
**Guidelines on Infection Control Practice
in the Clinic Setting**

**Infection Control Committee, Department of Health
December 2011 (Revised)**

Content

INDEX-----	1
INTRODUCTION-----	2
INFECTION CONTROL PROGRAMME AND NETWORK IN OUTPATIENT SETTING-----	2
I. DH Infection Control Committee-----	2
II. DH Infection Control Network-----	2
III. Infection Control Coordinator-----	2
IV. Infection Control Communication-----	3
V. Infection Control Audit-----	3
PRINCIPLES OF INFECTION CONTROL IN OUTPATIENT SETTING-----	3
ISOLATION PRECAUTIONS-----	4
I. Standard Precautions-----	4
II. Transmission Based Precautions-----	4
INFECTION CONTROL MEASURES-----	6
I. Hand hygiene-----	6
II. Personal Protective Equipment -----	8
III. Respiratory Hygiene/Cough Etiquette-----	9
IV. Patient Triage-----	10
V. Patient Care Equipment-----	10
VI. Environment Control-----	15
VII. Handling and Disposal of Sharps-----	16
VIII. Linen Management-----	17
IX. Waste Management-----	17
X. Specimen Handling-----	18
XI. Personal Hygiene-----	18
XII. Employee Health-----	19
Appendix I. Guidelines on Infection Control Practices for SARS during Various Government Response Levels-----	21
Appendix II. Guidelines on Infection Control Practices for Influenza Pandemic during Various Government Response Levels-----	26
Appendix III. Infection Control Checklist for the Department of Health of Hong Kong-----	30
Appendix IV. Summary of Recommended PPE Usage in Standard Precautions and Transmission Based Precautions-----	44
Appendix V. Recommended Methods of Decontamination for Commonly Used Items-----	45
Appendix VI. Properties of Commonly Used Chemical Disinfectants-----	48
Glossary-----	49
References-----	50

Guidelines on Infection Control Practice in the Clinic Setting

INTRODUCTION

Large numbers of patients are seen in outpatient setting daily. Most patients are seeking care for relatively minor illnesses or injuries that have not compromised their host defences. Very few patients are exposed to invasive devices or procedures that are known to pose significant infection risk. In addition, the duration of contact with the facilities is generally brief. Infection risk associated with care in clinics is probably quite low. Most nosocomial infections in these settings are largely preventable by the combination of simple good hygienic practice and appropriate decontamination of instruments.

The following guidelines are written for staff working in outpatient setting. Advices are given on the standard infection control practice to be observed whilst on duty. They should be read in conjunction with other infection control guidelines/recommendations promulgated by the Department.

Supplementary guidelines on infection control practices for SARS and Influenza Pandemic during various government response levels have been included in Appendix I and Appendix II.

INFECTION CONTROL PROGRAMME AND NETWORK IN OUTPATIENT SETTING

I. DH Infection Control Committee

Infection Control Committee, formed by Service Head from some services of DH, will hold meeting on a yearly basis or whenever necessary to discuss infection control issue in DH Services.

II. DH Infection Control Network

Meeting of DH Infection Control Network will also be held twice yearly with Senior Nursing Officers or Services representatives from clinical services to discuss infection control issues in DH Services. The roles of these members are to:

- Collect the issues related to infection control from the Services and discuss in the meeting
- Contribute opinions related to infection control
- Coordinate with infection control coordinators for implementation and monitoring of infection control measures in the Services
- Disseminate the information related to infection control that have been discussed in the meeting to the staff in the Services

III. Infection Control Coordinator

Each outpatient clinic should have a designated Infection Control Coordinator (ICC) to be responsible for the followings:

- Oversee and monitor the implementation of infection control practices in the clinic.

- Ensure all new staff including medical, nursing, clerical and workmen are familiar to infection control practices. Update existing staff on proper infection control practices periodically.
- Maintain/monitor various records e.g. autoclave cycle records, spore test records, accident records, staff sickness records, and staff infection control training record.
- Ensure infection control audit to be conducted regularly.
- Recommend changes needed in infection control practices.
- Report to Service Head in case of clustering of illnesses suggestive of infection originated from staff or clients.
- Coordinate with members of DH Infection Control Network on current infection control practice.

IV. Infection Control Communication

Infection Control Coordinator of individual clinic is encouraged to hold meeting to discuss any infection control related problems with their frontline colleagues periodically, they may refer their problems to members of DH Infection Control Network if necessary.

V. Infection Control Audit

Infection control audit facilitates thorough assessment on the compliance against infection control standards and ensure the maintenance of proper infection control measures in the outpatient setting.

An infection control checklist is used as an audit tool (Appendix III). The checklist would be monitored quarterly in each outpatient clinic. Problems should be addressed and the infection control coordinators would be responsible to initiate corrective measures in response to the problems.

PRINCIPLES OF INFECTION CONTROL IN OUTPATIENT SETTING

- I. Adherence to basic infection control measures (standard precautions and transmission based precautions).
- II. Adoption of patient triage.
- III. Appropriate use of personal protective equipment (PPE).
- IV. Effective practice of routine infection control such as aseptic technique, handling of sharps, reprocessing of instruments and appropriate use of antiseptics and disinfectants.

ISOLATION PRECAUTIONS

Isolation Precautions is a two-tier system that applies to healthcare environment in hospital and community. The first tier Standard Precautions is designed for all patients regardless of their diagnosis, that mainly prevent the transmission of microorganisms via contact of blood, body fluid, secretion, excretion, mucous membrane and non-intact skin. In conditions that Standard Precautions does not adequately confer protection against acquisition of infections e.g. some respiratory infections, the second tier Transmission-Based Precautions is necessary in addition to Standard Precautions.

I. Standard Precautions

Standard Precautions define all the steps that should be taken to prevent spread of infection from person to person or from contaminated environmental surfaces/healthcare items, when there is an anticipated contact with:

- Blood
- Body fluids
- Secretions
- Excretions, such as urine and faeces (not including sweat) whether or not they contain visible blood
- Non-intact skin, such as an open wound
- Mucous membranes, such as the mouth cavity

Standard Precautions is designed to reduce the risk of transmission of bloodborne pathogens and pathogens from moist body substances. It is applied to all patients regardless of their diagnosis or presumed infection status. The application of Standard Precautions during patient care is determined by the nature of contact/interaction with the patient which includes:

- Hand hygiene
- Personal protective equipment (PPE)
- Respiratory hygiene/cough etiquette
- Patient placement
- Patient care equipment
- Environmental control
- Handling and disposal of sharps
- Linen Management
- Waste Management

II. Transmission-Based Precautions

Transmission-Based Precautions may be needed in addition to Standard Precautions for selected patients who are documented or suspected to be infected with highly transmissible or epidemiologically important pathogens. These precautions should be tailored to the particular infectious agent involved and the mode of transmission. Some diseases may require more than one isolation category. Transmission-based precautions are divided into the following three categories:

(A) Airborne Precautions

Airborne precautions prevent diseases that are transmitted by airborne droplet nuclei (5 micrometres or smaller in size) containing microorganisms that can remain suspended in the air for long period of time or dust containing the infectious agent. Microorganisms carried in this manner can be dispersed widely by air current within a room or over a long distance. Special air handling and ventilation should be considered. Examples of airborne infections are pulmonary tuberculosis, chickenpox and measles.

(B) Droplet Precautions

Droplet precautions prevent the spread of organisms that are transmitted by large particle droplets (larger than 5 micrometres in size). These particles do not remain suspended in the air for extended periods of time, and usually do not travel beyond a several feet (usually 1 metre or lesser) from the patient. These droplets are generated when the patient coughs, talks, sneezes or during aerosol generated procedure. Examples of infections transmitted by droplet route include human influenza, pertussis and rubella.

(C) Contact Precautions

Contact precautions prevent spread of organisms from an infected or colonized patient through direct patient contact or indirect contact of patient's environmental surfaces or healthcare items. Examples of infections transmitted by contact route include scabies and norovirus infection.

INFECTION CONTROL MEASURES

I. Hand Hygiene

Hand hygiene is considered to be the primary measure to prevent health care-associated infection and to reduce the spread of multi-resistant microorganisms. The DH has adopted the WHO Guidelines on Hand Hygiene in Health Care for implementation of hand hygiene in DH clinical services. Evidence showed that alcohol based handrubs at point of care (e.g blood taking trolleys, consultation desks, triage station, at bedside) facilitate hand hygiene. Clinics should also implement strategies and programs to enhance and sustain hand hygiene compliance.

A. Hand Hygiene Technique

Hand hygiene can be achieved by rubbing hands with an alcohol-based formulation or washing hands with soap and water.

Handrubbing with Alcohol-based Handrub:-

- Apply a palmful of alcohol-based handrub and cover all surfaces of the hands. Rub all hand surfaces for at least 20 seconds until hands are dry.

Handwashing with Soap and Water:

- Wet hands with water and apply the amount of liquid soap necessary to cover all hand surfaces. Vigorously rub all surfaces of the hands for at least 20 seconds before rinsing under running water.
- Dry hands thoroughly with paper towel.
- The whole procedure usually takes about 40-60 seconds.

B. Indications for Hand Hygiene

- Preferably use an alcohol-based handrub for routine hand-antiseptics if hands are not visibly soiled.
- Wash hands with soap and water when visibly dirty or visibility soiled with blood or other body fluids or after using the toilet.
- If exposure to potential spore-forming pathogens is strongly suspected or proven, including outbreaks *Clostridium difficile*, *hand washing with soap and water is the preferred means*.
- When alcohol-based handrub is available in the health-care facility for hygienic hand antiseptics, the use of antimicrobial soap is not recommended.
- Soap and alcohol-based handrub should not be use concomitantly.
- Preferably use non-powdered gloves to avoid gritty feeling on hands resulted in the interaction between alcohol-based handrub and residual powders on hands after removing gloves.

Moments for performing hand hygiene→The WHO “ My 5 moments for Hand Hygiene”

Moment	When	Why	Examples
Moment 1. Before touching a patient	Clean your hands before touching a patient when approaching him/her.	To protect the patient against harmful germs carried on your hands.	Before shaking hands, stroking an arm, helping a patient to move around. Before taking pulse, blood pressure, chest auscultation, physical examination
Moment 2. Before clean/antiseptic procedure	Clean your hands immediately before accessing a critical site with infectious risk for the patient, regardless of whether or not gloves are used.	To protect the patient against harmful germs, including the patient’s own, entering his/her body.	Before oral /dental care, giving eye drops, secretion aspiration, wound dressing, injection, vaccination, catheter insertion, preparation of food and medication
Moment 3. After body fluid exposure risk	Clean your hands immediately after a task involving exposure risk to body fluids (and after glove removal).	To protect yourself and the health-care environment from harmful germs.	After contact with body fluids or excretions, mucous membranes and non-intact skin, e.g. oral/dental care, giving eye drops, secretion aspiration, wound dressing, specimen collection, clearing up urines, faeces, vomit, handling waste (bandages and napkins), cleaning of contaminated and visibly soiled material or areas (medical instrument). Moving from a contaminated body site to another body site during care of the same patient
Moment 4. After touching a patient	Clean your hands after touching a patient and his/her immediate surroundings, when leaving the patient.	To protect yourself and the health-care environment from harmful germs.	After shaking hands, helping a patient to move around. After taking pulse, blood pressure, chest auscultation, physical examination.
Moment 5. After touching patient surroundings	Clean your hands after touching any object or furniture in the patient’s immediate surroundings, when leaving without having touched the patient.	To protect yourself and the health-care environment from harmful germs.	Changing bed linen, perfusion speed adjustment, handling of oxygen tubing, holding a wheelchair/stretchers.

II. Personal Protective Equipment (PPE)

The use of PPE provides a physical barrier between micro-organisms and the wearer. It reduces but does not completely eliminate the risk of acquiring an infection. It also does not replace basic infection control measures such as hand hygiene. Selection of PPE should be based on risk assessment. Summary of recommended PPE usage in Standard Precautions and Transmission-Based Precautions is attached in Appendix IV.

(A) Use of PPE

(i) Gloves

- Should be worn when contact with blood or body fluids, secretions, excretions, and contaminated items.
- Must be readily available and well fitting.
- Should be changed after contact with each patient.
- Should also be changed between tasks and procedures on the same patient after contact with material that may contain a high concentration of microorganisms.
- Should be removed promptly after the procedure with hand hygiene performed before handling telephones or performing office work.
- Does not replace the need for hand hygiene.
- Sterile gloves should be used for surgical procedures.

(ii) Masks

Surgical masks

- Should be worn by staff or patients with fever or respiratory symptoms.
- Should be worn by staff working within 1 meter of patients on droplet precautions.

N95 respirator

- Should be worn by staff performing aerosol generating procedures e.g. nasopharyngeal aspiration for a patient with known or suspected airborne infection.
- Should be 'fit tested'. Seal check should be performed each time when using the N95 respirator.

(iii) Goggles, Face Shields and Gowns

- Should be worn by staff for high risk procedures or when there is a risk of splashing or spraying of blood or body fluids; e.g. excretion and secretion.

(B) Principles of PPE Removal

- Remove PPE in an area that prevents other persons from getting contaminated e.g. designated degown area
- Careful gowning down is crucial in avoiding contamination. Do not gown down together in close proximity to another person.
- Remove PPE in a manner that prevents self-contamination or self-inoculation with contaminated PPE or hands.
- Perform hand hygiene when hands get contaminated during removal of PPE.
- Change PPE and wash liberally without delay whenever having substantial splashing or contamination
- PPE worn should be treated as contaminated and should not be worn out of the workplace into non-clinical areas.
- Disposable PPE should be discarded properly after use
- Reusable PPE must be properly maintained and disinfected after use.

(C) Suggested Sequence of PPE Removal

In order to keep mucosal protection intact throughout, the suggested sequence of PPE removal in designated room or after performing high risk procedure is as follows:

- 1.Remove gloves
- 2.Perform hand hygiene
- 3.Remove gown
- 4.Perform hand hygiene
- 5.Remove disposable cap and eye protection
- 6.Perform hand hygiene (optional)
- 7.Remove mask/N95 respirator
- 8.Perform hand hygiene

(Remarks: The sequence may vary slightly according to local practice without jeopardising the general infection control principles)

III. Respiratory Hygiene/Cough Etiquette

The following infection control measures should be implemented at the first point of contact with patients with respiratory symptoms to prevent transmission of respiratory infections in the healthcare settings. They include:

(A) Visual Alerts

Visual alerts such as posters should be stood at the entrance of outpatient clinics to remind patients and their companions to practice cough etiquette as well as to inform staff of respiratory symptoms.

(B) Infection Control Measures of Respiratory Hygiene/Cough Etiquette

- Cover mouth and nose when coughing or sneezing
- Use tissue paper to contain respiratory secretions and dispose of them in lidded receptacles.
- Perform hand hygiene after hands have been in contact with respiratory secretions.
- Offer surgical masks to persons with respiratory symptoms, especially during epidemic periods.
- Encourage persons with respiratory symptoms to sit away from others in designated waiting area.

(C) Provision of Resources for Performing Cough Etiquette and Hand Hygiene

Ensure that materials for adhering to respiratory hygiene/cough etiquette and hand hygiene are available in waiting areas for patients and visitors:

- Provide lidded receptacles for used tissue paper disposal.
- Provide conveniently located dispensers of alcohol-based handrub; where sinks are available, ensure that supplies for handwashing (i.e., liquid soap and disposable towels) are consistently available.

IV. Patient Triage

A high index of suspicion is needed for identifying potentially infectious individual. Specific triage policies such as provision of visual alert to remind patient to inform staff for fever or respiratory symptoms should be developed for early detection and isolation, so as to minimize transmitting communicable diseases to other patients and healthcare workers in outpatient setting. During patient triage, the following should be observed:

- Healthcare workers should assess patients for conditions that require additional precautions (i.e. transmission-based precautions) and prioritize those who may require urgent consultation and isolation.
- Patients with high suspicion of infectious risk should be accommodated in designated waiting area to minimize cross infection whenever possible.
- To minimize the stay of infectious patients in outpatient clinics, arrange consultation soon within their arrival time and facilitate early departure from clinics.

V. Patient Care Equipment

Disinfection and sterilization of patient care instruments are necessary to prevent transmission of organisms between patients. Disinfection is used to reduce the number of microorganisms, while sterilization is used to remove all living microorganisms including bacterial spore. Standard Precautions should be applied when handling used

instruments.

(A) Cleaning

Before decontamination by any of the methods outlined below, instruments must undergo preliminary cleaning. Blood or any other substance should be rinsed off gently under running water. The instruments should then be soaked in a solution of lukewarm water and detergent, washed thoroughly and rinsed.

Appropriate personal protective equipment such as gloves and plastic apron should be worn when cleaning instruments to minimize occupational exposure. Care should be taken not to produce splashes. Goggles or face shields should be worn if splashing is likely.

(B) Choice of Decontamination Methods

Instruments should be categorized according to the risks they pose for patients. Critical items are devices that penetrate skin, enter normally sterile body areas or come into contact with non-intact mucous membranes; which require sterilization. Semi-critical items are devices that come into contact with intact mucous membranes or non-intact skin, which require disinfection. Cleaning is generally sufficient for non-critical items that come into contact with intact skin.

(C) Methods of Decontamination

The most common decontamination methods adopted in the patient care areas are using heat and chemical disinfectants. Heat is usually less selective, more penetrative and easier to control than chemicals. Heat is, therefore, the preferred method of decontamination. For decontamination method of selected items, please refer to Appendix V.

(i) Sterilization

Autoclaves

Instruments which are not heat sensitive can be sterilized reliably by steam under pressure using autoclaves. Please observe the followings when using autoclaves:

- Autoclaves must be located in treatment rooms away from traffic and they must not discharge steam/vapour into waiting area.
- Autoclaves must be operated only by staff who has been adequately instructed in their use.
- Traditional table top autoclaves (gravity displacement) without vacuum extraction cycle are intended for used to sterilize solid unwrapped instruments and devices. They should be properly loaded so that surfaces of

all instruments are accessible and exposed to the steam. Unwrapped instruments must be sterilized and used at point of care.

- Hollow and lumen devices, porous loads such as dressings and towels and wrapped instruments, should be placed in sterilization drums and sent to the designated central sterilization centres.
- Instruments can be sterilized in autoclave under the following minimal conditions: at a temperature of 121°C for 15 min. holding time, at 132°C for 4 min. holding time or at 134°C for 3 min. holding time.
- Instruments should be removed from the autoclave when a cycle is completed. They should be placed on a trolley laid with sterile paper/cloth and covered with a sterile paper/cloth and used within a session.
- Persons operating the autoclave should record for each cycle the readings on the autoclave gauges in a log book specifically kept for this purpose. The temperature and pressure should be within the ranges specified.
- Water in the filter of the autoclaves should be changed weekly or as recommended by the centre in-charge
- Autoclaves must be checked monthly with spore vials placed on the bottom shelf in the area above the chamber drain. The results of spore test should be entered into a record.
- In case of unsatisfactory spore test result, EMSD should be notified. Autoclave should only be reused when spore test indicates satisfactory performance.
- Autoclaves should be serviced regularly at yearly intervals and as necessary.

(N.B. When purchasing autoclaves, please note the requirements of BS 3970: the autoclave should have a preset automatic cycle, both temperature and pressure gauges and a thermocouple entry port.)

Sending drums

- Items in drums should be loosely packed.
- The drum should be closed properly and with the autoclaving tape placed on it.
- Close the valves of the drum during transport to sterilization centre.
- All valves of the drum should be open before autoclaving.
- Valves of drum should be closed after autoclaving process.
- Check for the colour change of the autoclaving tape.
- Place the drum in a clean and dry place.

Shelf-life of sterilized items

- The “shelf-life” of sterilized wrapped items from central sterilization centre is

suggested as follows:

- Single wrapped sterilized items to be used within 2 weeks.
 - Double wrapped sterilized items to be used within 4 weeks.
 - Single wrapped sterilized items kept in unopened drum to be used within 4 weeks.
 - Double wrapped sterilized items kept in sealed plastic bag to be used within 3 months.
- Expiry date should be written on top of every item.
 - Sterilized items should be stored preferably in an enclosed and well-ventilated area to provide protection against dust, moisture, and temperature and humidity extremes.
 - Maintain an effective stock management system so that sterile items are used before expired
 - Instrument must be re-sterilized before use if it is expired or if there is sign of damage of the package.

Hot air ovens

Instruments and materials which are heat stable and which cannot be sterilized by steam because of deleterious effects or failure to penetrate could be sterilized by the use of hot air ovens. The transfer of heat by air is less efficient than by steam. Hot air ovens use higher temperature and longer times to sterilize than do autoclaves.

When using hot air ovens, please observe the followings:

- Hot air ovens must be located in a suitable area away from traffic.
- Hot air ovens must be operated only by staff who has been adequately instructed in their use.
- Non-perforated closed containers such as solid metal trays could be used in hot air ovens.
- Load should be packed in such a way that sufficient space remains between articles to allow hot air circulation.
- Instruments and materials can be sterilized in a hot air oven at a temperature of 160°C for 120 min. holding time or 180°C for 30 min. holding time.
- Persons operating the hot air oven should record for each cycle the reading on the indicating thermometer.
- Hot air ovens must be checked monthly with spore tests.
- In case of unsatisfactory spore test result, EMSD should be notified. Hot air oven should be reused only when spore test indicates satisfactory performance.
- Hot air ovens should be serviced regularly at yearly intervals and as necessary.

(N.B. When purchasing hot air oven, please note the requirements of BS 3421: hot air oven should be fan-assisted; it should have a thermocouple entry port and safety device which will keep the door locked until chamber temperature is below 60°C.)

(ii) Disinfection

Hot water disinfectors

Boiling water, although being able to effectively disinfect instruments, cannot achieve sterilization since some bacterial spores can withstand boiling.

The followings must be observed when using a hot water disinfectant:

- The hot water disinfectant must be located in treatment rooms.
- The hot water disinfectant must be operated only by staff who have been adequately instructed in their use.
- Cleansed instruments must be fully immersed in water.
- Disinfectants should not be overloaded.
- Leave instruments for a minimum of 10 minutes without interruptions after water returns to the boil e.g. do not add instruments into the hot water disinfectant while boiling. Use a timer with each process.
- Disinfected instruments should be removed with disinfected forceps and placed on a trolley laid with sterile paper/cloth and covered with a sterile paper/cloth and used within a session.
- Water in the disinfectant should be changed at least daily or when it is contaminated. Fill up the hot water disinfectant at the beginning of the day.

Chemical disinfectants

Chemical disinfectants could be alternatives for heat labile instruments. However, they have many drawbacks such as corrosive properties, variability in their effect on different microorganisms, easy inactivation and different rates of microbiocidal action (refer to Appendix VI for properties of various chemical disinfectants).

When using chemical disinfectants, please observe the followings:

- The disinfectant containers must be thoroughly sterilized before refill. Do not top up.
- The containers should be clearly labelled with contents, in-use dilution and expiry date.
- Ensure that optimum dilution is used.
- The disinfectant containers should not be left open as they could easily be

contaminated and microbes can grow in the disinfectant solution. Moreover, it may pose occupational hazard as glutaraldehyde vapourizes.

- Use appropriate disinfectants according to instruction (refer to Appendix VI).

VI. Environmental Control

(A) Ventilation

A substantial proportion of the infections seen in the outpatient clinics are viral respiratory infections and probably carry with them risks of transmission similar to the risks of transmission in the community. Droplets that are potentially infectious to the susceptible person do not remain suspended in the air for extended periods; therefore, special air handling and ventilation are usually not required. It is unnecessary to restrict subsequent use of examination rooms after patients with these infections are seen.

Susceptible persons may come in contact with tuberculosis patients in outpatient clinic, most probably in TB and chest clinics. Droplet nuclei containing *Mycobacterium tuberculosis* may persist in the air for extended periods. Susceptible persons may get infected via inhalation of these suspended droplet nuclei for a sufficiently extended time. To minimize the risk of infections, it is advisable that:

- Plenty of fresh air should be continuously introduced into all the rooms in the clinics.
- Direction of air flow should be adjusted such that air flows from clean areas to less clean areas, then to dirty areas.
- Filters of the air-conditioners are cleansed once bi-monthly or as recommended by the centre in-charge.
- For designated rooms, it is desirable to maintain at least at 6 air changes per hour. Portable HEPA filter (e.g., IQ Air) can be used to augment systems that cannot provide adequate airflow, and provide increased effectiveness in airflow.

(B) Furniture and Other Fixtures

- Furniture in the waiting rooms should be cleaned regularly or when visibly dirty.
- Examination tables should be cleaned daily or when it is visibly soiled or contaminated.
- Other structural surfaces, fixtures and fittings require regular cleaning.
- Room used by patients with symptoms suggestive of infectious diseases, should be cleaned and disinfected if environmental contamination is likely.
- Damp cleaning with scrubbing is preferred.
- Wash the bucket after use and store dry.

- Cloth should be cleaned after use in hot water and detergent, rinse with water and hang dry.
- Schedule of cleaning, operational manual and training of staff should be established and followed.

(C) Floor

- Clean the floor daily or more frequently consistent with the need in the facilities.
- Damp cleaning with scrubbing is recommended. Routinely use water and detergent.
- Cleaning should start in the clean areas and progress to the dirty areas (including the toilets, which should be the last).
- Wash the bucket after use and store dry.
- Mops should be cleaned after use in hot water and detergent. Rinse with water and hang dry
- Schedule of cleaning, training of staff and operational manual should be established and followed.

(D) Spillage

- Spills of blood and body fluids should be decontaminated promptly.
- Wear gloves and appropriate PPE if splashing is anticipated.
- For spillage of blood, cleanse the visible matter with disposable absorbent material wetted with one part of household bleach (5.25% hypochlorite solution) in 4 parts of water, leave for 10 minutes, and then rinse with water.
- For spillage of other body fluid, cleanse the visible matter with disposable absorbent material and then disinfect with one part of household bleach (5.25% hypochlorite solution) in 49 parts of water, leave for 30 minutes and then rinse with water.
- Floor mop or other cleaning utensils should be treated properly before re-use. Disinfect such utensils by immersing them in 1 in 49 diluted household bleach (5.25%) for 30 minutes, then wash with detergents and water. Re-use after drying out.
- Dispose of all contaminated waste material into appropriate plastic waste bag.
- Perform hand hygiene after removing gloves.
- Wash skin thoroughly with soap and water if accidentally contaminated with blood or body fluids.

VII. Handling and Disposal of Sharps

- Sharps must be handled with extreme caution.

- Use sharps with safety devices or engineering control to prevent percutaneous injuries as far as possible.
- Do not remove used needles from disposable syringes by hand. Do not bend, break or manipulate used needles by hand.
- Avoid recapping of needles as far as possible.
- If needles need to be recapped, use devices or methods which eliminate the risk of percutaneous injury.
- Needles and sharps must be discarded into puncture-resistant containers.
- Do not overfill sharps box. Dispose sharps box when it is $\frac{3}{4}$ full.
- Keep sharps box dry.
- Secure sharps box in an upright position and in a convenient place near to where the sharps are used.
- Seal up sharps box and discard into red plastic waste bag with biohazard label for proper disposal.

VIII. Linen Management

- Standard precautions should be applied when handling all used laundry.
- PPE shall be used when handling used linen if appropriate.
- Clean laundry shall be handled, processed and transported separately from used laundry.
- Sorting or pre-rinsing of used linen in patient care areas is not recommended.
- Soiled linen should be handled as little as possible. Soiled linen should be placed in plastic bag/water soluble bag and labelled as 'SOILED LINEN' before sending to laundry.

IX. Waste Management

Waste arises from outpatient settings should be segregated at sources of arising. Lidded waste bin, preferable with foot-pedal, should be used in clinical areas.

(A) Types of Waste:

(i) Domestic Waste

Wrapping paper, office paper and other items should be placed in black plastic waste bags and disposed of in the same manner as domestic waste.

(ii) Clinical Waste

Sharps boxes, dressings/swabs and all other waste dripping with blood, caked with blood or containing free flowing blood and other potentially infected waste should be placed in red plastic waste bags. Human and animal tissues should be put into yellow bags.

(iii) Chemical Waste

Expired cytotoxic drugs or other pharmaceutical products as well as mercury from broken thermometer or sphygmomanometer are not clinical waste and should be disposed of as chemical waste.

(B) Waste Disposal

- Waste bags should be securely fastened when $\frac{3}{4}$ full. Domestic waste should be disposed of daily. Red plastic waste bags should be stored in a designated location with a visibly clear warning sign, and protected from water, rain and rodents. They should be secured from unauthorized persons.
- Waste should be segregated, labelled, stored and disposed of in accordance with the EPD's current "Code of Practice for the Management of Clinical Waste for Waste Producers".

X. Specimen Handling

- Samples should be taken correctly and placed in a leak-proof container. The cap should be securely closed.
- The outside of specimen containers should not be contaminated.
- Specimen tray should be thoroughly cleaned and disinfected periodically (i.e. at least daily or when contaminated).
- Refrigerator used for specimen storage is clearly labelled and should not be used for food or drink or medication.
- Specimens should be kept upright as far as possible to prevent leakage during transport to the laboratory.
- Specimens should be transported in individual plastic bags. Request slips should be placed outside the plastic bag.
- Perform hand hygiene after taking any specimen.
- Specimen courier should be instructed in how to handle spillage.
- Spillage kit should be available in the transport van.

XI. Personal Hygiene

(A) Staff

- Wear surgical mask when having respiratory symptoms. Exclude from duties and seek medical advice immediately when having fever or other symptoms suggestive of infectious diseases.
- Wear uniform properly, fastened and keep it apart from outdoor clothing.
- White coat/uniform should be worn within clinic boundary only.
- Perform hand hygiene often and always before leaving the clinics.

- Always perform hand hygiene before eating and drinking.
- Never eat and drink in examination or treatment rooms.
- Perform hand hygiene before and after contact with eyes, nose or mouth.
- Cover wounds with water proof dressings.

(B) Patients

- Strictly adhere to respiratory hygiene/cough etiquette as stated in p.9.
- Perform hand hygiene before leaving clinic.

XII. Employee Health

(A) Staff Sickness Reporting and Record

- All staff should report to supervisor/infection control coordinator when having fever or other symptoms suggestive of infectious diseases and seek medical advice immediately. Supervisor/infection control coordinator should document the reported sickness in Staff Sickness Record.
- All staff, particularly those who have frequent contact with tuberculosis patients, should be instructed to seek medical evaluation promptly whenever they develop symptoms which may be suggestive of tuberculosis

(B) Immunisation

Each clinic is suggested to keep record on staff vaccination status (such as Hepatitis B, Measles, Rubella, Influenza and Varicella).

(i) Hepatitis B

All healthcare workers (HCWs) should be vaccinated against hepatitis B and their post-vaccination serological status ascertained.

(ii) Measles and Rubella

All HCWs should be immune to measles and rubella, by either vaccination or medical evaluation

(iii) Influenza

All HCWs should receive influenza vaccination annually at least two weeks prior to the anticipated seasonal peak of influenza

(iv) Varicella

Healthcare workers who have frequent contact with immunocompromised patients, pregnant women, and pediatric patients should be immune to varicella, either by vaccination or medical evaluation.

(C) Accidents and Dangerous Occurrences

- All staff should be instructed to notify accidents and dangerous occurrences, especially sharps injury to supervisor/infection control coordinator in the clinic, according to local policy.
- All notified accidents should be recorded in a log book specifically kept for this purpose. They should be reviewed and monitored so that corrective and preventive actions can be taken.

(D) Post-Exposure Management

- First aid is of great importance after exposure to blood or body fluids.
- In case of sharps related injury, wound should be thoroughly washed with liquid soap and water before disinfected and dressed.
- For mucosal contact e.g. spillage into the eyes, the exposed part should be washed immediately and liberally with running water.
- The exposed person should seek medical advice for risk assessment and proper post-exposure management as stipulated in the document “Procedure for Management of Needle Stick Injury or Mucosal Contact with Blood or Body Fluids - General Guidelines for Hepatitis B, C and HIV Prevention”.

Appendix I

GUIDELINES ON INFECTION CONTROL PRACTICE (FOR SARS TO BE USED DURING VARIOUS SARS RESPONSE LEVELS)

Introduction

1. The Severe Acute Respiratory Syndrome¹ (SARS, aka "Atypical Pneumonia") is caused by SARS Coronavirus which was isolated in human beings. The virus disseminates largely by droplet spread. Aerosolized respiratory secretions, patients' secretion, excreta and fomites are potentially infectious. It can be contracted through close contacts with or unprotected exposure to someone infected with the virus.

2. While clinics of the Department of Health operate a diverse range of services for a large number of clients, the risk to SARS is generally lower than that in hospitals where (a) more serious patients are managed, and (b) the duration of contacts with suspect patients is much longer. Nevertheless it is important to uphold infection control standards to prevent SARS or other droplet infections in the healthcare setting. This Appendix introduces additional precautions and serves to highlight existing practices demanding attention.

3. As a collection of interim measures, this Appendix should be reviewed in the course of time in accordance with the epidemiology and clinical course of SARS.

Principles

4. The measures stipulated in this Appendix are introduced to reduce the chance and extent of unprotected exposure to SARS in staff as well as patients or clients, based on the following principles:

- (a) Enhancement of standard precaution in clinic setting through the incorporation of practices for preventing droplet and contact transmission.
- (b) Adoption of high index of suspicion by patient triage and self-exclusion of staff.
- (c) Appropriateness in the use of PPE
- (d) Standardization of disinfection procedures following potential exposure.

Incorporation of droplet and contact precaution in standard practice

5. Droplet precautions should be strictly enforced in all clinics in the Department, which include the following measures:

- (a) Exclusion from duties should be arranged for healthcare workers who had

¹ Case definition of SARS (WHO 14 August 2003): (a) high fever (>38°C), and (b) one or more respiratory symptoms including cough, shortness of breath, difficulty in breathing, and (c) Radiographic evidence of lung infiltrates consistent with pneumonia or RDS, and (d) No alternative diagnosis can fully explain the illness. The latest definition should be referred where appropriate.

unprotected exposure during close contacts² of SARS patients, and be considered for those who have symptoms and histories suspected of SARS.

- (b) Surgical mask must be worn in clinic areas. The following should be noted in the use of mask, that
 - (i) the mask should be discarded after procedures that might have resulted in potential droplet contamination;
 - (ii) new mask should be put on daily (if non-surgical mask, for example, N95, is used, the manufacturer's recommendation should be followed);
 - (iii) the same mask should not be worn in non-clinic boundary.
- (c) Hand hygiene is mandated after each patient contact, change of gloves/masks, gown/uniform/white coat (please refer to 5 moments of hand hygiene on page 7)
- (d) Protective clothing, for example, white coat, uniform or gown should be worn in clinic areas within the designated clinic boundary. Protective clothing should not be worn outside clinic area.

6. Precaution focusing on patients/clients should be enforced by

- (a) Requesting all patients/clients to wear surgical mask in the public area and clinic area, and specifically requiring those with respiratory signs/symptoms or fever to wear surgical mask when alert level is activated
- (b) Patient/client triage
 - (i) A patient/client is asked to self-identify him/herself if he/she might have contracted SARS as a result of being a close contact of a SARS patient, or if he/she has symptoms suggesting of the syndrome.
 - (ii) A client at higher risk of infection [as identified in (i) above] should be required to wear a surgical mask and the consultation should be held in a designated room with additional precaution.
 - (iii) N95 mask, gloves, goggles and protective clothing should be worn during high risk procedures.

7. Precautions for environment control (as stipulated in Section VI of Infection Control Measures of "Guidelines on Infection Control Practice in the Clinic Setting" @ http://www.chp.gov.hk/files/pdf/IC_practice_in_clinic_2010.pdf) should be followed, with the adoption of the following enhancements:

- (a) A room should be designated for consultation of patients at higher risk of SARS. There should be good ventilation and preferably separate handwashing facility in the designated room.
- (b) Aerosol-generating procedure should be avoided unless it's essential. If required, the procedure should be carried out in negative pressure room or the designated room above. Staff should put on goggles, N95 masks, gowns and gloves on entry to the room. Such materials should be properly disposed or disinfected after procedure.
- (c) Wastes should be placed in waste bags, which are tied and put in covered containers for disposal in the normal channels.

² Close contacts refer to the situation of "having cared for, lived with, or had direct contact with respiratory secretions or body fluids of a suspect or probable case of SARS". (WHO, 1 April 2003)

- (d) Contaminated PPE and other items should not be brought into non-clinic areas.

Infection control procedures following the detection of a suspected or known case of SARS

8. Following the care of a patient/client suspected with or known to have SARS:

- (a) The area should be close for disinfection as soon as possible.
- (b) The area and objects that have been used during the consultation should be disinfected with one part of household bleach (5.25% hypochlorite solution) in 49 parts of water (or 70% alcohol for metallic surfaces).

9. The care of a SARS patient in the clinic is normally not considered as close contact unless there is prolonged unprotected exposure during consultation or other treatment procedures. The staff who has been in close contact with the SARS (or suspected SARS) patient should then be alerted to the need for quarantine as required by the Department of Health.

10. If a diagnosis of SARS is made in retrospect on a client/patient or staff on the second day or thereafter,

- (a) normal disinfection procedures (paragraph 8) should be followed without the need for repeat cleansing or closure if such procedure is already in place on a daily basis;
- (b) disinfection and closure (during disinfection) may be organized if the area has not been disinfected since the infected person's last presence.

Government response system to SARS

There are three-level responses to SARS:-

Alert level is activated when there is

- (a) laboratory-confirmed SARS cases outside Hong Kong; or
- (b) a SARS alert** in Hong Kong.

Level 1 is activated when there is one or more laboratory-confirmed SARS cases in Hong Kong occurring in a sporadic manner. The activation should be completed within 12 hours of the laboratory confirmation.

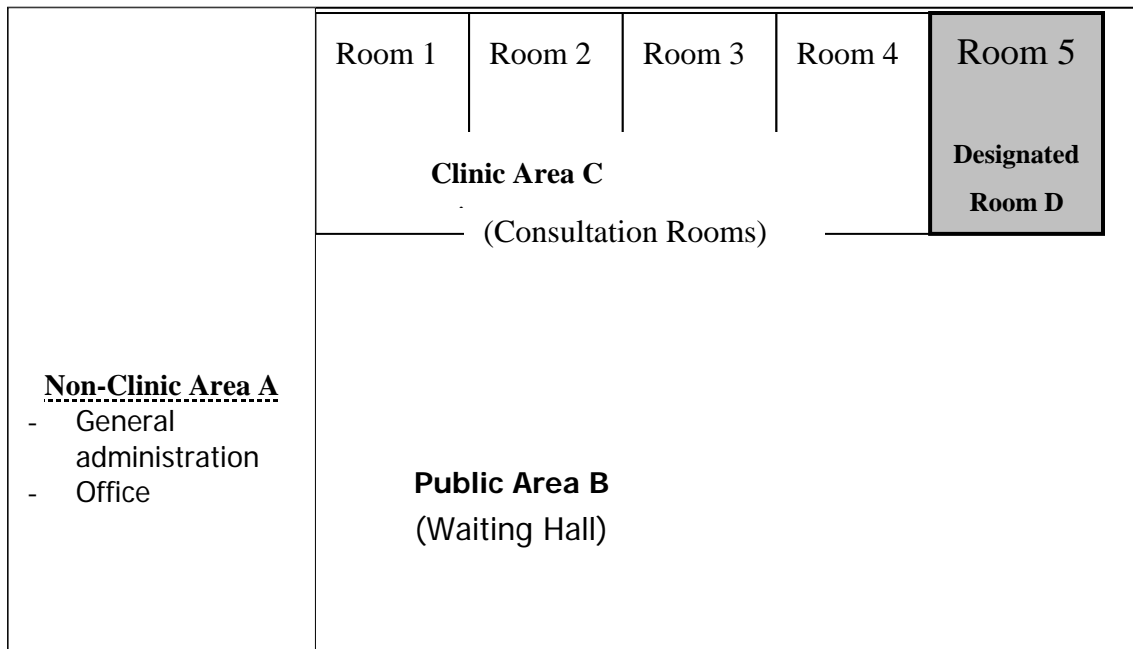
Level 2 is activated when there are signs of local transmission of the disease.

***The SARS Alert is an operational definition introduced by the WHO to ensure that appropriate infection control and public health measures are implemented until SARS has been ruled out as a cause of atypical pneumonia or respiratory distress syndrome. Definition of a SARS Alert is –*

- *two or more healthcare workers in the same ward/unit fulfilling the clinical definition of SARS and with onset of illness in the same 10-day period; or*
- *hospital acquired illness in three or more persons (healthcare workers and/or other hospital staff and/or patients and/or visitors) in the same ward/unit fulfilling the clinical case definition of SARS and with onset of illness in the same 10-day period.*

Applicable when Alert Level, Level 1 or Level 2 is activated

Designation of Areas in a DH Clinical Unit[#]



Area *	Designation	Examples	Infection control precautions
A	Non-clinic area	General office	No personal protection equipment (PPE) is required
B	Public area	Waiting hall	Wearing of surgical mask is advised for all; wearing of surgical mask is required for patients with respiratory symptoms or fever
C	Clinic area	Consultation room(s) where clinical procedures are carried out regularly	<u>Client:</u> Wearing of surgical mask is advised for all; wearing of surgical mask is required for patients with respiratory symptoms or fever <u>Staff:</u> Wearing of surgical mask and gown are required; other protections as required for respective procedures
D	Designated room	Selected room for managing suspected or probable SARS patients	<u>Client:</u> Wearing of surgical mask is required <u>Staff:</u> Wearing of surgical mask and gown are required; N95 mask and other appropriate protections (e.g. gown and goggles) should be put on for high risk procedures; PPE should not be worn beyond the designated area

[#] This template is designed for DH units with clinical service only. The latter is defined as a place where personal health services are provided normally to patients but may include also those for healthy individuals. Adjustment is needed if the guidelines and template are adapted for non-clinical services.

* Division into four areas of A, B, C and D may not be possible for all services. In some situations, A and B may be combined. D is mandatory for all clinical services.

GUIDELINES ON INFECTION CONTROL PRACTICE

(To be adopted at scenario (b) of Serious Response Level or Emergency Response Level in the Government Pandemic Influenza Preparedness Plan)

Introduction

1. Sixteen subtypes of influenza A virus are known to infect birds, thus providing an extensive reservoir of influenza viruses. To date, outbreaks of highly contagious and rapidly fatal disease resulting in severe epizootics have been caused by the influenza A viruses of subtypes H5 and H7, and human infection have been documented with H5 and H7 subtypes. The virus disseminates largely by droplet spread. Aerosolized respiratory secretions, patients' secretion and fomites are potentially infectious. It can be contracted through close contacts with or unprotected exposure to someone infected with the virus.

2. To keep up with the developments of avian influenza situation in the region, the Government has updated its pandemic influenza preparedness plan and included three-level response system, viz alert level, serious level and emergency level:

Alert Response Level:

- (a) Confirmation of Highly Pathogenic Avian Influenza (HPAI) outbreaks in poultry populations outside Hong Kong
- (b) Confirmation of HPAI in Hong Kong in imported birds in quarantine, in wild birds, in recreational parks, in pet bird shops or in the natural environment
- (c) Confirmation of human case(s) of avian influenza outside Hong Kong

Serious Response Level:

- (a) Confirmation of HPAI outbreaks in the environment of or among poultry population in retail markets or farms in Hong Kong
- (b) Confirmation of human case of avian influenza in Hong Kong without evidence of efficient human-to-human transmission

Emergency Response Level:

- (a) Confirmation of efficient human-to-human transmission of novel influenza in Hong Kong or overseas
- (b) Pandemic influenza as declared by the WHO

3. While clinics of the Department of Health operate a diverse range of services for a large number of clients, there is a risk of acquiring the infection in the healthcare setting. It is important to uphold infection control standards to reduce this risk. This Appendix introduces additional precautions and serves to highlight existing practices demanding attention.

4. As a collection of interim measures, this Appendix should be reviewed in the course of time when more becomes known about the epidemiology and clinical course of the novel influenza virus.

Principles

5. The measures stipulated in this Appendix are introduced to reduce the chance and extent of unprotected exposure to novel influenza in staff as well as patients or clients, based on the following principles:

- (a) Enhancement of standard precautions in clinic setting through the incorporation of practices for preventing droplet and contact transmission.
- (b) Adoption of high index of suspicion by patient triage and self-exclusion of staff.
- (c) Appropriateness in the use of PPE
- (d) Standardization of disinfection procedures following potential exposure.
- (e) Vaccination with the current WHO recommended influenza vaccine

Incorporation of droplet and contact precautions in standard practice

6. Droplet precautions should be strictly enforced in all clinics in the Department, which include the following measures:

- (a) Exclusion from duties should be arranged for healthcare workers who had unprotected exposure during close contacts* of patients with novel influenza.
- (b) Surgical mask must be worn in clinic areas. The following should be noted in the use of mask, that
 - (i) the mask should be discarded after procedures that might have resulted in potential droplet contamination;
 - (ii) new mask should be put on daily (if non-surgical mask, for example, N95, is used, the manufacturer's recommendation should be followed);
 - (iii) the same mask should not be worn in non-clinic boundary.
- (c) Hand hygiene is mandated after each patient contact, change of gloves/masks, and gown/uniform/white coat. (please refer to 5 moments of hand hygiene on page 7)
- (d) Protective clothing, for example, white coat, uniform or gown should be worn in clinic areas within the designated clinic boundary. Protective clothing should not be worn outside clinic area.

7. Precaution focusing on patients/clients should be enforced by

- (a) Advising all patients/clients to wear surgical mask in the public area and clinic area, and specifically requiring those with respiratory signs/symptoms or fever to wear surgical mask
- (b) Patient/client triage
 - (i) A patient/client is asked to self-identify him/herself if he/she might have contracted infection as a result of being a close contact of patient with novel influenza, or if he/she has symptoms suggesting of the infection.
 - (ii) A client at higher risk of infection [as identified in (i) above] must wear a surgical mask and the consultation should be held in a designated room with additional precaution.
 - (iii) N95 mask, gloves, goggles and protective clothing should be worn during high risk procedures.

* Close contacts refer to the situation of "having cared for, lived with, or had direct contact with respiratory

secretions or body fluids of a suspect or probable case of novel influenza”.

8. Precautions for environment control (as stipulated in Section VI of Infection Control Measures of “Guidelines on Infection Control Practice in the Clinic Setting” @ http://www.chp.gov.hk/files/pdf/IC_practice_in_clinic_2010.pdf) should be followed, with the adoption of the following enhancements:

- (a) A room should be designated for consultation of patients at higher risk of novel influenza. There should be good ventilation and preferably separate handwashing facility in the designated room.
- (b) Aerosol-generating procedure should be avoided unless it's essential. If required, the procedure should be carried out in negative pressure room or the designated room above. Staff should put on goggles, N95 masks, gowns and gloves on entry to the room. Such materials should be properly disposed or disinfected after procedure.
- (c) Wastes should be placed in waste bags, which are tied and put in covered containers for disposal in the normal channels.
- (d) Contaminated PPE and other items should not be brought into non-clinic areas.

Infection control procedures following the detection of a suspected or known case of novel influenza

9. Following the care of a patient/client suspected with or known to have novel influenza:

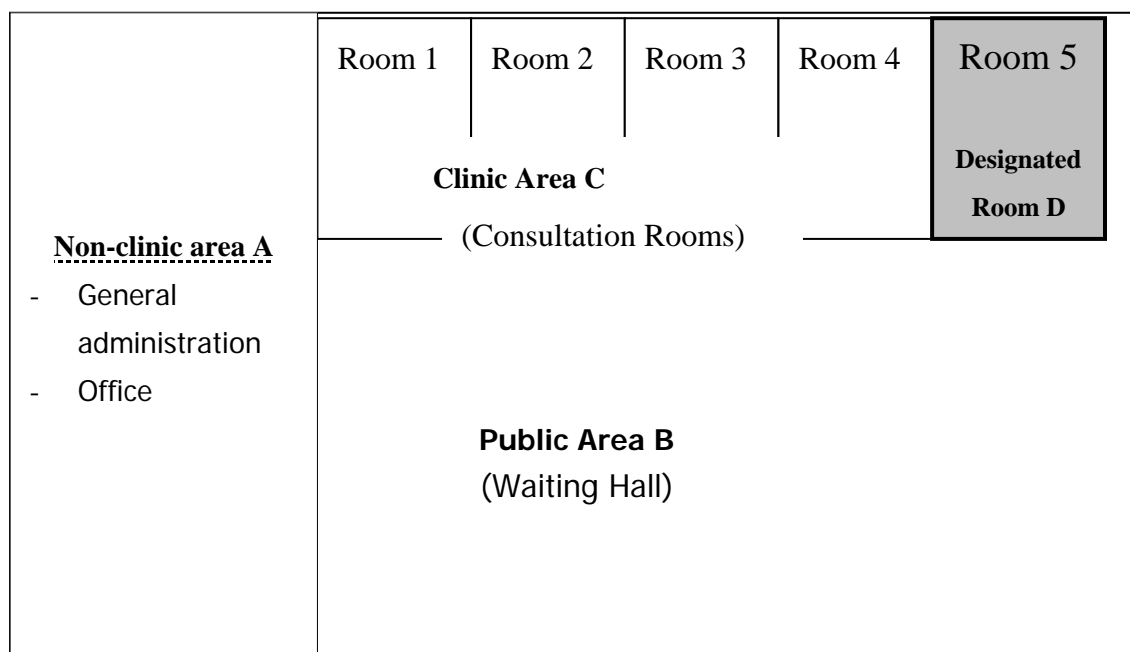
- (a) The area should be closed for disinfection as soon as possible.
- (b) The area and objects that have been used during the consultation should be disinfected with one part of household bleach (5.25% hypochlorite solution) in 49 parts of water household bleach (or 70% alcohol for metallic surfaces).

10. The staff who has been in close and unprotected contact with a case of novel influenza should be alerted to the need for quarantine as required by the Department of Health. Oseltamivir phosphate for at least 7 days should be recommended as soon after the exposure as possible. Self health management including checking temperature twice daily, limiting interactions, exclusion from public areas and immediately notifying relevant health authority should be followed.

11. If a diagnosis of influenza is made in retrospect on a client/patient or staff on the second day or thereafter,

- (a) normal disinfection procedures (paragraph 8) should be followed without the need for repeat cleansing or closure if such procedure is already in place on a daily basis;
- (b) disinfection and closure (during disinfection) may be organized if the area has not been disinfected since the infected person's last presence.

Applicable when Serious Level (Scenario (b)) or Emergency Level is activated
Designation of Areas in a DH Clinical Unit#



Area *	Designation	Examples	Infection control precautions
A	Non-clinic area	General office	No personal protection equipment (PPE) is required
B	Public area	Waiting hall	Wearing of surgical mask is advised for all; wearing of surgical mask is required for patients with respiratory symptoms or fever
C	Clinic area	Consultation room(s) where clinical procedures are carried out regularly	<u>Client:</u> Wearing of surgical mask is advised for all; wearing of surgical mask is required for patients with respiratory symptoms or fever <u>Staff:</u> Wearing of surgical mask and gown are required; other protections as required for respective procedures
D	Designated room	Selected room for managing suspected or probable AI patients	<u>Client:</u> Wearing of surgical mask is required <u>Staff:</u> Wearing of N95/surgical mask, goggles/face shield and gown are required when having close patient contact (< one metre); wearing of N95 mask, goggles/face shield, gown, gloves and cap are required for high risk procedures; PPE should not be worn beyond the designated area

This template is designed for DH units with clinical service only. The latter is defined as a place where personal health services are provided normally to patients but may include also those for healthy individuals. Adjustment is needed if the guidelines and template are adapted for non-clinical services.

* Division into four areas of A, B, C and D may not be possible for all services. In some situations, A and B may be combined. D is mandatory for all clinical services.

Infection Control Checklist for the Department of Health of Hong Kong

Service: _____ **Infection Control coordinator: Signature:** _____
Name (in block letters): _____
Rank: _____

March	June	September	December
Review date: _____	Review date: _____	Review date: _____	Review date: _____
Checked by _____	Checked by _____	Checked by _____	Checked by _____
Signature: _____	Signature: _____	Signature: _____	Signature: _____
Rank & Name (in block letters): _____	Rank & Name (in block letters): _____	Rank & Name (in block letters): _____	Rank & Name (in block letters): _____
External auditor*: Yes / No	External auditor*: Yes / No	External auditor*: Yes / No	External auditor*: Yes / No

Remarks:

- Based on the Infection Control Guidelines, apart from continuous monitoring, the officer or designated staff has to complete the checklist at three-monthly intervals. Individual service could add in items specific to their service by using a supplementary list.
- *One of the four checking should be performed by external auditors such as staff of another clinic.

Index: Y=Yes N=No NA=Not applicable O = Assess by Observation A = Assess by Asking

Area	March			June			Sept			Dec			Remark/recommendation/follow-up action	
	Y	N	NA	Y	N	NA	Y	N	NA	Y	N	NA		
<p>1. Patients Triage</p> <p>1A) -A triage area is available to identify patients with potentially infectious diseases</p> <p>-Visual alerts such as posters are displayed at the entrance of clinics and triage area to alert patients with respiratory symptoms:</p> <p>i. to report fever / respiratory symptoms promptly</p> <p>ii. to wear surgical mask and perform hand hygiene</p>														
1B) Designated waiting area is assigned to patients with infectious symptoms to minimize cross infection if applicable														
1C)A designated room is available for consultation of patients with fever or respiratory symptoms														
<p>1D) The triage area and designated room are equipped with:</p> <p>i) Handwashing facilities*</p> <p>ii) Alcohol-based handrub</p> <p>iii) Surgical masks</p>														

Area	March			June			Sept			Dec			Remark/recommendation/follow-up action
	Y	N	NA	Y	N	NA	Y	N	NA	Y	N	NA	
2. <u>Personal Protective Equipment (PPE)</u>													
2A) Surgical mask is worn when client/staff present with respiratory symptoms or fever													
2B) Surgical mask is worn by staff working within 1 meter of patient on droplet precautions													
2C) N95 respirator is worn by staff performing aerosol generating procedures to a patient with known or suspected airborne infection													
2D) Seal check is performed each time when using the N95 respirator													
2E) Goggles/face shield is worn by staff for high risk or splashing procedure													
2F) Gown is worn by staff for high risk or splashing procedure													
2G) Gloves are worn when contact with blood, body fluid, mucous membranes, non-intact skin or other potentially infectious materials is anticipated													

Area	March			June			Sept			Dec			Remark/recommendation/follow-up action
	Y	N	NA	Y	N	NA	Y	N	NA	Y	N	NA	
2H) Gloves are changed between tasks and procedures on the same patient after contact with material that may contain a high concentration of microorganisms													
2I) Gloves are changed after contact with each patient													
2J) Designated area is identified for PPE removal													
2K) Used PPEs are discarded properly after use													
2L) PPEs (include surgical mask, N95 respirator, goggles, face shield, cap, gown and gloves) are available and accessible													
2M) PPEs are stored properly in dry and clean place													
2N) Posters of “PPE on and off sequence” is posted in appropriate place for staff’s reference													
3. <u>Respiratory Hygiene/cough Etiquette</u>													
3A) Visual alerts for respiratory hygiene/ cough etiquette such as posters are displayed at the entrance of clinic													

Area	March			June			Sept			Dec			Remark/recommendation/follow-up action
	Y	N	NA	Y	N	NA	Y	N	NA	Y	N	NA	
3B) Mask is offered with education given to person with respiratory symptoms													
3C) Lidded receptacles are provided for used tissue paper disposal													
3D) Hand hygiene facilities are available in waiting areas for patients and visitors													
4. <u>Decontamination of Patient Care Equipment</u>													
4A) Cleaning													
i) Appropriate PPE is worn when cleaning instruments													
ii) Rinse off blood or other substances from instruments under running water.													
iii) Instruments are immersed in a solution of lukewarm water and detergent, washed thoroughly and rinsed													
4B) Sterilization - Table Top Autoclave													
i) Only unwrapped instruments go into autoclaves without vacuum extraction cycles													
ii) Instruments are spaced out and exposed to steam													

Area	March			June			Sept			Dec			Remark/recommendation/follow-up action
	Y	N	NA	Y	N	NA	Y	N	NA	Y	N	NA	
iii) Instruments can be sterilized under the following temperature: 121°C for 15 min. 132°C for 4 min. 134°C for 3 min. (Please refer to the operation manual for the temperature required for the specific model)													
iv) Instruments are removed after completion of the cycle and should be used within a session													
v) Spore test is performed monthly and records of test results are kept													
vi) EMSD is informed if spore test result is positive and the use of the autoclave is suspended temporarily													
vii) The water in the filter is changed weekly or as recommended by the centre in-charge													

Area	March			June			Sept			Dec			Remark/recommendation/follow-up action
	Y	N	NA	Y	N	NA	Y	N	NA	Y	N	NA	
4C) Sterilization – Sending Drum													
i) Wrapped dressings, towels and instruments are loosely packed in drum													
ii) Vent of drum is kept closed after completion of autoclaving process													
iii) Expiry date is written on top of every package													
iv) Sterile supplies are stored in an enclosed and well-ventilated area which is free from dust, moisture, temperature and humidity extremes													
v) An effective stock management system is maintained													
vi) Instruments are re-sterilized before use if it is expired or if there is sign of damage of the package													
4D) Disinfection - Hot Water Disinfectors													
i) Water of disinfectant is filled up at the beginning of the day and changed at least daily													
ii) Cleansed instruments are fully immersed in water for disinfection													

Area	March			June			Sept			Dec			Remark/recommendation/follow-up action
	Y	N	NA	Y	N	NA	Y	N	NA	Y	N	NA	
iii) Cleansed instruments are boiled for at least 10 minutes without interruption when the water returns to the boil													
iv) Disinfected instruments are removed with disinfected forceps and placed on a trolley laid sterile paper/cloth and covered with sterile paper/cloth													
v) Disinfected instruments are used within a session													
4E) Disinfection – Chemical Disinfectants													
i) There is no topping up of disinfectants													
ii) Disinfectants containers are clearly labelled with contents, in-use dilution and expiry date													
iii) Disinfectant containers is not left open													
5. <u>Environment Control</u>													
5A) Garbage is disposed of at least daily													
5B) Lidded rubbish bins are used in the clinical areas													

Area	March			June			Sept			Dec			Remark/recommendation/follow-up action
	Y	N	NA	Y	N	NA	Y	N	NA	Y	N	NA	
5C) Filters of the air-conditioners are cleansed once bi-monthly or as recommended by the centre in-charge													
5D) Cleaning schedule is established and followed													
5E) Equipment, instrument stands, table tops, furnishings and lights are visibly free of dust, blood and body fluid spatter													
5F) Room used by patients with symptoms suggestive of infectious diseases should be cleaned and disinfected if environmental contamination is likely													
5G) Examination tables are cleaned daily and when it is visibly soiled or contaminated													
5H) Cleaning is started from the clean area to dirty areas													
5I) Cloth is cleaned after used in hot water and detergent, rinse and hang dry													
5J) Floor is mopped daily or more frequently consistent with the need in the facilities													
5K) Mops are cleaned after use in hot water and detergent, rinse and hang dry													

Area	March			June			Sept			Dec			Remark/recommendation/follow-up action
	Y	N	NA	Y	N	NA	Y	N	NA	Y	N	NA	
5L) Bucket is washed and stored dry after use													
5M) Spillage: i) For spillage of blood, cleanse the visible matter with disposable absorbent material wetted with one part of household bleach (5.25% hypochlorite solution) in 4 parts of water, leave for 10 minutes, and then rinse with water													
ii) For spillage of other body fluid, cleanse the visible matter with disposable absorbent material and then disinfect with one part of household bleach (5.25% hypochlorite solution) in 49 parts of water, leave for 30 minutes and then rinse with water													
6. <u>Handling and Disposal of Sharps</u> 6A) Use recapping device if recapping of needle is necessary													
6B) Needles and sharps are discarded into puncture resistant containers													

Area	March			June			Sept			Dec			Remark/recommendation/follow-up action
	Y	N	NA	Y	N	NA	Y	N	NA	Y	N	NA	
6C) Sharps box is secured in an upright position and in a convenient place near to where the sharps are used													
6D) Sharps box is less than 3/4 full when discarded													
6E) Sharps boxes are sealed up and discarded into red plastic bags which are marked "Biohazard"													
7. <u>Linens Management</u>													
7A) Soiled linen is placed in plastic bag/water soluble bag and labelled as "SOILED LINEN" before sending to laundry													
7B) PPEs are applied when handling used linen is appropriate													
8. <u>Waste Management</u>													
8A) Domestic waste e.g. office paper and other items are placed in black plastic waste bag for disposal													
8B) Clinical waste e.g. sharps boxes, dressings/swabs and all other waste dripping with blood, and other potentially infected waste is placed in red plastic waste bags													

Area	March			June			Sept			Dec			Remark/recommendation/follow-up action
	Y	N	NA	Y	N	NA	Y	N	NA	Y	N	NA	
8C) Expired cytotoxic drugs, and other pharmaceuticals are disposed as chemical waste													
8D) Mercury form broken thermometer or sphygmomanometer is placed in a non-metal container													
8E) Wastes bags are securely fastened when 3/4 full													
8F) Clinical waste is placed in red plastic bag and securely fastened with biohazard label, stored in a designated location with visibly warning sign, and secured from unauthorized persons													
9. <u>Specimen Handling</u>													
9A) Cap of specimen container is securely closed													
9B) Specimens are placed in plastic bags and in upright position during transportation to prevent leakage													
9C) Refrigerator used for specimen storage is clearly labelled and is not used for food or drink or medication													

Area	March			June			Sept			Dec			Remark/recommendation/follow-up action
	Y	N	NA	Y	N	NA	Y	N	NA	Y	N	NA	
10. <u>Personal Hygiene</u>													
10A) Uniform or white coat is worn within the clinic boundary only													
10B) Wounds are covered with water proof dressings													
11. <u>Employee Health</u>													
11A) Report to supervisor/infection control coordinator when having fever or other symptoms suggestive of infectious disease and seek medical advice at once													
11B) Healthcare workers are aware of the availability of Hepatitis B and influenza vaccination programmes for them													
11C) Sharps Injury: i) Healthcare workers know the first aid management of sharps injury (wound should be thoroughly washed with liquid soap and water before disinfected and dressed)													

Area	March			June			Sept			Dec			Remark/recommendation/follow-up action
	Y	N	NA	Y	N	NA	Y	N	NA	Y	N	NA	
ii) The exposed staff should report to supervisor and seek medical advice for risk assessment and management													
12. Training 12A) Infection control training is held regularly for clinic staff and training records are available for reference													

Summary:

Appendix IV

Summary of Recommended PPE Usage in Standard Precautions and Transmission-Based Precautions

PPE		N95 Respirator	Surgical Mask	Goggles/ Face Shield	Gown	Gloves
Precautions						
Standard Precautions (SP)			Splashing procedure	Splashing procedure	Splashing procedure	Touching blood, body fluid, secretion, excretion and contaminated items
Transmission- Based Precautions	Airborne Precautions	When performing aerosol generating procedures for a patient with known or suspected airborne infection	Place on the patient if transport is necessary			
	Droplet Precautions		<ul style="list-style-type: none"> • Within one metre of patient • Place on the patient if transport is necessary 			
	Contact Precautions				Substantial contact	Touching infected materials or contaminated items

Recommended Methods of Decontamination for Commonly Used Items

Item	Recommended method	Alternative method*
Auriscope nozzle	<ul style="list-style-type: none"> • Clean with detergent and water. 	
Bottle, suction	<ul style="list-style-type: none"> • Clean with detergent and water. • Immerse in 0.1% hypochlorite for 10 minutes. • Rinse and store dry. 	
Bowl, plastic	<ul style="list-style-type: none"> • Clean with detergent and water. • Store dry. 	
Bowl, surgical	<ul style="list-style-type: none"> • Clean with detergent and water. • Autoclave 	<ul style="list-style-type: none"> • Boil for 20 minutes after cleaning.
Cheatele forceps and holders	<ul style="list-style-type: none"> • Autoclave at the beginning of each session. • Store dry. 	<ul style="list-style-type: none"> • Boil for 20 minutes.
Curette	<ul style="list-style-type: none"> • Clean with detergent and water. • Autoclave. 	<ul style="list-style-type: none"> • Boil for 20 minutes after cleaning.
Dissecting forceps	<ul style="list-style-type: none"> • Clean with detergent and water. • Autoclave. 	<ul style="list-style-type: none"> • Boil for 20 minutes after cleaning.
ECG electrodes	<ul style="list-style-type: none"> • Clean with detergent and water. • Store dry. 	
Face-shield or goggles	<ul style="list-style-type: none"> • Clean with detergent and water. • Immerse in 0.1% hypochlorite for 10 minutes. • Rinse and store dry. 	
Gallipots	<ul style="list-style-type: none"> • Clean with detergent and water. • Autoclave. 	<ul style="list-style-type: none"> • Boil for 20 minutes after cleaning.
Iris scissors	<ul style="list-style-type: none"> • Clean with detergent and water. • Autoclave. 	<ul style="list-style-type: none"> • Boil for 20 minutes after cleaning.
Knife handle	<ul style="list-style-type: none"> • Clean with detergent and water. • Autoclave. 	<ul style="list-style-type: none"> • Boil for 20 minutes after cleaning.
Laryngoscope - Blade - Bulb	<ul style="list-style-type: none"> • Clean with detergent and water. • Boil for 10 minutes. • Store dry. • Clean. • Swab with 70% alcohol. 	<ul style="list-style-type: none"> • Clean with detergent and water. • Autoclave.
Magill's forceps	<ul style="list-style-type: none"> • Clean with detergent and water. • Autoclave. 	<ul style="list-style-type: none"> • Boil for 20 minutes after cleaning.
Mosquito artery forceps	<ul style="list-style-type: none"> • Clean with detergent and water. • Autoclave. 	<ul style="list-style-type: none"> • Boil for 20 minutes after cleaning.
Mouth gag	<ul style="list-style-type: none"> • Clean with detergent and water. • Immerse in 0.1% hypochlorite for 10 minutes. • Rinse and store dry. 	

Item	Recommended method	Alternative method*
Nebulizer	<ul style="list-style-type: none"> • Clean with detergent and water. • Immerse in 0.1% hypochlorite for 10 minutes. • Rinse and store dry. 	
Nebulizer mask	<ul style="list-style-type: none"> • Dispose after use 	<ul style="list-style-type: none"> • Immerse in 0.1% hypochlorite for 10 minutes. • Rinse and store dry.
Nebulizer tubings	<ul style="list-style-type: none"> • Dispose after use 	<ul style="list-style-type: none"> • Immerse in 0.1% hypochlorite for 10 minutes. • Rinse and store dry.
Needle holder	<ul style="list-style-type: none"> • Clean with detergent and water. • Autoclave. 	<ul style="list-style-type: none"> • Boil for 20 minutes after cleaning.
Oxygen cannula	<ul style="list-style-type: none"> • Dispose after use 	<ul style="list-style-type: none"> • Immerse in 0.1% hypochlorite for 10 minutes. • Rinse and store dry.
Oxygen mask	<ul style="list-style-type: none"> • Dispose after use 	<ul style="list-style-type: none"> • Immerse in 0.1% hypochlorite for 10 minutes. • Rinse and store dry.
Oxygen tubings	<ul style="list-style-type: none"> • Dispose after use 	<ul style="list-style-type: none"> • Immerse in 0.1% hypochlorite for 10 minutes. • Rinse and store dry.
Proctoscope	<ul style="list-style-type: none"> • Clean with detergent and water. • Autoclave. • Store dry. 	<ul style="list-style-type: none"> • Boil for 10 minutes after cleaning.
Pulmonary function system - Breathing tubing	<ul style="list-style-type: none"> • Immerse in 2% glutaraldehyde for at least 45 minutes. • Rinse and store dry. 	
Mass flow sensor - Mouth pieces, mouth piece adaptor - Nasal clips - Support arms with clamps	<p>For single use items:</p> <ul style="list-style-type: none"> • Dispose after use <p>• Wipe with 70% alcohol.</p> <p>• Store dry.</p> <p>• Clean with detergent and water.</p> <p>• Wipe dry.</p>	<p>For reusable items:</p> <ul style="list-style-type: none"> • Immerse in 0.1% hypochlorite for 10 minutes. • Rinse and store dry.
Pulmonary items - T-shape connector of the smokeryzer -Oxygen concentrator/oxygen humidifier filter	<ul style="list-style-type: none"> • Clean with detergent and water. Wipe dry. • Clean with detergent and water. • Wipe dry. • Change when required. 	<ul style="list-style-type: none"> • Wipe with 70% alcohol before use.

Item	Recommended method	Alternative method*
Resuscitator - Mouth piece, mask	<ul style="list-style-type: none"> • Clean with detergent and water. • Immerse in 0.1% hypochlorite for 10 minutes. • Rinse and store dry. 	
Scalpel blades	<ul style="list-style-type: none"> • Disposable. 	
Sponge holding forceps	<ul style="list-style-type: none"> • Clean with detergent and water. • Autoclave. 	<ul style="list-style-type: none"> • Boil for 20 minutes after cleaning.
Stitch scissors	<ul style="list-style-type: none"> • Clean with detergent and water. • Autoclave. 	<ul style="list-style-type: none"> • Boil for 20 minutes after cleaning.
Thermometer	<ul style="list-style-type: none"> • Rinse. • Immerse in 70% alcohol for 10 minutes. • Store dry. 	
Tongue depressor (wooden)	<ul style="list-style-type: none"> • Dispose after use 	
Tongue depressor (stainless steel)	<ul style="list-style-type: none"> • Clean with detergent and water. • Boil for 10 minutes. • Store dry. 	
Toothed fixation forceps	<ul style="list-style-type: none"> • Clean with detergent and water. • Autoclave. 	<ul style="list-style-type: none"> • Boil for 20 minutes after cleaning.
Towel forceps	<ul style="list-style-type: none"> • Clean with detergent and water. • Autoclave. 	<ul style="list-style-type: none"> • Boil for 20 minutes after cleaning.
Ultrasound nebulizer -Mouth piece - Tubing	<ul style="list-style-type: none"> • Disposable. • Immerse in 0.1% hypochlorite for 10 minutes. • Rinse and store dry. 	
Uterine forceps	<ul style="list-style-type: none"> • Clean with detergent and water. • Autoclave. 	<ul style="list-style-type: none"> • Boil for 20 minutes after cleaning.
Uterine sound	<ul style="list-style-type: none"> • Clean with detergent and water. • Autoclave. 	<ul style="list-style-type: none"> • Boil for 20 minutes after cleaning.
Vaginal speculum (plastic)	<ul style="list-style-type: none"> • Dispose after use 	
Vaginal speculum (stainless steel)	<ul style="list-style-type: none"> • Clean with detergent and water. • Autoclave. • Store dry. 	<ul style="list-style-type: none"> • Boil for 10 minutes after cleaning
Vitalograph - Breathing tubes, glass bottles - Peak flow meter	<ul style="list-style-type: none"> • Clean with detergent and water. • Immerse in 0.1% hypochlorite for 10 minutes. • Rinse and store dry. • Clean with detergent and water. • Wipe dry. Swab with 70% alcohol. 	

* *Only for those clinics where the recommended method is not feasible.*

Properties of Commonly Used Chemical Disinfectants

	Usual concentration	Spectrum of activity	Other properties	Recommended uses
<u>Hypochlorites</u> e.g. Clorox (5.25% available chlorine)	<ul style="list-style-type: none"> • 1% (one part of 5.25% hypochlorite solution in 4 parts of water) • 0.1% (one part of 5.25% hypochlorite solution in 49 parts of water) 	<ul style="list-style-type: none"> • Bacteria: Good • Tubercle bacilli: Good • Spores: Good • Fungi: Good • Viruses: Good 	<ul style="list-style-type: none"> • Inactivated by organic matter • Corrosive to metals • Diluted solutions decay rapidly and should be made up daily • Addition of ammonia or acids causes release of toxic chlorine gas 	<ul style="list-style-type: none"> • Environmental or instrumental disinfection for selected items
<u>Glutaraldehyde</u> e.g. Cidex	<ul style="list-style-type: none"> • 2% 	<ul style="list-style-type: none"> • Bacteria: Good • Tubercle bacilli: Good • Spores: Good but slow • Fungi: Good • Viruses: Good 	<ul style="list-style-type: none"> • Slow penetration of organic matter • Irritate eyes, skin and respiratory mucosa • Alkaline solution requires activation and has a limited useful life (14 - 28 days) 	<ul style="list-style-type: none"> • Disinfection of selected instruments which cannot be heat sterilized • Use only closed containers to reduce the escape of irritant vapours
<u>Alcohol</u> e.g. Ethanol	<ul style="list-style-type: none"> • 70% 	<ul style="list-style-type: none"> • Bacteria: Good • Tubercle bacilli: Good • Spores: Poor • Fungi: Good • Viruses: Low activity against some viruses 	<ul style="list-style-type: none"> • Rapid action but volatile • Poor penetration into organic matter • Inflammable 	<ul style="list-style-type: none"> • Disinfection of physically clean surfaces and skin
<u>Diguanides</u> e.g. Hibitane (Chlorhexidine) Savlon (Chlorhexidine + Cetavlon)	<ul style="list-style-type: none"> • Hibitane - Aqueous 1:1000 • Hibitane - 0.5% in 70% Ethanol • Savlon - Aqueous 1:100, 1:30 • Savlon - 1:30 in 70% Ethanol 	<ul style="list-style-type: none"> • Bacteria: Good for gram +ve organisms • Tubercle bacilli: Poor • Spores: Poor • Fungi: Good • Viruses: Poor 	<ul style="list-style-type: none"> • Inactivated by organic matter, soap and anionic detergents 	<ul style="list-style-type: none"> • Skin and mucous membrane disinfection • Opened bottle of aqueous skin disinfectant should be discarded after 24 hours

GLOSSARY

Antisepsis :

The application of compounds to skin or mucous membranes to reduce microorganism content substantially.

Cleaning :

The removal of all visible debris on surfaces.

Decontamination :

A general term to cover all methods of cleaning, disinfection or sterilization to remove microbial contamination from medical equipment such as to render it safe.

The equipment is classified with respect to the choice of decontamination method.

- (1) Critical - Comes into contact with tissue or the vascular space. Requires sterilization.
- (2) Semi-critical - Comes into contact with mucous membranes or non-intact skin. Requires intermediate or high level disinfection.
- (3) Non-critical - Comes into contact with intact skin. Requires low-level disinfection or cleaning.

Disinfectant :

A chemical that inactivates virtually all recognized pathogenic microorganisms but not necessarily all microbial forms, e.g. spores on inanimate objects.

Disinfection :

The killing of pathogenic organisms, but not usually of spores. It is classified into three levels.

- (1) High-level - The elimination of all viruses and vegetative microorganisms and most but not necessarily all bacterial or fungal spores. E.g. glutaraldehyde, hypochlorite
- (2) Intermediate-level - The elimination of all vegetative pathogenic bacteria, including *Mycobacterium tuberculosis*, but not necessarily all viruses. E.g. alcohol.
- (3) Low-level - The elimination of most pathogenic bacteria. E.g. diguanides.

Sterilization :

The complete elimination of all viable microorganisms including all spores.

REFERENCES

1. Association for Professionals in Infection Control and Epidemiology, Inc. (1996). Guideline for Selection and Use of Disinfectants.
http://www.inicc.org/guias/16_gddisinfAJIC-96.pdf
2. ASHRAE. (2003). HVAC Design Manual for Hospitals and Clinics.
3. Ayliffe, G.A.J., et al. (1999). Hospital-Acquired Infection – Principles and Prevention (3rd edition). Butterworth.
4. A Code of Practice for Sterilization of Instruments and Control of Cross-Infection. BMJ. (1989).
5. CDC. (2007). Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings
<http://www.cdc.gov/ncidod/dhqp/pdf/guidelines/Isolation2007.pdf>
6. CDC. (1998). Guideline for Infection Control in Healthcare Personnel.
http://www.cdc.gov/ncidod/dhqp/gl_hcpersonnel.html
7. CDC. (2002). Guideline for Hand Hygiene in Health-Care Settings.
<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5116a1.htm>
8. CDC. (2003). Guidelines for Environmental Infection Control in Health-Care Facilities.
<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5210a1.htm>
9. CDC. (2004). Respiratory Hygiene / Cough Etiquette in Healthcare Settings.
<http://www.cdc.gov/flu/professionals/infectioncontrol/resphygiene.htm>
10. College of Physicians and Surgeons of Ontario. (2004). Infection Control and the Physician's Office.
http://www.cpso.on.ca/uploadedFiles/policies/guidelines/office/Infection_Controlv2.pdf
11. Medical Devices Agency (MDA). (2002). Benchtop Steam Sterilizers – Guidance on Purchase, Operation and Maintenance, DoH, UK. Retrieved October 2005 from http://www.dhsspsni.gov.uk/db_ni_2002-06_benchtop_steam_sterilizers.pdf

12. WHO. (2009) Guidelines on Hand Hygiene in Health Care.
http://whqlibdoc.who.int/publications/2009/9789241597906_eng.pdf

13. CDC (2008) Guideline for Disinfection and Sterilization in Healthcare Facilities
http://www.cdc.gov/hicpac/pdf/guidelines/Disinfection_Nov_2008.pdf