World Health Organization

Interim technical advice for inspection and issuance of ship sanitation certificates

The Ship Sanitation Control Exemption Certificate/Ship Sanitation Control Certificate (SSC):An instrument to assist countries to minimize the risk of international spread of disease via international vessel voyages

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Some facts and figures:

- Over 90% of world trade is transported by the international shipping industry.
- Today there are around 50,000 merchant ships that trade internationally and transport all types of cargo.
- The world fleet is registered in over 150 nations and manned by over one million seafarers of virtually every nationality. (www.shippingfacts.com).
- From 1970-2000, a WHO review of over 100 outbreaks associated with ships found that more than one-third were related to foodborne transmission (http://www.who.int/water_sanitation_health/diseases/shipsancompendium/en/index.html

Prior to 15 June 2007, the Deratting/Deratting Exemption Certificate was the required sanitary document for international shipping since the entry into force of the International Sanitary Regulations over 50 years ago. It was an internationally-agreed upon means of public health control that helped reduce the international spread of rodent-borne diseases. International vessels were required to renew the certificate every six months, and the renewal process required that all areas of the ship[1] be inspected.

With the entry into force of the International Health Regulations (2005) (IHR or the Regulations) in June 2007, including the Ship Sanitation Control Exemption Certificate/Ship Sanitation Control Certificate (hereafter referred to as Ship Sanitation Certificates or SSC), competent authorities now use this document, which carries a six month period of validity, to identify and record all areas of ship-borne public health risks[2] (not limited to rodents), together with any required control measures to be applied. The SSC may be required from all ships, whether seagoing or inland navigation vessels, on an international voyage calling at the port of a State Party. It may be renewed at any port authorized to issue such renewals by a State Party. [3]

[1] “Ship”: under the IHR, "ship" means "a seagoing or inland navigation vessel on an international voyage." (Note that these definitions of terms are in Article 1.)

[2] "Public health risk": under the IHR, "public health risk" is "a likelihood of an event that may affect adversely the health of human populations, with an emphasis on one which may spread internationally or may present a serious and direct danger." This is a central concept referred to often in this interim guidance, and along with other definitions is important in understanding how the inspection process in this guidance is meant to achieve the IHR goals,

[3] "State Party": under the IHR, "States Parties" are those States which have become bound by the revised IHR (2005). At the time of preparation of this interim guidance, 192 of WHO's 193 Member States are States Parties to the IHR (2005); it is anticipated that the other State, which recently became a WHO Member State, will become a State Party once certain procedures are completed.

Under the IHR, the authorization of certain ports to issue the SSC (as well as the provision of the services referred to in Annexes 1 and 3) and the related extension is a State Party decision. Any such authorized ports must have the capability to inspect, issue and implement (or supervise implementation of) necessary measures for the Ship Sanitation Control Certificate. The State Party can also authorize ports to issue Ship Sanitation Exemption Control Certificates or to grant extensions to them, if they are unable to carry out the necessary measures at the port in question.

Application of the IHR provisions concerning SSCs will generally result in one of three possible outcomes

Ship Sanitation Control Exemption Certificate: issued when no evidence of a public health risk is found on board and the competent authority[4] is satisfied that the ship is free of infection and contamination, including vectors and reservoirs. This certificate shall normally be issued only if the inspection[5] has been carried out when the ship and holds are empty or when they contain only ballast or other material, of such nature or so disposed as to make a thorough inspection of the holds possible.

Ship **Sanitation Control Certificate**: issued when evidence of a public health risk, including sources of infection and contamination, is detected on board and after required control measures have been satisfactorily completed; the SSC must record the evidence found and the control measures taken.

When the conditions under which control measures are carried out are such that, in the opinion of the competent authority, a satisfactory result cannot be achieved at the port where the operation was performed, the competent authority shall make a note to this effect on this certificate, identifying all evidence of ship-borne public health risk, together with any required control measures to be applied at the subsequent port of call. If the ship is allowed to depart, the competent authority shall at the time of departure, inform the next known point of entry of the type of evidence and the requisite control measures, particularly in those contexts where the public health risk may spread internationally or may present a serious and direct danger to the health of human populations.

Extension of the Ship Sanitation Control Exemption Certificate: when the inspection or control measures required cannot be carried out at a port and there is no evidence of infection or contamination, the competent authority may extend the validity of the certificate for a period of one month, allowing the ship to arrive at a port in which the inspection and any necessary control measures can be carried out and the new Ship Sanitation Control Certificate may be issued.

The necessary public health control measures should always be applied only after all key parties (e.g. the master of the ship, the port control office) have been fully informed of the methods to be used. Critical activities, such as the assignment of the port areas to be used for quarantine of ships suspected of carrying a public health risk, need to be completed well in advance in cooperation with the port control office for ship movement. In all cases, control measures carried out shall be conducted in a manner that avoids possible injury, and as far as possible discomfort to persons [and with respect for their dignity, human rights and fundamental freedom] or damage to the ship, baggage, its cargo and containers, and the public health aspects of the environment.

Any actions regarding international ships should also be in accordance with applicable international agreements relating to ship and port operation. Depending upon the States and relevant circumstances, these may include

[4] "Competent authority": this document refers to "competent authorities", rather than health authorities or port authorities or other terminology, as under the IHR, the "competent authority" is "an authority responsible for the implementation and application of health measures under these Regulations": This term is also used in many relevant IHR articles.

[5] "Inspection": under the IHR, "inspection" is the "examination, by the competent authority or under its supervision, of areas, baggage, containers, conveyances, facilities, goods or postal parcels, including relevant data and documentation, to determine if a public health risk exists."

international agreements of the International Maritime Organization (IMO) (see Resources at end of this document).

Role of ship owners and operators

It is key that all international vessels be maintained so that the risk of international disease spread is minimized to the greatest extent possible. Under the IHR, States Parties must take all practicable measures consistent with these Regulations to ensure that conveyance operators keep their conveyances permanently free of sources of infection or contamination, including vectors and reservoirs.

Under the IHR, conveyance operators shall facilitate:

a) inspection of the cargo, containers and conveyance
b) medical examinations of persons on board
c) application of other health measures under IHR provisions
d) provision of relevant public health information requested by the State Party, including the Maritime Declaration of Health

Ship operators are required to provide the public health information requested by the competent authorities and to facilitate their related public health activities. Required control measures must be applied safely and initiated and completed without delay. Ship operators must provide to the competent authority, if they require them, with: (i) a valid SSC and (ii) a Maritime Declaration of Health. Annex 4 of IHR (2005) provides further information on conveyance operators' responsibilities.

As part of these obligations under the IHR, when calling at port, the master of a vessel on an international voyage may be required to report any illness that appears to be caused by an infectious disease or other conditions on board that could represent a public health risk. Regarding the Maritime Declaration of Health, before arrival at its first port of call in a State Party, the master must ascertain the state of health conditions on board, and on arrival (or in advance if possible and required), unless the State Party does not require it, deliver the completed Declaration to the competent authority (see note 1b of Annex 3, and Annex 8).

Role of competent authorities

Under the IHR, the competent authority may require the application of appropriate control measures (disinfection, decontamination, disinsection, deratting) if evidence of a public health risk or clinical signs/symptoms/related information is found on board.

The competent authority may implement additional appropriate measures, including isolation of the ship, as necessary to prevent the spread of disease.

The master must supply public health information required by the competent authority as to health conditions on board during the international voyage. The ship operator must facilitate inspections and sanitary measures.

If additional measures, such as isolation of the conveyance, are implemented, or if the public health risk appears to be serious and/or indicates international spread of disease, the IHR National Focal Point is to be notified.

A port that has the capacities listed in IHR Annex 1B should have, regarding the issuance of SSC, among the other capacities listed, trained personnel available to board a vessel and identify any significant risk to public health and to order control measures, if required. Sanitary measures may be carried out by the competent authority

or by others (e.g. the ship operator--by the crew member or under contract to a private company) under the supervision of the competent authority.

Risks may be determined by direct observation or measurement, and the inspecting officer should be able to quickly determine the measures necessary to remove or lessen the risk so that the international spread of disease does not occur. The SSC includes sections for documentation of the risks found and the control measures required (e.g. disinsection, disinfection, deratting or other decontamination, repair of equipment, modification of procedures) for application by the competent authority, a contracted firm or by the ship's crew members. For the purpose of facilitating immediate adoption of adequate control measures, it is recommended that each designated international port should maintain a list of companies or agencies that are authorized and can carry out disinsection, deratting, disinfection and decontamination.

It is important that the competent authority inform the ship operator of the control measures to be applied, and of any safety considerations that should be observed. Competent authorities are required to advise ship or other conveyance operators, as far in advance as possible, of their intent to apply control measures to it, and shall provide, where available, written information concerning the methods to be employed. As noted below, there are also regulations concerning charges for services relating to the measures, including that they be published in advance. Delaying an international vessel is costly for ship operators, and, in every case, unnecessary time in port should be minimized.

Examples of the types of procedures and activities that can be required of the competent authority include:

1) planning and adopting specific measures for both the inspection of ships and control of public health risks, including plans for controlling contamination and/or outbreaks of disease;
2) developing procedures for dealing with incidents and emergencies, establishing and maintaining communications, reporting and tracking systems, in cooperation with other key agencies and departments;
3) maintaining sampling equipment and supplies;
4) identifying the port facilities required for detaining ships and the facilities and services listed in Annex 1B (i.e. facilities for entry and exit control for travellers and assessment, transport, diagnostic, treatment, quarantine, isolation and to apply public health measures for conveyances, baggage, cargo, containers, goods, postal parcels and point of entry facilities used by travellers and related potable water supplies, eating establishments, catering, public washrooms, solid and liquid waste disposal, for conducting inspection programmes);
5) maintaining records of inspections;
6) identifying training requirements;
7) monitoring and auditing performance and compliance.

Concerning any charges for applying health measures to ships or other conveyances, cargo, containers or goods:

1) there shall be in each State Party only one tariff for such charges;
2) every charge shall conform to this tariff;
3) the charges must not exceed the actual cost of the service rendered;
4) the charges must be levied without distinction as to nationality, flag, registry or ownership of the ship, cargo, containers or goods. In particular there shall be no distinction between national and foreign ships, cargo, containers or goods.

Similarly, the competent authorities are also required to publish the tariffs for any charges made for applying health measures to ships or other conveyances, cargo, containers or goods at least 10 days in advance of any levy thereunder.

Inspections and taking of samples in the context of the Ship Sanitation Control Exemption Certificate/Ship Sanitation Ship Sanitation Certificate

The Model SSC in IHR Annex 3 contains columns for recording "Sample results" as part of the inspection and related information, but such samples may not be required to be taken and analysed in all inspections under the IHR (2005). Whether a sample will need to be taken and analysed will necessarily depend upon factors such as the particular circumstances, evidence found by the inspecting personnel, the nature of any potential public health risk, and the adequacy of inspection techniques which do not involve samples in the particular context. Further information on drinking water sample taking is available in WHO *Guidelines for drinking water quality*[6] .

Ship operators should ask for water sample results and certificates of water safety taken on board from suppliers at ports. The use of on board testing kits could be a supplementary action.

In general, when clinical signs or symptoms and information based on fact or evidence of a public health risk, including sources of infection and contamination, are found on board, the decision is up to the competent authority regarding the appropriate public health measures to apply to attain an adequate level of control of an identified public health risk At the same time, where there are methods or materials advised by WHO for these procedures, they should be employed, unless the competent authority determines that other methods are as safe and reliable.

Harmful contamination other than microbial contamination, for example from chemical or radionuclear sources, could also be found on ships. Both national and international agencies exist to deal with chemical and radionuclear incidents and emergencies.

Annex 3 of the IHR (2005) contains two parts: the model certificate that outlines the key physical areas of the vessel to be inspected and an attachment referencing the systems management for food, water, waste, swimming pools/spas, medical and other facilities that could require closer inspection according to the size and type of ship.

[6] (http://www.who.int/water_sanitation_health/dwq/gdwq3rev/en/index.html)

Part 1. Guidance on inspection areas for Annex 3 IHR (2005): Model Ship Sanitation Control Exemption Certificate/Ship Sanitation Control Certificate

1. Galley: preventing food and vector-borne international disease spread

1.1. Is there a schedule for cleaning and maintenance on a routine basis, for and including fixtures, fittings and equipment used during production and food handling?

Evidence: build up of dirt, dirty equipment. Use cleaning logs, crew member interviews for information.

1.2. Does the crew assigned to galley duties understand cleaning procedures, as well as safe food holding and preparation methods, for example minimum/maximum temperature requirements depending of the type of food stuff and avoidance of cross-contamination procedures?

Evidence: food holding and preparation errors, galley records. Use crew member interviews for information.

1.3. Do galley staff display good personal hygiene and demonstrate knowledge of when and how to wash hands.

Evidence: no hand washing, poor handwashing, or no handwashing performed after an act of contamination or possible food cross-contamination.

1.4 Is there at least one dedicated handwashing station accessible to the galley staff and is it properly equipped (paper towels/blow dryers, soap and waste receptacle)?

Evidence: absence of any the above.

1.5 Are utensils, pots/pans and food contact portions of equipment adequately cleaned and sanitized/disinfected?

Evidence: presence of residual build-up (wet or dry grease, food and other residuals from food handling).

1.6 Is there a build-up of food matter attractive to rodents or insects?

Evidence: food matter under tables, behind equipment.

1.7 Is there any galley area that could provide harborage for rodent or insect disease vectors/hosts?

Evidence: untidy areas that are not easily cleaned, where rodents or insects could hide.

1.8 Are food-handling areas restricted for this purpose only?

Evidence: presence of unrelated equipment, staff, no separation from other ship activities. Use crew member interviews for information.

1.9 Is there an adequate supply of safe hot and cold water? Is there hot and cold water provided at all times of food preparation and service?

Evidence: lack of hot and cold water supply to galley during food preparation and service, lack of water treatment, on-board or laboratory sample results.

1.10 Do any of the crew members assigned to galley duty exhibit any communicable disease symptoms, like jaundice, diarrhea, vomiting, fever, visibly infected skin lesions or boils or discharge from the nose, eyes or ears?

Evidence: existence of any of the symptoms described in a crew member on board or prior to embarkation for the voyage. Use medical log indicating treatment of illness, interviews with crew members.

1.11 Is exhaust ventilation provided and is it adequate for the equipment and galley staff?

Evidence: visible condensation on deckheads or bulkheads, food workers perspiring heavily from high heat and humidity, and/or food or food-contact surfaces contaminated with condensation.

1.12 Is adequate lighting provided?

Evidence: food counters and equipment should be sufficiently illuminated to inspect for cleanliness, identify soil, and evidence/presence of pests in open areas.

1.13 Are all food handling areas constructed of impervious material with a smooth surface to facilitate cleaning, and not conducive to creating harborage for rodent or insect vectors/hosts?

Evidence: inadequate, damaged or soiled material, and/or presence of vectors-hosts.

2. Pantry and stores: preventing the international spread of food-borne and vector-borne disease

2.1 Are all food storage areas constructed of impervious material with a smooth surface to facilitate cleaning, and not conducive to creating harboring for rodent or insect vectors/hosts?

Evidence: inadequate, damaged or soiled material and/or presence of vectors-hosts.

2.2 Food should be kept in a safe distance (approximately 6" or 15cm) off the deck and protected from the entry of water and other potential contamination.

Evidence: foodstuffs in contact with the deck or, if above the deck, contacts standing water or other contaminant.

2.3 Food should not be exposed to out-of-temperature conditions for any extended period. Examples of typical recommended temperatures for perishable food storage include the following:

2.3.1 food to be held hot would typically be placed in a hot-holding apparatus already at a temperature of at least 62.8ºC (145ºF) and maintained at that temperature until required.

2.3.2 all perishable food or drink would typically be kept at or below 4ºC (40ºF) except during preparation or when held for immediate serving after preparation. When such foods are to be stored for extended periods, a temperature of 4ºC (40ºF) is recommended. Fruits and vegetables would typically be stored in cool rooms. Ideally, meat and fish would typically be maintained at 0 to 3ºC (32 to 37ºF), milk and milk products at 4ºC (40ºF) and fruit and vegetables at 7-10ºC (45 to 50ºF). For more practical purposes, if there are limited refrigerated spaces, meat and meat products, fish and fish products, milk and milk products and eggs and egg products can be stored at < 5ºC (41ºF) whilst fruit and vegetables can be stored at < 10ºC (50ºF).

2.3.3 frozen foods would typically be kept below -12ºC (10ºF).

Evidence. spoiled food, temperatures too high. Use crew member interviews for information.

2.4 Is the food safe, without adulteration (chemical or other substances), and obtained from sources that comply with applicable local, regional, or country of origin laws and regulations?

Evidence: presence of food adulteration, contamination or spoilage and food sources not in compliance with applicable local, regional or country of origin laws and regulation.

2.5 Storage systems should prevent contamination of food by foreign bodies, dust, harmful fumes, unwanted chemicals and cross contamination between foods.

Evidence: presence of contamination, dust, harmful fumes, unwanted chemicals in contact with food and different groups of food stored together leading to cross contamination.

3. Holds: preventing international spread of contamination or infection from cargo

3.1 All holds, particularly those carrying consumable products, should be protected from the entry of water or insect or rodent vectors and any other contamination or infection. Cargo should be observed for evidence of contamination, or spoilage, in the case of consumable products.

Evidence: entry of water or other contamination, entry of insects, rodents.

3.2 Holds should normally be empty for inspection or when the presence of ballast water or other materials, is of such nature or so disposed as to make a thorough inspection of holds possible.

Evidence: presence of cargo and other materials at holds create barriers for inspection.

4. Quarters, crew members and officers: preventing person-to-person spread of disease internationally

4.1 Crew member quarters should comply with existing conventions on crew member accommodation contained in ILO conventions related to crew members' accommodation and food and catering. Crew members' quarters should not provide harborage for insects or rodents (Screening of outside cabins should be considered if local infestation of vectors and reservoirs exists), and should be clean and well-lit.

Evidence: presence of insects and rodents, absence of vector protection screening outside cabins (if needed and adequate for vector protection, due to local infestation of vectors and reservoirs), insufficient lighting and cleaning.

4.2 Crew member illness should be reported in the medical log.

Evidence: presence of any illness in crew members not reported and logged. Use crew member interviews and Request Maritime Declaration of Health if written information required.

5. Potable water

5.1 All tanks, hoses, valves and equipment for handling potable water should be exclusively for this purpose and clearly labeled "for potable water only". Colour coding on piping may also be used.

Evidence: tanks, hoses, valves and equipment not dedicated for handling potable water and or not well identified for this purpose. Potable water hose fits non-potable liquid connection.

5.2 Potable water tanks should not share a common wall with the hull of the vessel or with tanks or piping containing non-potable water or other liquids or materials.

Evidence: presence of cross contamination or potable water tanks walls not isolated from others tanks or piping containing non-potable water or other liquids or materials.

5.3 Potable water tanks should be constructed of materials that do not contribute to contaminate the water stored within.

Evidence: presence of contamination from water tanks materials or uncontrolled high risk of contamination due to kind of material used to construct water tanks.

5.4 Potable water tanks should be located in areas of the vessel where they will not be affected by dirt, insects, rodents or other contamination or excessive heat.

Evidence: presence of dirt, insects, rodents or other contamination or excessive heat.

5.5 Potable water tanks should have an inspection cover for easy inspection and access for cleaning or maintenance, and should be fitted with an independent drainage system.

Evidence: absence of inspection cover and independent drainage system, creating difficulties to access for cleaning and maintenance. Presence of dusty and other residual materials.

5.6 Potable water systems should incorporate a halogenation/chlorination system or other means to adequately remove or kill microbes and to remove other contamination.

Evidence: absence of operational system for remove or kill microbes and to remove other contamination.

5.7 When bunkering water, water quality test reports from the port supply should be requested, and shipboard water quality should be verified regularly. Onboard test kits are acceptable if they meet Standard Methods for the Examination of Water, when a port water quality report cannot be obtained.

Evidence: absence of regular water quality test reports or logged results from onboard test kits.

5.8 Potable water systems should have "backflow" prevention installed.

Evidence: presence of -contamination and or absence of "backflow" prevention installed.

6. Sewage: preventing international disease spread from discharge and contamination of crew members through leaks or overflows

6.1 Sewage systems should be secure, leak-proof and isolated from other systems to prevent cross-contamination. Tanks should be of sufficient capacity, without risk of overflow. Sewage treatment plants should be inspected regularly. There should be no discharge in restricted areas (ports) and no discharge to bilge.

Evidence: evidence of leaks, overflow or cross-contamination. Use design and construction drawings and crew member interviews for information.

7. Ballast tanks: preventing international disease spread through discharge

7.1 Ballast tanks should have valves set in "off" position and not pose an accidental discharge risk, unless risk assessment had been made and discharge authorized previously by competent port and health authorities, according to the provisions of IHR and the international Convention on Control and Management of Ships Ballast Water and Sediments.

Evidence: valves not in "off" position, risk of unauthorized discharge. Use information from recommended ballast water form IMO 868-20 and on board logs, crew member interviews and visual check.

8. Solid and medical waste: preventing international disease spread through discharge

8.1 Storage areas should be protected against vermin (food waste and dry refuse).

8.2 There should be protected storage of infectious medical waste.

8.3 Discharge of solid waste, food and medical waste should be undertaken in compliance with international and local regulations and ordinances for discharge.

Evidence: unlawful/unsafe discharge or storage of waste. Use logs and company contracts, crew member interviews for information.

9. Standing water: preventing international transport of insect vectors

9.1 Standing water can hold insect larvae and should not be present. Areas like lifeboat covers, bilges, scuppers, awnings, gutters, air treatment plants should be inspected when not in use.

Evidence: presence of standing water.

10. Engine rooms: preventing international transport of vectors and hosts

10.1 Engine rooms should be free of rodents or insects. Engine casings and insulation should be inspected for insect and rodent infestation.

Evidence: evidence of rodent or insect infestation.

11. Medical facilities: preventing person-to-person spread of disease

11.1 Areas designated for the examination and treatment of ill crew members should be separate from other crew member activities, well-lit, clean and private. Examination/treatment facilities must be clean and properly maintained, with potable water and hand washing areas. A treatment log should be maintained, as well as accommodation for adequate disposal of sharps and bio-medical waste. Operational manuals should be in place, according to the complexity of the facility and if qualified medically trained crew members are not present on board, procedures should be in place to contact external support for emergency medical advice services, in case of a health emergency event and/or an outbreak on board.

Evidence: space available, medical logs and equipment not properly maintained, medicines not properly stored, bio-medical waste and sharps not properly disposed, presence of vectors and others sources of contamination.

Part 2. Guidance on inspection areas for Annex 3 IHR (2005): Attachment to Model Ship Sanitation Control Exemption Certificate/ Ship Sanitation Control Certificate

In addition to the information for each inspection area contained in Part 1 above, officers inspecting large vessels should consider the following items from the attachment of Annex 3, where applicable:

1. Food

1.1 Source

All food should typically be obtained from shore sources approved or considered satisfactory by the relevant health administration. Food needs to be clean, wholesome, free from spoilage and adulteration, and otherwise safe for human consumption. Raw materials and ingredients should ideally not be accepted by the ship if they are known to contain parasites, undesirable microorganisms, pesticides, veterinary drugs or toxins, decomposed or extraneous substances which would not be reduced to an acceptable level by normal sorting and/or processing. Where appropriate, specifications for raw materials can be defined and applied. Stocks of raw materials and ingredients would typically be subject to effective stock rotation.

1.2 Storage

1.2.1 Refrigerated compartments should maintain chilled foods and frozen foods at appropriate temperatures and records should be kept.

1.2.2 Chemicals or toxic items should be stored in separate and secure facilities and never with or above foodstuffs.

1.2.3 Food shall be stored in a designated secured space, protected from contamination and infestation.

1.2.4 Food shall be stored in a clean, dry location, not exposed to splashes, dust or other contamination, and approximately 15 cm/6 in above the deck.

1.3 Preparation

1.3.1 Written cleaning and maintenance policies and procedures should be in place for each critical area in the galley that can contribute to infection or contamination of food on board.

1.3.2 Staff assigned to galleys should have competency qualifications obtained by completing a training course in food handling and preparation. This training should be up-to-date and records of training should be kept.

1.3.3 Logs of food holding temperatures should be kept.

1.3.4 All surfaces, equipment and fixtures should be appropriate for their assigned use – e.g. non-absorbent, easily cleaned, properly sealed or protected from the entry of insects or rodents.

1.3.5 Foods should be purchased from safe sources and be properly stored, prepared and served.

1.3.6 All galleys and food preparation or handling areas shall have conveniently located and ready access to dedicated hand wash stations, and the stations should be supplied with soap, a disposable paper towel, and a waste receptacle.

1.3.7 The hand wash station should be for this use only and remain accessible at all times.

1.4 Service

1.4.1 Food openly on display at buffet counters -- whether packaged, on the counter, in a service-line, or under salad bar food guards --, should be protected by appropriate display cases or by other effective ways to prevent crew or guest contamination.

1.4.2 Self-service buffet or salad bar operations with unpackaged ready-to-eat foods, should be provided with serving utensils and dispensing methods that prevent food/drink contamination.

1.4.3 Foods should be protected from contamination in storage or transport from sources such as seawater, bilge water, wastewater, hydraulic or fuel lines.

1.4.4 Hot foods should be kept hot and cold foods should be kept cold on display and service areas and buffets.

2. Water

2.1 Source

2.1.1 The quality of drinking water taken from a shore supply should be assessed before being taken on board. Port and local competent authorities should investigate the level of water safety. This investigation should be a routine part of the on board water management procedures. Water quality should be verified at minimum by water quality reports from the port from which the water is taken, or by onboard water quality kits which meet Standard Methods for the Examination of Water.

2.1.2 For ships that produce water with onboard evaporators or reverse osmosis systems, these systems should not be operated in polluted areas, harbors, or at anchor.

2.1.3 Ships should not take water from suspect shore supplies such as multi-use tank trucks or multi-use barges, but should ensure the trucks and barges are approved or considered satisfactory by the relevant health administration and used for potable water only. The ship water management procedures should ensure that the reception, handling, storage and delivery to ship water systems be carried out under completely sanitary conditions to protect water safety.

2.14 Potable water filling hoses should be constructed and used for this purpose only.

2.2 Storage

2.2.1 Potable water needs to be stored in tanks that are constructed, located and protected as to be safe against any contamination from outside the tank.

2.2.2 Treatment used should be suitable for the water to be purified from water tank filling by shore or onboard production plant and capable of ensuring efficient operation with the production of potable water that conforms to *the Guidelines for drinking-water quality 2004* (WHO 2004) or any relevant competent authority's requirements. If chlorination is being used, it should have effective contact time and provide a measurable free chlorine residual in the tanks being filled.

2.2.3 If potable water from tanks is piped to technical system endpoints, approved backflow prevention devices should be installed to protect the potable water system.

2.2.4 Potable water tanks should not share a common wall with the hull or other non-potable water tanks.

2.2.5 Piping systems carrying non-potable liquids should not pass inside potable water tanks.

2.3 Distribution

2.3.1 Potable water distribution systems should have appropriate backflow prevention devices wherever there are cross-connections with non-potable water, industrial fluids or gas which may enter the potable water distribution system.

2.3.2 Backflow preventers should be inspected and maintained in good condition.

2.3.3 Potable water in distribution should be further treated if necessary to ensure it remains in a potable condition (WHO) for end users.

3. Waste

3.1 All solid food and medical waste material should be held in a clearly marked space that is identified for this purpose only.

3.2 All holding and discharge of waste should be included in written company policies and procedures in a waste management plan. This plan should take into account the local regulations or protocols in place for waste management at the ports visited.

3.3 Wastes should be discharged under contract to approved waste management firms or agencies.

4. Swimming pools and spas

4.1 Swimming pools and whirlpools should meet the WHO Guidelines for *Safe Recreational Water Environments, Vol. 2 Swimming pools, Spas and Similar Recreational Water Environments - 2004.*

4.2 Swimming pools and whirlpool spas must be supplied with seawater or a potable water supply that passes through an air gap or approved backflow prevention device.

4.3 No bather should be allowed to use a pool before it goes through a disinfection process where pathogenic microorganisms are removed or inactivated by chemical (e.g. chlorination) or physical (e.g. filtration, UV radiation) means, unless pool is in flow-through, seawater mode, such that they represent no significant risk of infection.

4.4 Written or electronic records of operations, disinfection processes and maintenance should be maintained in accordance with manufacturer's recommendations.

5. Medical facilities

5.1 Equipment and medical devices

5.1.2 Adequate medical equipment and devices should be in good operational and hygiene conditions, operated and maintained according to manufacturer's recommendations.

5.2 Operations

5.2.1 Credentialed medical staff (physician/nurse) or other crew members designated to work in these facilities should be trained for his/her duty in basic medical first aid.

5.2.2 A well organized, legible and up to date medical log should be in place in these facilities. The log should list cases of illness, passengers/crew concerned and any medication dispensed. Log entries should list: 1) first date of clinic visit, name, age, and gender of patient; 2) passenger or crew member designation; 3) crew member position or job; 4) cabin number; 6) date/time of illness onset; 7) illness symptoms; and 8) note regarding specimen collection or other action taken, if applicable.

5.2.3 The medical log should be available during inspections.

5.2.4 There should be adequate hand washing facilities within the examination/treatment areas.

5.3 Medicines

5.3.1 Medications should only be dispensed to passengers or crew by trained and authorized personnel; and adequate records of consumption must be kept.

5.4 Confidentiality of personal medical and health information

5.4.1 Personal medical and other health information concerning passengers, crew or others, maintained in the above records or otherwise, must be processed and maintained confidentially in accordance with applicable laws and regulations.

6. Other areas

6.1 Sanitary control measures should be in place for all animals and their waste products.

6.2 Faecal accident procedures should be considered for passenger vessels.

6.3 Passengers' quarters: all practicable measures should be in place, consistent with the IHR (2005), to permanently keep all passenger accommodation free of sources of infection or contamination, including vectors and reservoirs (i.e. insects or rodent vectors).

Selected resources

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ILO (2006). Maritime Labor Convention (not entered into force) (http://www.ilo.org).

International Maritime Organization (2000). Guidelines for Ensuring the Adequacy of Port Waste Reception Facilities, IMO, London, 2000 (http://www.imo.org).

IMO. International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78) as amended (http://www.imo.org).

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IMO (1997). Resolution A.868 (20). Guidelines for Control and Management of Ships' Ballast Water to Minimize the Transfer of Harmful Aquatic Organisms and Pathogenic Agents (http://www.imo.org).

WHO (2007). International Health Regulations Guide to Ship sanitation (third edition) DRAFT, Version10 (http://www.who.int/water_sanitation_health/gdwqrevision/rrships/en/index.html)

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WHO (2004a). Guidelines for Drinking Water Quality – 3rd Edition. Geneva, World Health Organization (http://www.who.int)

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