazard	Control	Summary	Section
<ul style="list-style-type: none"> Chemical contamination 	<ul style="list-style-type: none"> Control over chemicals 	<ul style="list-style-type: none"> Only approved chemicals are stored and used on the premises Chemicals (mainly cleaning chemicals) are stored away from food. Chemicals covered during storage. Food containers not used for chemicals and chemical containers are labelled to indicate contents. Sprays are used on to the cloth first. 	
<ul style="list-style-type: none"> Potential for customers who may suffer anaphylactic shock or other allergy-related symptoms 	<ul style="list-style-type: none"> Control over food allergens/intolerance 	<ul style="list-style-type: none"> Analysis of menu to identify potential allergens (see Form 1.3, also available in Excel format) Separation of preparation areas/utensils for nuts/ vegetarians if appropriate. Training of staff in correct procedure to follow regarding enquiries Emergency procedure in place. 	2

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Summary of Critical Control Points (*Italics = CCPs dealt with by pre-requisites*)

No.	Step	Hazards	Controls	Monitoring		Critical limit	Corrective actions	Form no.
				Procedure	Frequency			
1	Purchase	<i>Contamination with food poisoning bacteria, physical or chemical contaminants.</i>	<i>High-risk foods purchased from approved supplier Specifications for conditions of delivery Assessment of returned food safety information Supplier audits when appropriate</i>	<i>Supplier approval procedure followed</i>	<i>All suppliers of high-risk food Review every 2 years</i>	<i>No deviation from specifications Supplier must supply satisfactory documentation</i>	<i>Change supplier if necessary Return food</i>	3.1 3.2 3.3
2	Receipt	Growth of food poisoning bacteria	High-risk foods delivered chilled or frozen	Record delivery temperature	Probe one product from each delivery	Chilled food: at or below 8°C Frozen food: at or below -15°C	Rejection of delivery Inform supplier	3.4
		<i>Physical or bacterial contamination</i>	<i>Food covered and protected</i>	<i>Observation</i>	<i>Each delivery</i>	<i>Absence of contamination Packaging intact</i>	<i>Rejection of delivery Inform supplier</i>	
3A	Chilled storage	Growth of food poisoning bacteria and spoilage of food	Stored in fridge at temperatures that slow bacterial growth Stock rotation and foods used within shelf-life	Record fridge temperatures Visual checks	Twice a day During the day	At or below 8°C	Fridge adjusted Food moved to another fridge Discard any food >8°C for longer than 4 hours Discard out of date food	3.5

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No.	Step	Hazards	Controls	Monitoring		Critical limit	Corrective actions	Form no.
				Procedure	Frequency			
		<i>Contamination with food poisoning bacteria, physical or chemical contaminants</i>	<i>Separation of raw and cooked foods</i> <i>Covering of foods</i>	<i>Observation</i>	<i>During the day</i>	<i>Absence of contamination</i>	<i>Discard contaminated food</i>	
3B	Frozen storage	Growth of bacteria	Stored in freezer at temperatures that inhibit bacterial growth	Freezer temperature recorded	Twice a day	At or below -18°C Ice-cream in a service freezer can be held at -12°C for no longer than one month and must not rise above -8°C	Temperature adjusted Soft frozen food to be discarded	3.5
3D	Dry goods storage	<i>Contamination by spoilage bacteria, chemicals, pests and physical contaminants</i>	<i>Food covered during storage</i>	<i>Observation</i>	<i>Daily</i>	<i>Absence of contamination</i> <i>All food covered</i>	<i>Discard contaminated or infested food</i>	
3D	Defrosting	Growth of food poisoning bacteria in high risk foods	Defrosting of food under temperature controlled conditions (i.e. in the fridge)	Temperatures checked of chilled storage	Twice a day	Defrosted at or below 8°C (or 12°C if defrosting fridge available)	Fridge adjusted Food moved to another fridge Discard any food >8°C for longer than 4 hours	3.5
		<i>Contamination with food poisoning bacteria, physical or chemical contaminants</i>	<i>Separation of raw and cooked foods</i> <i>Covering of foods</i>	<i>Visual inspection</i>	<i>During the day</i>	<i>Absence of contamination</i>	<i>Discard contamination</i>	
4	Preparation	Growth of food poisoning bacteria in high-risk foods left at ambient	Restrict time high-risk foods left at ambient	Observation	During the day	Max. time at ambient = 2 hours	Discard high-risk food left at room temperature >2 hours	
		<i>Contamination of high risk food with food poisoning bacteria</i>	<i>Separation of raw and cooked activities by equipment and disinfection</i>	<i>Visual checks</i>	<i>During the day</i>	<i>Absence of contamination</i>	<i>Contaminated food discarded</i>	

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No.	Step	Hazards	Controls	Monitoring		Critical limit	Corrective actions	Form no.
				Procedure	Frequency			
5	Cooking	Survival of food poisoning bacteria, spores and toxins	Thorough cooking to specified temperature for set length of time	Probing of food	Every batch	Core temperature of 70°C for 2 minutes (or equivalent)	Cooked until specified temperature achieved	3.6
6	Cooling	Growth of surviving bacteria Germination of spores	Rapid cooling	Probing of food and recording times and temperatures	Every batch of high risk food	Blast chiller: Below 8°C within 1½ hours Ambient temp: Refrigerated after 1½ hours cooling at ambient	Blast chiller adjusted Cook/chill smaller quantities Discard food cooled too slowly	3.7
7	Hot hold	Growth of food poisoning bacteria	Food held hot	Probing of food	Every service	At or above 63°C	Temperature of hot holding equipment adjusted Discard any food <63°C for >2 hours	3.8
		<i>Contamination of high risk food with food poisoning bacteria, physical or chemical contaminants</i>	<i>Protected from contamination – covers, screens</i>	<i>Visual checks</i>	<i>During the day</i>	<i>Absence of contamination</i>	<i>Contaminated food discarded</i>	
8	Re-heating	Survival of food poisoning bacteria	Thorough cooking	Probing of food	Every batch	Core temperature of 70°C for 2 minutes (or equivalent)	Reheated until specified temperature achieved	3.8
9	Display cold	Growth of food poisoning bacteria in high risk food	Food held under chilled conditions	Probing of food	Every service	At or below 8°C	Temperature of chilled holding unit adjusted Discard any food >8°C for longer than 4 hours	
		<i>Contamination of high risk food with food poisoning bacteria, physical or chemical contaminants</i>	<i>Protected from contamination – covers, screens</i>	<i>Visual checks</i>	<i>During the day</i>	<i>Absence of contamination</i>	<i>Contaminated food discarded</i>	

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No.	Step	Hazards	Controls	Monitoring		Critical limit	Corrective actions	Form no.
				Procedure	Frequency			
10	Display cold (ambient)	Growth of food poisoning bacteria on high risk food	Food held for a limited period	Visual checks Timed service	Every service	Maximum 4 hours >8°C	Discard food or sell from refrigerator	