



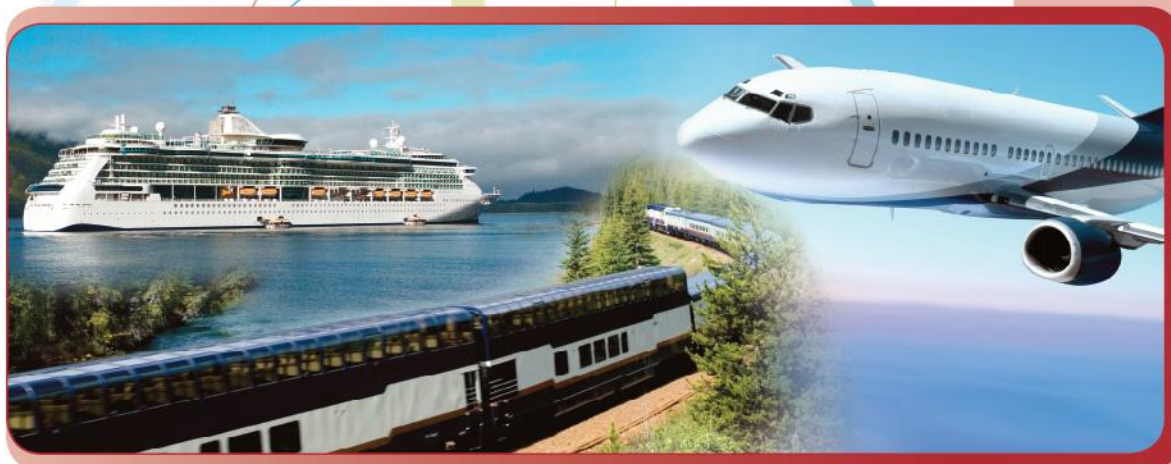
Health
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*Your health and
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INSPECTION GUIDELINES FOR FLIGHT KITCHENS 2012



*Travelling Public Program/
Le Programme du public voyageur*

Canada 

Health Canada is the federal department responsible for helping the people of Canada maintain and improve their health. We assess the safety of drugs and many consumer products, help improve the safety of food, and provide information to Canadians to help them make healthy decisions. We provide health services to First Nations people and to Inuit communities. We work with the provinces to ensure our health care system serves the needs of Canadians.

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Inspection Guidelines for Flight Kitchens

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1.0 PURPOSE

This manual includes information on Health Canada's Travelling Public Program and inspection guidelines (**Annex 1**) for Flight Kitchens. This Manual will be in effect April 2012 until further notice. An electronic copy of this manual can be obtained upon request by contacting: phb_bsp@hc-sc.gc.ca.

2.0 MANDATE AND GOAL

Health Canada has a mandate under the *Department of Health Act*, Section 4, to take measures relating to the promotion and preservation of the health of the people of Canada. Under Section 4(2 (e)) the Minister's powers, duties and functions include more particularly "*the protection of public health on railways, ships, aircraft and all other methods of transportation, and their ancillary services*".

The main goal of the Travelling Public Program is to protect the health of the travelling public by ensuring the provision of safe food, water, and other environmental health conditions. This is accomplished through an inspection and audit program, based on inspection guides developed in collaboration with the relevant conveyance sector or industry. The inspection guides incorporate standards from other domestic legislation and/or national or international quality assurance standards where possible.

The Travelling Public Program encompasses passenger conveyances and ancillary services within federal jurisdiction. Conveyance sectors include airlines, passenger rail, marine (ferries, cruise ships and charter vessels) and passenger motor coaches. Ancillary services include operations that are vital to the operation of the passenger conveyance and include: flight kitchens/food caterers, terminal operations including potable water systems and sanitation.

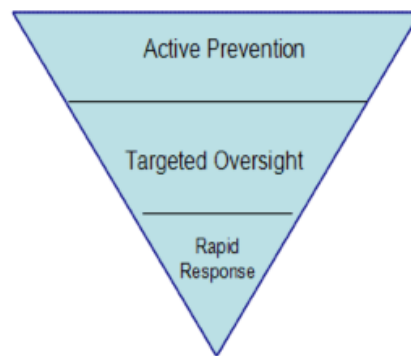
3.0 TRANSITION TO FUNDED, RISK-BASED APPROACH

On April 1, 2011, the Travelling Public Program implemented a risk-based approach to public health protection on conveyances. The key component of the new approach is that Health Canada will target departmental efforts at areas that are deemed to be the highest potential public health risk to Canadians and visitors travelling in Canada. With the implementation of the new risk-based approach, Health Canada ceased charging fees for inspections and audits, which enables the department to work with conveyance sectors who did not participate in our former program.

4.0 RISK-BASED APPROACH TO DECISION-MAKING

As part of the transition to a risk-based approach, the Travelling Public Program is expanding the type and number of tools that will be available to industry partners, including outreach programs to supplement the inspection/audit protocols currently in use. Which activities that Health Canada will undertake, as well as the frequency of these activities will be determined by their potential risk.

Figure 1 – The Three elements in Risk-Based Approach



The three elements presented in Figure 1 reflect the relevant resources that should be applied to the program, with greatest resources spent on active prevention and targeted oversight. If prevention and oversight are successful, fewer resources will be required to respond to emergencies and outbreaks.

1. Active Prevention element – outreach to support development of management plans, training (food safety, potable water), and health promotion activities related to gastrointestinal illnesses.
2. Targeted Oversight – type and frequency of inspections and audits of conveyance sectors and/or companies to be informed by risk.
3. Rapid Response – complaints and gastrointestinal illness (GI) investigations will support the public health network in Canada and internationally.

Health Canada will incorporate a risk assessment process to determine the most appropriate tools and resources to be used in each conveyance sector.

a. Inspection and Audits Protocols

i. Inspections and Audits

Inspections and audits will be unannounced. Inspections and audits will no longer be scored with the exception of comprehensive cruise ship inspections, due to harmonization with the US CDC/VSP. A report outlining the areas that did not meet the standards will be provided to the operator (see Inspection Reports in Section 6.0).

Re-inspections/audits of deficiencies may be conducted to determine if the sanitary condition of a conveyance facility has improved or not following a substandard periodic inspection. The re-inspection/audit will be conducted as soon as possible and generally will be limited to audit/inspection of deficiencies or critical violations identified during the initial inspection. A report outlining the areas assessed will be provided to the operator.

ii. Critical Violations

The inspection guides for each conveyance or ancillary service outlines non-critical and critical requirements. The items noted with an asterisk (*) are **critical requirements** as these are items considered to be *essential* to ensuring potable water, food safety and effective sanitation or are more likely than other deficiencies to contribute to increased public health risk. All critical deficiencies are to be corrected and noted in a "Corrective Action Statement" to be submitted within ten (10) business days from the date of the audit/inspection. However, Health Canada encourages submission of the actions taken to address non-critical deficiencies as well. Please refer to Section 6 b. "Corrective Action Statement".

iii. Imminent Health Hazards

Imminent health hazards are conditions that severely impact the ability of a conveyance or ancillary service facility to operate in a safe manner. Examples of conditions that may pose an imminent health hazard include, but are not limited to: fire, flood, extended interruption of electrical service or water service, sewage back-up or break, contaminated potable water supply, heavy pest infestation, gross insanitary conditions, poor food handling practices that are likely to lead to a foodborne illness outbreak and epidemiologically linked illness outbreaks.

If an imminent health hazard is identified during an inspection or investigation, the Environmental Health Officer will immediately document the conditions and inform the operator of the findings. The Environmental Health Officer will also notify the appropriate Health Canada Regional Manager who will determine required follow up actions that may include a written notice to cease operations until the imminent health hazard has been corrected.

iv. Food, Water, Ice and Environmental Sampling

The Environmental Health Officer may at times collect food, water, ice and environmental surface samples as part of their assessment. The laboratory results will be shared with the conveyance or ancillary service operator.

As part of a routine inspection that includes assessment of the potable water system, the Environmental Health Officer will collect water samples for microbiological analysis. Water samples may be collected from multiple points within the conveyance or ancillary services potable water distribution system, including:

- Main water supply;
- Water point or equipment used for transfer to a conveyance;
- Potable Water Outlets;
- Lavatory.

The standards for potable water are set out in the most current version of the *Guidelines for Canadian Potable Water Quality*¹ including the maximum acceptable concentration of bacteria in water.

If a conveyance operation has conducted baseline assessments of the physical, chemical and radiological parameters of their water supply, the results of the baseline analysis should be compared to the relevant sections of the *Guidelines*.

¹ http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/2010-sum_guide-res_recom/index-eng.php

b. Investigations

i. Overview

An investigation may be triggered by a public complaint, a report of increased incidence of gastrointestinal illness, a confirmed case or an outbreak linked to a conveyance/facility.

The reports of illness may be received from an individual, a regional health authority, a federal agency or from an international source.

ii. Complaint Investigations

All complaints will be recorded and where possible, followed up by the Environmental Health Officer to determine its validity and any required action. All complaints will be documented.

iii. Gastrointestinal Illness Investigations

An investigation may be triggered by a report of an increased incidence of gastrointestinal illness, a confirmed case or suspected outbreak with cases exhibiting unusual or severe gastrointestinal symptoms. GI investigations include information gathering, sampling and environmental evaluations.

An investigation will likely involve collaboration with other provincial, federal or international public health agencies. All investigations will be documented and a final report will be shared with the conveyance operator and any related stakeholders. Any files containing personal health information are subject to the *Privacy Act* and will be handled and stored accordingly.

6.0 INSPECTION REPORTS and CORRECTIVE ACTIONS

a. Inspection Reports

Health Canada Environmental Health Officers will review findings verbally, at a minimum, with conveyance and ancillary service operators, to ensure common understanding of deficiencies identified and reasons for specific corrective actions to be taken within specified timeframes. An interim report will be issued at the time of inspection, if feasible.

A final written Inspection Report will be issued (by email or mail) following an internal review within five (5) days of the time of inspection identifying deficiencies and required corrective action, including timeframes to achieve compliance.

b. Corrective Action Statements

Operators are requested to provide Health Canada with a "Corrective Action Statement" which details each deficiency identified during the audit/inspection, corrective action taken, and standard operating procedure (s) implemented to prevent the recurrence of the deficiency (ies). A "Corrective Action Statement" will be submitted whenever a critical deficiency has been identified. However, Health Canada encourages submission of the status of addressing non-critical deficiencies as well.

A "Corrective Action Statement" will be sent to the attention of the appropriate Health Canada Regional Manager within ten (10) business days of the audit/inspection. The "Corrective Action Statement" can be submitted by Fax or Email. The contact information for the different regions across the country is provided in Table 1.

Table 1: Regional Contacts for Corrective Action Statement

Region	Fax Number	Email Address
Eastern (NS, NB, NFLD, PEI, NU)	(506) 855-6568	Atl.phb@hc-sc.gc.ca
Central (ON, QC, MB, NT)	(613) 952-8189	Que.Ont.Mb.bsp.phb@hc-sc.gc.ca
Western (BC, AB, SK, YT)	(604) 666-7487	Western.Region.CARs@hc-sc.gc.ca

A sample "Corrective Action Statement" can be found in Annex 3.

c. Follow-up Actions Health Canada May Take

The Environmental Health Officer may conduct a re-inspection in the event a "Corrective Action Statement" is not forthcoming or if corrective action is inadequate to satisfy the concerns that public health risks have been mitigated.

ANNEX 1

INSPECTION GUIDELINES FOR FLIGHT KITCHENS

FOOD SAFETY

A. FOOD SAFETY COMPLAINT RESPONSE

A.1 Food Safety Complaint Response

- A.1.1 Is there a written policy and procedures available to receive, track and respond to food safety related complaints?
- A.1.2 Are food safety related complaints documented with records available for review?

B. NOTIFICATIONS

B.1 Health Canada Notification

- B.1.1 Is there a written policy and procedures available to notify Health Canada, Environmental Health Bureau when conditions exist that may pose an imminent health hazard to the travelling public?
- B.1.2 Are Health Canada notifications documented with records available for review?

NOTE: Imminent health hazards are conditions that severely impact the ability of a flight kitchen facility to operate in a safe manner. Examples of conditions that may pose an imminent health hazard include, but are not limit to: fire, flood, extended interruption of electrical service or water service, sewage back-up or break, contaminated potable water supply and heavy pest infestation.

C. TRAINING

C.1 Food Safety Training **Critical Requirement**

- C.1.1 Is there a training program in place (internal or external)?
- C.1.2 Is there re-training for existing employees?
- C.1.3 Are management trained in food safety?
- C.1.4 Are records of trained employees and managers available?

D. PERSONAL HYGIENE

D.1 *Wound and Infection Control*

Critical Requirement

- D.1.1 Are food service employees known, or suspected, to be a carrier of a disease or illness likely to be transmitted through food restricted from food handling?
- D.1.2 Are there procedures in place outlining the action to be taken when an illness is reported?
- D.1.3 Are food service employees that are confirmed with an illness, restricted from food handling, until they are no longer considered infectious?
- D.1.4 Are there written policies and procedures available for wound control?
- D.1.5 Are proper records/reports of incidences and action taken, available?
- D.1.6 Are wound/injuries properly covered with a water-proof cover? (Hand injuries require double-gloving)
- D.1.7 Are First Aid supplies available, maintained, and are trained staff available on the premises?

D.2 *Hand Washing Facilities*

- D.2.1 Are all food preparation areas equipped with proper hand washing facilities?*
- D.2.2 Are hand washing facilities in food preparation areas available and accessible so that no food handler has to walk a distance of more than 7.6 metres (25 feet) to reach a hand washing facility?*
- D.2.3 Are hands free water flow faucets designed to provide an adequate flow of water without the need for reactivation?
- D.2.4 Is an adequate supply of hot and cold running water available (temperature of hot water maintained at $\geq 38^{\circ}\text{C}/100^{\circ}\text{F}$ and $\leq 43^{\circ}\text{C}/109^{\circ}\text{F}$)?
- D.2.5 Are all hand washing stations equipped with liquid soap, single use towels and garbage receptacles?
- D.2.6 Are hand washing facilities maintained in good repair?
- D.2.7 Are hand washing signs posted at each hand washing station?
- D.2.8 Are hand washing signs provided in a format that is easily understood and demonstrates the proper hand washing technique?

***NOTE: Existing facilities may be exempted from these requirements, however:**

- 1) ***all persons must wash their hands prior to entering the food handling area; and***
- 2) ***all food preparation areas must have at least one (1) hand washing sink located within a reasonable distance if the 7.6 metres (25 feet) requirement cannot be met.***

D.3 Hand Washing Policies and Procedures
Critical Requirement

- D.3.1 Is there a written policy on the correct method of how and when to wash hands?
- D.3.2 Are hand washing facilities properly being used by food handlers?
- D.3.3 Are hand sinks restricted from any use that would prevent washing of hands?

D.4 Uniforms

- D.4.1 Are hair/beard restraints and clean uniforms mandatory for employees preparing food?
- D.4.2 Are clean outer garments or uniforms mandatory for anyone entering the kitchen?
- D.4.3 Are clean, laundered uniforms provided for the food service employees?
- D.4.4 Is wearing of jewelry (except for a plain wedding band, bangle, or medic alert bracelet/necklace) restricted during food preparation?

NOTE: Plain wedding band, bangle and medic alert bracelet must be covered by non-latex food grade gloves or sleeve guard. A medic alert necklace must be worn inside clothing.

- D.4.5 Are clean uniforms changed periodically when food preparation activities cause the clothing to be stained or soiled?
- D.4.6 Are separate uniforms (smock, jackets, etc.) provided to food service employees when performing non-food service related duties (i.e. cleaning bathroom, taking out garbage, etc.)?

E. TEMPERATURE MEASUREMENT DEVICES

E.1 Thermometers

- E.1.1 Are certified thermometers being used?*
- E.1.2 Are thermometers calibrated, as per manufacturer's specifications, and records kept?

***NOTE: Acceptable certification by a recognized standards organization (e.g., NSF, CSA, UL).**

F. FOOD SOURCES

F.1 **Approved Food Suppliers** **Critical Requirement**

F.1.1 Is documentation available verifying a supplier's food safety management system?

Flight Kitchen must have **one** of these documents:

1. Copy of a health permit issued by a local health authority;
2. On site audits or paper audits;
3. HACCP certification by a recognized organization (e.g., health authority, CFIA, ISO).

NOTE: audits may be performed by a company's own personnel or by an accredited food safety auditing firm.

F.1.2 Is documentation available for potentially hazardous ready-to-eat foods that are supplied to the flight kitchen (e.g., bacterial sampling, audits, etc.)?

G. FOOD RECEIVING

G.1 **Receiving Procedures** **Critical Requirement**

G.1.1 Is the delivery vehicle well-maintained and sanitary?

G.1.2 Are potentially hazardous foods* received at a temperature of $\leq 4^{\circ}\text{C}/40^{\circ}\text{F}$ (fresh food) or $\leq -18^{\circ}\text{C}/0^{\circ}\text{F}$ (frozen food shall be hard frozen and without previous signs of thawing)**?

G.1.3 Are potentially hazardous foods placed immediately into temperature controlled storage ($\leq 4^{\circ}\text{C}/40^{\circ}\text{F}$ or $\leq -18^{\circ}\text{C}/0^{\circ}\text{F}$) after receipt?*

G.1.4 Are foods received in their original package and undamaged (e.g., dented cans)?

G.1.5 Are accurate receiving logs maintained (e.g. temperature, product physical condition)?

G.1.6 Is there a corrective action plan, when the receiving requirements above are not met?

***NOTE: Definition of "potentially hazardous foods (PHF)" as per Appendix A of the Food Retail and Food Services Code, 2004, CFISIG.**

****NOTE:**

- *potentially hazardous foods are permitted to be received at a temperature of $\leq 8^{\circ}\text{C}/46^{\circ}\text{F}$ when the transportation time without temperature control is two 2 hours or less, as long as the food was refrigerated at $\leq 4^{\circ}\text{C}/40^{\circ}\text{F}$ (fresh food) before being moved for delivery and that it is refrigerated without further delays at $\leq 4^{\circ}\text{C}/40^{\circ}\text{F}$ upon reception and within that 2 hour time limit;*
- *potentially hazardous foods must be received at a temperature of $\leq 4^{\circ}\text{C}/40^{\circ}\text{F}$ and transported under temperature control when the transportation time exceeds two 2 hours;*
- *frozen food must be frozen solid and without signs of previous thawing.*

G.2 Packaging Material

- G.2.1 Are soiled delivery boxes of food products kept out of food production areas?
- G.2.2 Are soiled delivery boxes of food products removed from the facility on a regular basis?

H. FOOD STORAGE

H.1 Food Storage - Cross Contamination Control
Critical Requirement

- H.1.1 Are separate facilities available for the storage of raw and ready-to-eat or cooked foods?*
- H.1.2 Are raw and ready-to-eat or cooked foods stored separately?*

***NOTE:** *The Environmental Health Officer's discretion may be necessary in rating this item. As the facilities vary in size and complexity not all facilities may meet this requirement. The following exceptions may be considered by the Environmental Health Officer:*

1. *Use of single storage facilities may be acceptable, if strict separation of raw and ready-to-eat or cooked foods can be demonstrated.*
2. *Depending on the size of operation, the Environmental Health Officer may at their discretion allow the storage of raw and ready-to-eat or cooked foods on separate racks.*
3. *Employee knowledge of the separation procedures and observation by the Environmental Health Officer's may be a key factor in determining if the above mentioned requirements are met.*

H.2 Food Protection
Critical Requirement

- H.2.1 Are foods protected at all times during receiving, storage, preparation and dispatch?
- H.2.2 Are foods stored at least 15 cm (6") off the floor?
- H.2.3 Are foods stored in food-grade containers?
- H.2.4 Are foods adequately covered at all times except during preparation when a covering may not be possible?*

***NOTE: The Environmental Health Officer may have to exercise some discretion in rating this item. For foods stored on movable racks, covers may be necessary on the top exposed tray only. The other trays stored below the top tray may not require covers.**

H.3 Food Inventory Control
Critical Requirement

- H.3.1 Are written procedures for the proper rotation of food (e.g., color coding system, first in, first out (FIFO)) available, in use and understood by all employees?
- H.3.2 Are best before dates or internal date codes clearly visible on all potentially hazardous foods and, when necessary, appropriate action taken?

H.4 Temperature Control - Refrigerator Storage
Critical Requirement

- H.4.1 Are potentially hazardous foods held at a temperature of $\leq 4^{\circ}\text{C}/40^{\circ}\text{F}$?
- H.4.2 Are accurate indicating thermometers provided and located by the door?
- H.4.3 Are accurate refrigeration temperature logs maintained, are temperatures logged twice a day with the readings being taken and recorded by a separation of not less than 8 hours?
- H.4.4 Is there a corrective action plan in place, when the refrigeration temperature exceeds the above requirements?

H.5 Temperature Control - Freezer Storage
Critical Requirement

- H.5.1 Are freezers operating at a temperature of $\leq -18^{\circ}\text{C}/0^{\circ}\text{F}$?
- H.5.2 Are accurate indicating thermometers provided and located by the door?
- H.5.3 Are accurate freezer temperature logs maintained, are temperatures logged twice a day with the readings being taken and recorded by a separation of not less than 8 hours?
- H.5.4 Is there a corrective action plan in place, when the freezer temperature exceeds the above requirements?

H.6 Temperature Control - Hot Holding
Critical Requirement

- H.6.1 Are hot holding units maintaining potentially hazardous foods at a temperature of $\geq 60^{\circ}\text{C}/140^{\circ}\text{F}$?
- H.6.2 Are accurate hot holding food temperature logs maintained?
- H.6.3 Is there a corrective action plan in place, when the food temperature does not meet the above requirements?

H.7 Ice Storage Cabinets/Ice Making Machines
Critical Requirement

- H.7.1 Are ice storage cabinets/ice making machines cleaned, sanitized and maintained as required?
- H.7.2 Are ice scoops stored in a sanitary manner, not within the ice storage cabinet?
- H.7.3 Are bags used to transport ice stored in a sanitary manner?
- H.7.4 Is all ice made with potable water?

I. FOOD PREPARATION

I.1 Raw Fruit and Vegetable Washing Procedures

- I.1.1 Are fruits and vegetables washed prior to use?
- I.1.2 Is there a separate fruit and vegetable wash area (sink) available?
- I.1.3 If there is no dedicated fruit and vegetable wash area (sink), is there a process in place to clean and sanitize the sink between different uses?
- I.1.4 If a chemical is used as part of the washing procedure, is it approved for this use and is it being used at the correct concentration?
- I.1.5 Is the chemical concentration being measured and accurate chemical concentration logs being maintained?

I.2 Thawing Food
Critical Requirement

- I.2.1 Is food being thawed using one of the following procedures?
- in refrigerated units at a temperature $\leq 4^{\circ}\text{C}/40^{\circ}\text{F}$;
 - completely submerged under potable cold running water;
 - in a microwave oven only when the food will be immediately transferred to conventional cooking facilities as part of the continuous cooking process, or when the entire, uninterrupted cooking process takes place in the microwave oven;
 - part of the conventional cooking process (frozen to fully cooked);
 - for cryovac packaged foods (kept in their original packaging) in a cold water bath, that is maintained $\leq 4^{\circ}\text{C}/40^{\circ}\text{F}$.

I.2.2 For emergency situations only, when food must be thawed quickly, are the following procedures in use?

- completely submerged under potable running water;
- sufficient water velocity to agitate and float off loose particles into the overflow drain;
- water temperature $\leq 21^{\circ}\text{C}/70^{\circ}\text{F}$;
- exposure time does not allow:
 - any thawed portion of ready-to-eat foods to exceed $4^{\circ}\text{C}/40^{\circ}\text{F}$; or
 - any thawed portion of raw food requiring cooking to exceed $4^{\circ}\text{C}/40^{\circ}\text{F}$ for more than 4 hours, this includes the time under potable running water and the time for preparation prior to cooking.
- Emergency thawed food is used immediately.

I.3 Food Preparation - Cross Contamination Control
Critical Requirement

I.3.1 Are there separate areas where raw and ready-to-eat or cooked foods are prepared?

I.3.2 If separate areas are not available, are there processes in place to prevent cross contamination (e.g., cleaning and sanitizing the area between raw food and ready-to-eat or cooked food preparation, use of different colour-coded cutting boards for the preparation of raw foods and ready-to-eat or cooked foods)?

I.4 Cooking Food
Critical Requirement

I.4.1 Are minimum recommended cooking temperature/time achieved (refer to the table below)?

I.4.2 Are final cooking temperatures measured by inserting a probe thermometer into the thickest part of the food?

I.4.3 Are accurate final cooking temperature/time logs maintained?

Minimum Cooking Temperature Requirements:

Food Type	Minimum Core Cooking Temperature (instantaneous unless specified)
Food Mixtures ⁽¹⁾	74 ⁰ C/165 ⁰ F for 10 minutes
Pork, Lamb, Veal, Beef (whole cuts)	70 ⁰ C/158 ⁰ F
Rare Roast Beef	63 ⁰ C/145 ⁰ F for 3 minutes
Poultry (whole birds)	85 ⁰ C/185 ⁰ F for 15 seconds
Poultry (partial cuts, ground)	74 ⁰ C/165 ⁰ F
Stuffing in Poultry	74 ⁰ C/165 ⁰ F
Ground Meat ⁽²⁾	70 ⁰ C/158 ⁰ F
Eggs	63 ⁰ C/145 ⁰ F for 15 seconds
Fish ⁽³⁾	70 ⁰ C/158 ⁰ F

Food Retail and Food Services Code, 2004, Appendix B

(1) Food mixtures containing meat, poultry, eggs, fish or other potentially hazardous foods.

(2) Ground meat includes ground, minced, chopped or flaked beef, pork or fish.

(3) Does not include fish intended to be consumed raw, including raw marinated and partially cooked fish.

I.5 Cooling Food **Critical Requirement**

I.5.1 Does the cooling of cooked food meet the following temperature/time requirements?

- 60⁰C/140⁰F to 20⁰C/68⁰F in two (2) hours, then 20⁰C/68⁰F to 4⁰C/40⁰F in four (4) hours;

Suggested Cooling Methods

- pre-cool large quantities of food using an ice water bath, stirring frequently using an ice water bath, stirring frequently using a clean and sanitized utensil;
- for large volumes of liquid and semi-solid foods, using shallow pans no deeper than 10 cm (4"), and transferring into a refrigeration unit operating at $\leq 4^{\circ}\text{C}/40^{\circ}\text{F}$;
- cut large items (e.g. turkey, roasts) into smaller or thinner portions, and store in shallow pans, and transferring into a refrigeration unit operating at $\leq 4^{\circ}\text{C}/40^{\circ}\text{F}$.

I.5.2 Are accurate cooling temperature/time logs being maintained?

I.5.3 Is there a corrective action plan in place, when the cooling temperature/time requirements are not met?

I.6 Reheating
Critical Requirement

- I.6.1 Are cooked potentially hazardous foods reheated rapidly to a temperature of 74⁰C/165⁰F for a minimum 15 seconds?
- I.6.2 Is reheated food serviced immediately or stored in a hot holding unit at a temperature of 60⁰C/140⁰F?

I.7 Food Handling - Temperature/Time Control
Critical Requirement

- I.7.1 Are procedures in place to control exposure time and temperature of potentially hazardous foods during food preparation? *
- I.7.2 Are time/temperature logs being kept of potentially hazardous foods being prepared?
- I.7.3 Is there a corrective action plan in place, when time/temperature requirements are not met?

***NOTE: Critical Limits - Handling of Potentially Hazardous Foods**

Temperature as critical limit

Ambient temperature >15⁰C/59⁰F, food temperature must not exceed 15⁰C/59⁰F. Exposure time must not exceed 45 minutes. Check food temperatures periodically during the handling process and record the final food temperature at the end of the handling process.

OR

Time as critical limit

- 1. Ambient temperature >15⁰C/59⁰F, exposure time for PHF must not exceed 45 minutes. Record the time at the start and end of the handling process;**

OR

- 2. Ambient temperature >4⁰C/40⁰F and ≤15⁰C/59⁰F, exposure time for PHF must not exceed 90 minutes. Record the time at the start and end of the handling process;**

OR

Exemption

Where ambient temperature $\leq 4^{\circ}\text{C}/40^{\circ}\text{F}$, no exposure time limit for PHF. No time or temperature recording on PHF is required. Temperature monitoring and recording of cold preparation area is required.

I.8 Food Handling - Minimizing Bare Hand Contact **Critical Requirement**

- I.8.1 Are clean and sanitized utensils or non-latex food grade gloves being used when serving ready-to-eat and potentially hazardous foods?
- I.8.2 Are appropriate utensils stored in a sanitary manner, and available as required?
- I.8.3 Are non-latex food grade gloves, if worn, suitable, disposable and changed as required?

J. SANITATION AND MAINTENANCE

J.1 Chemical and Cleaning Supply Storage and Use

- J.1.1 Are the following conditions being met when using cleaning and sanitizing chemical agents?
 - used in compliance with the manufacturer's instructions or specifications;
 - used in a manner which ensures that chemicals do not contaminate food, food contact surfaces, food equipment and utensils;
 - stored in a location separate from food, food-contact surfaces, food equipment and utensils;
 - stored in non-food containers; and
 - clearly labeled to identify the contents.
- J.1.2 Is there an adequate supply of cleaning equipment?
- J.1.3 Is the cleaning equipment well maintained and stored in an appropriate manner to avoid contamination?

J.2 Cleaning and Sanitizing Practices and Procedures

- J.2.1 Are there written cleaning and sanitizing procedures* available?

***NOTE: Cleaning and sanitizing procedures shall include:**

- **identification of areas, equipment and utensils to be cleaned and sanitized;**
- **identification of the designated worker(s) responsible for the cleaning and sanitizing work,**

- ***the frequency at which the cleaning and sanitizing work is carried out;***
- ***a detailed description of the cleaning and sanitizing methods to be used; and***
- ***the chemicals including concentrations to be used.***

J.2.2 Are supervisors familiar with the protocol, and are they verifying that the process is effective?

J.2.3 Are cleaning and sanitizing logs maintained?

J.3 Food Contact Surfaces
Critical Requirement

J.3.1 Is there a written sanitation program in place for food contact surface sanitation?

J.3.2 Are food contact surfaces cleaned and sanitized, as required?

J.3.3 Are one of the approved sanitizers listed below being used at the correct concentration (spray sanitizer and wiping cloths)?

- chlorine solution of not less than 100 ppm;
- quaternary ammonium compound solution of not less than 200 ppm;
- iodine compound solution of not less than 25 ppm; or
- other approved sanitizers at the correct concentration.

J.3.4 Are sanitizer concentration verified with proper testing equipment?

J.3.5 Are sanitizers being refreshed as required to maintain the appropriate working concentration?

J.4 Food Contact Surface Cleanliness

J.4.1 Are food contact surfaces clean to sight and touch?

J.5 Non-Food Contact Surface Cleanliness

J.5.1 Are non-food contact surfaces clean to sight and touch?

J.6 General Maintenance

J.6.1 Is equipment maintained in good repair, so that it functions in accordance with its intended use?

J.6.2 Are floors, walls and ceilings maintained in good repair and in a condition which prevents the accumulation of debris?

K. WAREWASHING

K.1 *Manual Washing Procedures* **Critical Requirement**

K.1.1 Are the following methods being employed?

- use of a three compartment sink of sufficient size to permit complete immersion of the equipment and utensils being washed and sanitized;
- use of separate pre-wash (sort, scrape free of debris), wash, rinse, sanitize and air-dry steps.

K.1.2 Are manual warewashing procedures conducted according to the following criteria?

High Temperature Method		
Min. Wash Temp.	Min. Sanitizing Temp.	Min. Sanitizing Time
45 ⁰ C/113 ⁰ F	77 ⁰ C/171 ⁰ F	2 Minutes

Low Temperature Method (Chemical Sanitizing)				
Type of Sanitizer	Min. Wash Temp.	Min. Rinse Temp.	Min. Sanitizing Temp.	Sanitizer Conc. (2 Minute Contact Time)
Chlorine	45 ⁰ C/113 ⁰ F	45 ⁰ C/113 ⁰ F	45 ⁰ C/113 ⁰ F	100 – 200 ppm
Iodine	45 ⁰ C/113 ⁰ F	45 ⁰ C/113 ⁰ F	45 ⁰ C/113 ⁰ F	25 ppm (Max.)
Quaternary Ammonium	45 ⁰ C/113 ⁰ F	45 ⁰ C/113 ⁰ F	45 ⁰ C/113 ⁰ F	200 ppm (Max.)

K.1.3 Are water temperature and sanitizer concentration verified with proper testing equipment?

K.1.4 Are accurate water temperature and sanitizer concentration logs maintained, and are measurements, at a minimum, taken at commencement of manual ware washing operations (includes beginning of day, after a break, beginning of shifts)?

K.1.5 After washing, are all equipment and utensils clean to sight and touch?

K.1.6 Is there a separation between clean and dirty operations?

K.2 *Mechanical Washing Procedures* **Critical Requirement**

K.2.1 Are mechanical ware washing machines operated according to the following criteria?*

High Temperature Method			
Type of Machine	Min. Wash Temp.	Min. Sanitizing Temp.	Dish Surface Temp.
Stationary Rack (Single Temperature)	74 ^o C/165 ^o F	74 ^o C/165 ^o F	71 ^o C/160 ^o F
Stationary Rack (Dual Temperature)	66 ^o C/151 ^o F	82 ^o C/180 ^o F	71 ^o C/160 ^o F
Single Tank Conveyor (Dual Temperature)	71 ^o C/160 ^o F	82 ^o C/180 ^o F	71 ^o C/160 ^o F
Multi Tank Conveyor (Multi Temperature)	66 ^o C/151 ^o F	82 ^o C/180 ^o F	71 ^o C/160 ^o F

Low Temperature Method (Chemical Sanitizing)			
Type of Sanitizer	Min. Wash Temp.	Min. Sanitizing Temp.	Min. Sanitizer Conc.
Chlorine	49 ^o C/120 ^o F	49 ^o C/120 ^o F (pH ≤ 10)	25 ppm
Chlorine	49 ^o C/120 ^o F	38 ^o C/100 ^o F (pH 8-10)	50 ppm
Chlorine	49 ^o C/120 ^o F	24 ^o C/75 ^o F (pH ≤ 8)	50 ppm
Chlorine	49 ^o C/120 ^o F	13 ^o C/55 ^o F (pH ≤ 10)	100 ppm
Iodine	49 ^o C/120 ^o F	24 ^o C/75 ^o F (pH ≤ 5)	12.5 - 25 ppm
Quaternary Ammonium	49 ^o C/120 ^o F	24 ^o C/75 ^o F (water hardness < 500 ppm)	200 ppm

- K.2.2 Are water temperature and sanitizer concentration verified with proper testing equipment?
- K.2.3 Are accurate water temperature and sanitizer concentration logs maintained, and are measurements, at a minimum, taken at commencement of mechanical ware washing operations (includes beginning of day, after a break, beginning of shifts)?
- K.2.4 After washing, are all equipment and utensils clean to sight and touch?
- K.2.5 Is there a separation between clean and dirty operations?

****NOTE: Other methods may be acceptable provided they are scientifically proven to produce results equivalent to those achieved by the methods above. (i.e. NSF)***

K.3 Bulk Equipment (Food Trolleys, Non-Food Contact Containers, Oven Racks etc.)

- K.3.1 Is bulk airline equipment cleaned after each use?
- K.3.2 Is there adequate cleaning equipment available for cleaning and sanitizing large bulk airline equipment used for food service?
- K.3.3 Is there a separate area for storage of cleaned and sanitized bulk airline equipment used for food service?

K.4 Drying and Storage of Equipment and Utensils

- K.4.1 Are there designated, clearly marked areas for storing clean equipment and utensils?

- K.4.2 Are cleaned equipment and utensils stored in a way which ensures quick drying and prevents contamination?
- K.4.3 Are cleaned equipment and utensils stored at least 15 cm (6") above the floor on clean shelves?

L. DESIGN AND CONSTRUCTION

L.1 Facility Size and Layout*

- L.1.1 Does the facility size and layout permit effective segregation of clean and unclean materials and processes?
- L.1.2 Is there proper process flow throughout the facility (flow of food)?

***NOTE: Health Canada should be consulted prior to the constructing a new facility or making renovations or alterations to an existing facility.**

L.2 Food Contact Surfaces

- L.2.1 Do all food contact surfaces meet the criteria below?

- made of materials that are corrosion resistant, hard, smooth, with impervious finish;
- made of materials that do not pass on colours, odours, or tastes of food and do not allow migration of unsafe substances into food;
- free from breaks, cracks, open seams, chips, pits and similar imperfections;
- free from sharp internal angles, corners and crevices;
- finished to have smooth welds and joints;
- accessible for cleaning and inspection (by disassembly, if necessary).

NOTE: Wood food-contact surfaces are not acceptable with the following exception: hard maple or an equivalently hard, close-grained wood is used for cutting boards; cutting blocks; bakers' tables; and utensils such as rolling pins, doughnut dowels, salad bowls and chopsticks.

L.3 Non-Food Contact Surfaces

- L.3.1 Are non-food contact surfaces made of materials that are corrosion resistant, hard, smooth, with impervious finish, which is easy to clean?

NOTE: Wooden surfaces may be acceptable, provided that they are painted and well maintained; bare wooden surfaces are not acceptable.

L.4 Floors, Walls and Ceilings

- L.4.1 Are floors, walls and ceilings made of materials which have a hard, smooth, and impervious finish, and easy to clean?

- L.4.2 Are no overhead, exposed sewage pipes present in the facility?
- L.4.3 Are floor-wall junctions covered and sealed with no gaps larger than 1mm (1/32")?

L.5 Floor Drains

- L.5.1 Are floor drains covered with tight-fitting metal grates which are flush with the floor?
- L.5.2 Are the floors adequately sloped to the drain to prevent the pooling of water?
- L.5.3 Are floor drains free of obstructions and clean?

L.6 Lighting

- L.6.1 Do lighting levels meet the minimum requirements to ensure the safe and sanitary production of food, and facilitate cleaning of the facility? (See chart below)

Lighting Levels

Food Area	Lighting Levels (per lux)
Walk-in coolers, dry food storage areas, and in all other areas and rooms during periods of cleaning.	110 lux (at a distance of 89 cm/3 ft. above the floor)
Areas where fresh produce or packaged foods are sold or offered for consumption; areas used for hand washing, ware washing, and equipment and utensil storage; and in toilet rooms.	220 lux (at a distance of 89 cm/3 ft. above the floor)
Where a food handler is working with unpackaged potentially hazardous food or with food utensils and equipment such as knives, slicers, grinders or saws where employee/ worker safety is a factor.	540 lux (at the surface)

- L.6.2 Are light fixtures shielded with shatter-proof coverings in areas where exposed food is present?

M. BACTERIOLOGICAL TESTING

M.1 Food, Drinking Water and Ice Samples

- M.1.1 Are food, drinking water and ice samples being taken for bacteriological analysis on a regular basis?
- M.1.2 Are the results available?
- M.1.3 Do the food sample results meet the requirements provided in the guidelines? (See Annex 4)

- M.1.4 Do the water sample results meet the bacterial requirements set out in the most current version of the *Guidelines for Canadian Drinking Water*?

N. DISPATCH

N.1 *Loading Areas and Dispatch Vehicles*

- N.1.1 Are loading areas and dispatch vehicles cleaned and maintained as required to prevent food contamination?

N.2 *Dispatch - Temperature Control (See Annex 5)* **Critical Requirement**

- N.2.1 Are food temperature/time recorded at the time vehicles are loaded for aircraft delivery?
- N.2.2 Are potentially hazardous foods at a temperature of $\leq 4^{\circ}\text{C}/40^{\circ}\text{F}$ on loading of dispatch vehicle?
- N.2.3 Are potentially hazardous foods received at the aircraft at a temperature of $\leq 8^{\circ}\text{C}/46^{\circ}\text{F}$ when the transportation time without temperature control is 2 hours or less? (as long as the food was refrigerated at $\leq 4^{\circ}\text{C}/40^{\circ}\text{F}$ (fresh food) before being moved for delivery).
- N.2.4 Are Potentially hazardous foods must be received at the aircraft at a temperature of $\leq 4^{\circ}\text{C}/40^{\circ}\text{F}$ and transported under temperature control when the transportation time exceeds 2 hours ?.

NOTE: *Due to security reasons, it may not be possible to obtain food temperature readings of sealed food carts/containers.*

- N.2.5 If trucks are not equipped with mechanical refrigeration, are alternate temperature control methods employed? This may include, but is not limited to the use of dry ice, the use of ice packs and the freezing of potentially hazardous foods.
- N.2.6 Are aircraft departure schedules and food delivery times being coordinated?
- N.2.7 Are there written procedures in place for this entire process from the time the truck leaves the flight kitchen ramp to the time food is delivered to the aircraft?
- N.2.8 Are their monitoring procedures and controls in place to prevent the time/temperature abuse of foods during flight delays?

SANITATION

O. CLEANING AND DISINFECTING PRACTICES AND PROCEDURES

O.1 *Washrooms and Change Rooms*

- O.1.1 Are designated washrooms and change rooms available?
- O.1.2 Are washrooms and change rooms cleaned and well maintained?
- O.1.3 Are there cleaning schedules available, and are cleaning staff properly trained in maintaining these schedules?
- D.O.5.4 Is frequency of cleaning documented and records available?

P. WASTE MANAGEMENT

P.1 *Waste Bin Maintenance*

- P.1.1 Are waste bins located at appropriate locations?
- P.1.2 Are waste bins emptied, cleaned and maintained, as required?

P.2 *Waste Holding Areas*

- P.2.1 Are waste holding areas cleaned and maintained, as required?
- P.2.2 Is food waste stored in waterproof containers with tight fitting lids?
- P.2.3 Is garbage removed?

Q. INTEGRATED PEST MANAGEMENT

Q.1 *Integrated Pest Management*

Critical Requirement

- Q.1.1 Is there an integrated pest management program in place?
- Q.1.2 Is there a monitoring program to detect the indications of pests in the facility, and are the sightings of insects or rodents reported to the facility manager?
- Q.1.3 Is immediate corrective action taken when the indications of pests are detected?
- Q.1.4 Is proper documentation available for monitoring and corrective actions taken?
- Q.1.5 If licensed pest control applicators are utilized, are work orders and records kept?
- Q.1.6 Are there any signs of pest infestation?

Q.2 Pest Control Devices

- Q.2.1 Are pest control devices cleaned, maintained and serviced, as required?
- Q.2.2 Are pest control devices located and operated in such a manner that they do not contaminate food or food contact surfaces?

**Timeframes for Activities Undertaken for the Completion
of Flight Kitchen Food Safety Audits**

HACCP FACILITY

Large Flight Kitchen: > 15,000 Potentially Hazardous Meals per Day.

The estimated number of hours per audit for a flight kitchen of this size is 11 hours. The audit activities will conform to the following timeframes:

- Interviews with management and employees: 1.5 hours
- HACCP and other document review: 2.5 hours
- Examination and inspection of the flow process: 4.0 hours
- Post audit review: 1.0 hour
- Report preparation and distribution: 2.0 hours

Total: 11.0 hours

Medium Flight Kitchen: 8,000 - 15,000 Potentially Hazardous Meals per Day.

The estimated number of hours per audit for a flight kitchen of this size is 7.5 hours. The audit activities will conform to the following timeframes:

- Interviews with management and employees: 1.0 hour
- HACCP and other document review: 1.5 hour
- Examination and inspection of the flow process: 3.0 hours
- Post audit review: 1.0 hour
- Report preparation and distribution: 1.0 hours

Total: 7.5 hours

Small Flight Kitchen: 2,000 - 7,999 Potentially Hazardous Meals per Day.

The estimated number of hours per audit for a flight kitchen of this size is 4 hours. The audit activities will conform to the following timeframes:

- Interviews with management and employees: 0.5 hour
- HACCP and other document review: 1.0 hour
- Examination and inspection of the flow process: 1.0 hour
- Post audit review: 0.5 hour
- Report preparation and distribution: 1.0 hour

Total: 4.0 hours

Very Small Flight Kitchen: < 2,000 Potentially Hazardous Meals per Day.

The estimated number of hours per audit for a flight kitchen of this size is 2 hours. The audit activities will conform to the following timeframes:

- Interviews with management and employees: 0.5 hour
- HACCP and other document review: 0.5 hour
- Examination and inspection of the flow process: 0.5 hour
- Post audit review: 0.25 hour
- Report preparation and distribution: 0.25 hour

Total: 2.0 hours

NON-HACCP FACILITY

Small Flight Kitchen: <8,000 Potentially Hazardous Meals per Day.

The estimated number of hours per inspection for a flight kitchen of this size is 2 hours. The inspection activities will conform to the following timeframes:

- Examination and inspection of the flow process: 1.5 hours
- Post inspection review: 0.25 hour
- Report preparation and distribution: 0.25 hour

Total: 2.0 hours

ANNEX 3

CORRECTIVE ACTION STATEMENT

The following action has been taken to correct each of the critical deficiencies noted during the inspection/audit conducted on the: _____ (Name)
on _____ (Date) at _____.(Place)

Item #	Deficiency	Corrective Action Taken & Time Frame

(Continue until all items to be included in the corrective action statement have been listed.)

Name

Title (Manager)

Date

Please send to: **Regional Manager, [REGION]**
 Health Canada

Region	Fax Number	Email Address
Eastern (NS, NB, NFLD, PEI, NU)	(506) 855-6568	Atl.phb@hc-sc.gc.ca
Central (ON, QC, MB, NT)	(613) 952-8189	Que.Ont.Mb.bsp.phb@hc-sc.gc.ca
Western (BC, AB, SK, YT)	(604) 666-7487	Western.Region.CARs@hc-sc.gc.ca

ANNEX 4

Health Canada Microbial Guidelines for Ready-to-Eat Foods: A Guide for the Conveyance Industry and Environmental Health Officers (EHO)

by

Health Canada
Environmental Health Bureau
Travelling Public Program
Ottawa, Ontario

2010

INTRODUCTION

Food samples may be required for risk assessment, monitoring purposes, or to be obtained as part of suspected foodborne illnesses investigations. The purpose of these guidelines is to provide assistance to the conveyance industry and for Health Canada Environmental Health Officers (EHO) in the interpretation of microbial analyses for single samples of ready-to-eat foods, sampled at the point of sale where no other microbiological criteria exist.

These microbial guidelines for ready-to-eat foods utilize a scale rather than a single threshold value for food sample interpretation. The guidelines identify four categories of microbiological quality for ready-to-eat foods ranging from satisfactory to potentially hazardous. These categories correspond to the appropriate level action to be taken based on the level of contamination identified and risk to public health.

Ready-to-eat foods for distribution to consumers would include those provided by food caterers, airport and passenger terminal food concessions and conveyances such as airlines, cruise ships, passenger trains and passenger ferries.

Ready-to-eat foods

Ready-to-eat food is a food that is natural or synthetic and which requires temperature control because it is capable of supporting the rapid and progressive growth of infectious or toxigenic micro-organisms. (International Flight Service Association [IFSA] & Association of European Airlines [AEA], 2010).

The Health Canada guidelines are modeled after guidelines developed by Hislop & Phan (2007), Australia New Zealand Food Authority (2001), Gilbert et. al (2000), UK Health Protection Agency (2009) and the Hong Kong Center for Food Safety – Food and Hygiene Department (2007). General food microbiological limits, though not specific for ready-to-eat foods, developed by the Ontario Agency for Health and Promotion (2010) and the Government of Quebec (2009) were used in a comparative analysis to determine the most stringent guidelines nationally. The Health Canada guidelines have been reviewed by Health Canada’s Bureau of Microbial Hazards.

SAMPLING

As a base testing panel, the following parameters are recommended when testing a food sample: *Escherichia coli*, *Salmonella* spp., *E.coli* 0157, *L. monocytogene* and Coagulase positive staphylococci. Based on the results of this panel and consultation with the laboratory, further testing may be conducted for specific indicator organisms or pathogens listed in Table 1, as required.

Food samples may be submitted for laboratory analysis for a number of reasons and may be limited in size and number. While these guidelines will allow for an assessment of the microbiological quality of a single sample of ready-to-eat food to be made, the results may not be representative of the lot from which it is derived, unless the sample has been individually prepared. The guidelines do not provide sampling regimes necessary to accept or reject batches or lots. Further samples may be required for a Health Risk Assessment of a specific lot to determine the microbiological status of the lot. When required, such assessments will be conducted by Health Canada.

The collection and transportation of samples should be conducted according to Appendix B, Volumes 1-3, *Compendium of Analytical Methods*:

http://www.hc-sc.gc.ca/fn-an/alt_formats/hpfb-dgpsa/pdf/res-rech/appendix-annexe_b-eng.pdf

Note that one sample unit might not be representative of the whole lot. In certain situations, a request for a health risk assessment may be requested from the Evaluation Division of the Bureau of Microbial Hazards, Health Canada.

FOOD EXAMINATION

The microbial guidelines for ready-to-eat foods consist of three sections (see Table 1):

1. An Aerobic Colony Count (ACC) for food microbial quality and effectiveness of sanitation;
2. Indicator organisms; and

3. Foodborne pathogens for food safety evaluation.

The microbiological testing for ready-to-eat foods should be appropriate to the type of food sample being examined and to processing it has received. Not all the organisms listed in Table 1 are equally applicable to all food groups, nor should all the organisms listed be tested for routinely. Interpretation of results should be based on knowledge of the product components and the production process.

Proper interpretation requires the EHO to take into account several factors:

- the ingredients used in the preparation of the specific food product(s);
- methods of preparation of food product(s);
- the condition under which foods were stored prior to sampling; and
- other mitigating factors specific to the product(s).

Aerobic Colony Count

The Aerobic Colony Count (ACC), also referred to as the standard plate count or the total viable count, is one of the most common tests applied to indicate the microbiological quality of food. The significance of ACCs, however, varies markedly according to the type of food product and the processing it has received. When ACC testing is applied on a regular basis it can be a useful means of observing trends by comparing ACC results over time. Testing for ACC may be required to measure the level of sanitation in a food handling facility in combination with the compliance history of the facility and to measure the compliance of the food facility to Sections 4 and 7 of the *Food and Drugs Act*.

Additional microbial testing is still required to determine if indicator organisms or known human pathogens are present.

Three categories of ACC are listed in Table 1 based on food type and the processing/handling the food has undergone.

Category 1

These foods are ready-to-eat and are comprised entirely of components that have been cooked in the preparation of the final product without subsequent handling or processing of any kind prior to distribution or sale (ex. soups, bread, quiche, cooked meat, fish & seafood and vegetables).

Category 2

These foods contain some components that have been cooked, but may have been further handled prior to or during the preparation of the final product. This category also applies to any foods that are assembled from ready-to-eat foods (excluding those in category 3) that are not subsequently cooked (ex. hot dogs, sandwiches, burgers).

Category 3

Examples of foods in this category are foods such as fresh fruits or vegetables, deli meats, fermented foods, chicken salad, taboulé, all kind of sprouts and cultured dairy products or any food product incorporating these foods (such as sandwiches), where it is expected that high standard (aerobic) colony counts would be present due to the normal microbial flora associated with these items. As such, ACC does not apply (ex. pitas, potato or pasta salad, salad rolls).

CATEGORIES OF MICROBIOLOGICAL QUALITY

The microbial guidelines for ready-to-eat foods utilize a scale rather than a single threshold value for food sample interpretation. Potentially hazardous values generally incorporate a 1-log safety margin from values generally accepted in the medical literature to cause illness in humans.

Four categories of microbiological quality have been assigned based on standard plate counts, levels of indicator organisms and the number or presence of pathogens. These are satisfactory, marginal, unsatisfactory and potential hazardous.

Satisfactory: test results below this value indicate good microbiological quality, and further action is not required. For pathogens, expressed limits are representative of threshold values and therefore may vary depending on which diagnostic tests are used.

Marginal/ Borderline: test results are borderline, but fall within accepted microbiological limits. These results may indicate poor quality of source ingredients, improper food handling during preparation or storage, and/or unsanitary conditions within the establishment(s) at which the food (or ingredients) were processed. Re-sampling, a review of food handling practices, and an inspection of the implicated food establishment may be warranted, particularly if marginal results are routinely found.

Unsatisfactory: test results are outside of the accepted microbiological limits and are indicative of problems with sanitation, maintenance, food handling and/or food storage practices. Immediate action is required. Actions may include, but should not be limited to: the withdrawal of food from the same lot, the same day production and perhaps the same nature depending on results. Further sampling is required and an investigation of food handling and sanitation controls is warranted.

Unacceptable/Potentially Hazardous: test results in this range approach those implicated in outbreaks of foodborne illness and immediate action is required. Actions may include, but should not be limited to: the withdrawal of any food still available for sale or distribution, the recall of foods already sold or distributed to the public; the re-sampling of food(s); an investigation of food handling, storage, display and/or receiving practices; a review of sanitation, maintenance, hygiene, exclusion, and/or pest control measures, and any other action the EHO deems necessary to determine the source of the contamination and mitigate further risk to the public.

RECOMMENDED TESTING METHOD

The values and limits are described in the *Interpretive Summary - Standards and Guidelines for Microbiological Safety of Food* from the *Compendium of Analytical Methods*. The Interpretive Summary uses a three class sampling plan that would reflect requirements prescribed by the *Food and Drug Act and Regulations* for some standardized food commodities and those values and limits are achievable.

Table 1

Microbial Guidelines for Ready-to-Eat Foods

Test	Microbial Guideline (CFU per gram unless otherwise stated)			
	Satisfactory	Marginal	Unsatis	Potentially
Aerobic Colony Count				
Category 1	<10 ⁴	<10 ⁵	≥10 ⁵	
Category 2	<10 ⁶	<10 ⁷	≥10 ⁷	
Category 3	N/A	N/A	N/A	
Indicator Organisms				
Coliforms ^(a)	<10 ²	<10 ³	≥10 ³	
Escherichia coli	<10	<100	≥100	See VTEC
Pathogens				
Salmonella spp.	Not detected in		Detecte	
Campylobacter spp.	Not detected in		Detecte	
Shigella spp. *	Not detected in		Detecte	
E.coli O157: H7 & VTEC	Not detected in		Detecte	
L. monocytogenes	Not detected in	10-≤100 ^(c)	≥100 ^(d)	
V. cholerae **	Not detected in		Detecte	
V. parahaemolyticus ^(b)	Not detected in	Detected but	10 ² -10 ³	≥10 ³
Clostridium perfringens	<10	20-100	100-	≥10 ⁴
Coagulase positive staphylococci	<205	<10 ²	100-	≥10 ⁴
B.cereus and other pathogens Bacillus	<50	<10 ³	<10 ⁴	≥10 ⁴

N/A – Not applicable because the food, or a component of it, naturally contains high numbers of bacteria (e.g. raw fruits or vegetables, fermented or cultured foods, etc).

Detected – Immediate action on the product is required

- (a) Not applicable for fresh fruit, raw vegetables or food containing these.
- (b) Should not be present in seafood that has been cooked. Products intended for consumption in their raw form should contain less than 100 CFU per gram. Potentially hazardous levels of *V.parahaemolyticus* relates to Kanagawa-positive strains. *V. parahaemolyticus* and *V. cholerae* should be considered when analysing fish and seafood products.
- (c) Foods intended to have a prolonged shelf-life should contain no detectable level of *L. monocytogenes* (e.g. cheese, processed deli meats, etc).
- (d) Detection of *L. monocytogenes* is also considered to be potentially hazardous if the food is to be served to “high risk” populations, such as the young, the elderly, or the immunocompromised (e.g. baby food, hospital food, and food served at seniors’ centers).

* Microbiological criteria for *Shigella* spp. was added for consistency with UK guidelines. *Shigella* spp. have not been included in the guidelines developed by other countries for ready to eat foods.

** Microbiological criteria for *Vibrio cholerae* have been added to UK guidelines because the European Commission has made several decisions in response to the isolation of this organism from various ready-to-eat foods, mainly fishery products and fruits and vegetables, imported into countries of the European Union.

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ANNEX 5

Health Canada Guidelines for Time & Temperature Requirements for Potentially Hazardous Foods: A Guide for the Conveyance Industry and Environmental Health Officers (EHOs)

by

Health Canada
Environmental Health Bureau
Travelling Public Program
Ottawa, Ontario

2010

Maintaining temperature of food during storage and transportation is important in the prevention of foodborne illness. The purpose of establishing guidelines for food storage is to prevent the growth of pathogenic micro-organisms to harmful levels during storage. The following guidelines provide time and temperature requirements for potentially hazardous foods from source (e.g. airports, seaports, supply depots, food processors, flight kitchens or food caterers) to consumption onboard conveyances (eg. airplanes, trains, ferries, and cruise ships). Time-temperature controls identified in Table 1 are based on the IFSA & AEA World Food Safety Guidelines for Airline Catering (2010) and the Food Retail and Food Services Code (2004). The Health Canada guidelines have been reviewed by Health Canada's Bureau of Microbial Hazards.

Ready-to-eat foods for distribution to consumers would include those provided by food processors, flight kitchens, food caterers, airport and passenger terminal food concessions and conveyances such as airlines, cruise ships, passenger trains and passenger ferries.

Potentially Hazardous Foods

Potentially hazardous foods are foods in a form or state which is capable of supporting the rapid and progressive growth of infectious and/or toxigenic microorganisms. Such foods include, but are not limited to, milk or milk products, eggs, meat, poultry, fish, shellfish (edible mollusc and crustaceans), or any other ingredients (Food Retail and Food Service Code, 2004).

Table 1 – Guidelines for Time & Temperature Requirements for Potentially Hazardous Foods

ACTIVITY	TIME/TEMPERATURE GUIDELINE
PREPARATION	
Food preparation at flight kitchen, food caterer, food processor or onboard conveyance	>4°C (40°F) for short periods of time which cannot be > 2 hours (total time from start to finish of preparation)
COLD STORAGE	
Storage at flight kitchen, food caterer, food processor, or food storage facility	≤ 4°C (40°F) (at all times)
TRANSPORTATION	
Transport (from flight kitchen, food caterer or food processor to food storage facility and onto conveyance) OR Transport (from flight kitchen, food caterer or food processor directly onto conveyance)	≤ 8°C (46°F) if transport time ≤ 2 hours OR ≤ 4°C (40°F) if transport time > 2 hours
FOOD STORAGE/SERVICE	
On board conveyance	≤ 4°C (40°F) (at all times) OR >4°C (40°F) for short periods of time which cannot be > 2 hours (any leftover food at the end of 2 hours must not be served and discarded)
REHEATING	Potentially hazardous foods that have been cooked then cooled should be reheated until they reach an internal temperature of 74°C (165°F)
HOT HOLDING	Potentially hazardous foods that have been prepared, cooked, and are to be served hot, should be held at a temperature of at least 60°C (140°F).

Temperature Monitoring

There should be monitoring and recording of the temperature of equipment (refrigerator, transport equipment, storage units) to make sure it is keeping food under proper temperature controls at all times.

The temperature of potentially hazardous foods kept cool with the assistance of ice/dry ice/ice packs should be monitored with the use of a thermometer. As for the onboard service, if the temperature of the potentially hazardous foods reads greater than 4°C (40°F), the service should be done within 2 hours from the time the temperature goes above 4°C (40°F).

REFERENCES

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