

# **Symposium on Healthcare Facilities Management**

## **Guide to Infection Control in Clinic Setting**

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# Purpose of the Guide

- To provide guidance to healthcare personnel on prevention and control of infection in clinic settings
- “Clinic” refers to any facility providing medical and dental services to outpatients
- One must exercise judgment in applying this guide for their own particular circumstances and seeks professional / expert advice where appropriate

# Key fundamental elements

(section 3 of the Guide)

- Facility design
  - e.g. separation of clean and dirty items, unidirectional flow maintaining all items from dirty to clean zone, physical layout
- Risk assessment and management
- Roles and responsibilities
  - Ensure that safe systems of work are in place, e.g. policies and plans based on the identified risks, a person with relevant training and experience to oversee the overall infection control practice

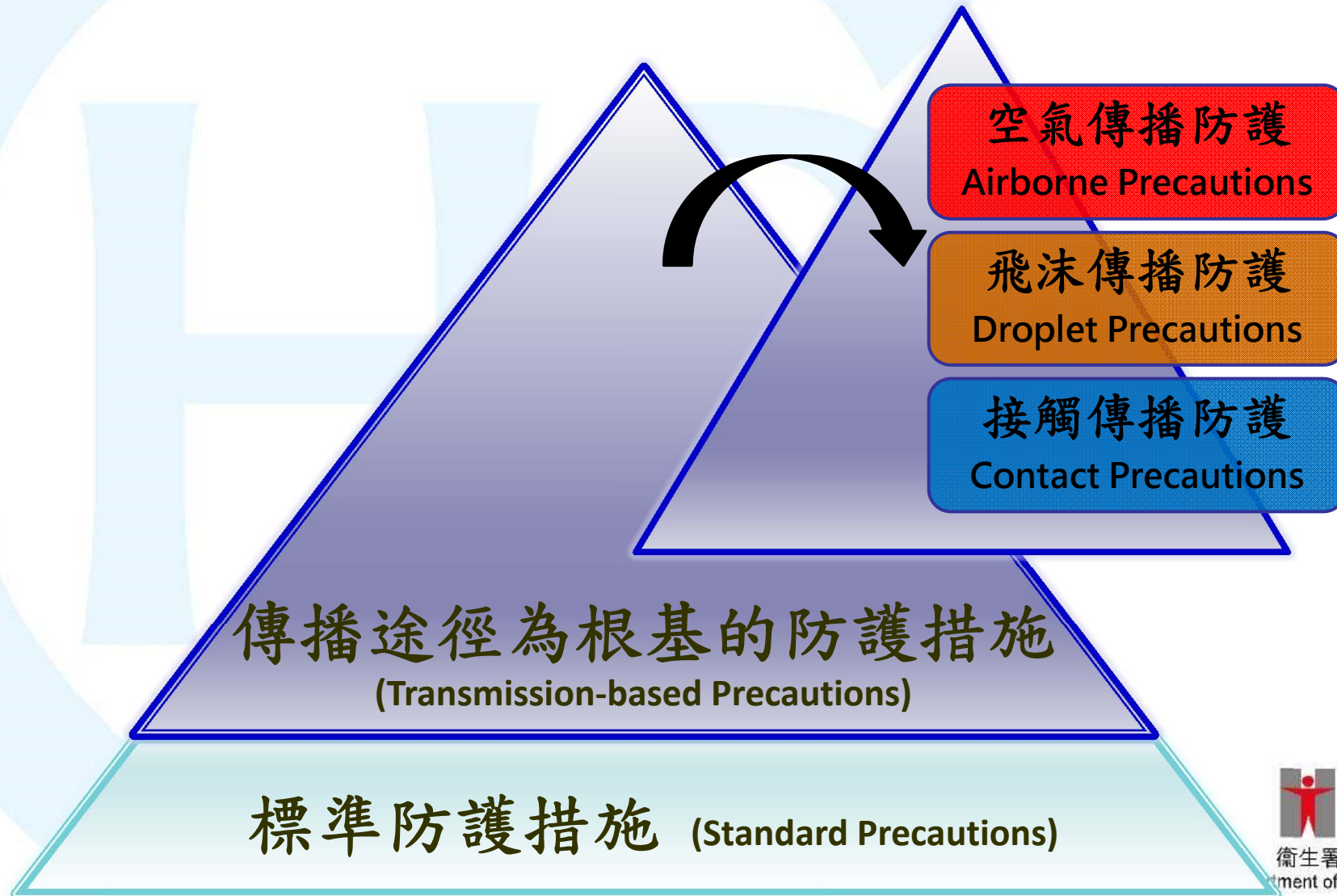
# Key fundamental elements

(section 3 of the Guide)

- **Education and training**
  - Upon induction and orientation
  - Repeated regularly
  - At any time when information has been updated or revised
- **Protection of staff health and safety**
  - e.g. hand hygiene facility, personal protective equipment, sharps handling, immunization
- **Surveillance and disease reporting**
  - e.g. statutory notifiable diseases, communicable diseases of topical public health concern

# Two tiers of precautions

(section 4 of the Guide)





# Standard precautions

- Minimum infection prevention practices that apply to all patients, regardless of their diagnosis and infectious status, in any setting where healthcare is delivered



# Transmission-based precautions

- Used in addition to standard precautions, where the suspected or confirmed presence of infectious agents represents an increased risk of transmission
  - Contact precautions
  - Droplet precautions
  - Airborne precautions



# Contact precautions

- For patients with known or suspected to be infected or colonized with
  - e.g. scabies, norovirus, methicillin resistant *Staphylococcus aureus* (MRSA), Vancomycin-resistant enterococci (VRE) and *Clostridium difficile*
- Gloves and gown should be worn during care of patients with suspected infections or contact with infected materials



Contact Precautions	Additional <sup>1</sup>	
	A	D
Chickenpox	✓	
Gastroenteritis caused by <i>Clostridium difficile</i> , Norovirus or Rotavirus		
Herpes simplex – neonatal or mucocutaneous, disseminated, primary, severe		
Herpes zoster – localized in immunocompromised patient or disseminated	✓	
Impetigo		
Multidrug – resistant organisms (as advised by hospital IC team)		
Respiratory infections (in infants and young children) caused by Adenovirus, Parainfluenza virus or Respiratory syncytial virus (RSV)		✓
Scabies		

Remarks:  
<sup>1</sup> - A-Airborne Precautions, D- Droplet Precautions  
 Please note that this list is not exhaustive. For specific recommendations on isolation precautions, please consult Hospital Infection Control Team.



# Droplet precautions

- Apply to patients with known or suspected to be infected with pathogens that can be transmitted by large droplet particles (sizes > 5 microns), and usually can only be propelled over a short distance (i.e. within 1 meter) from patients
  - e.g. influenza, Group A *Streptococcus*, pertussis and rubella
- Surgical mask should be worn during care of patients with suspected infections within one meter distance

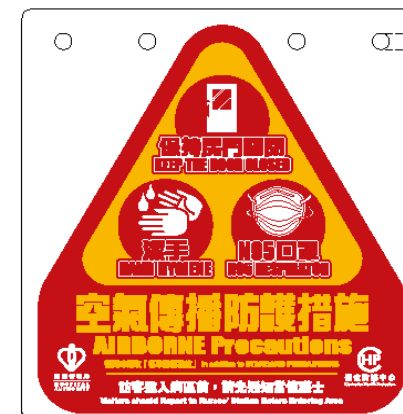


Droplet Precautions	Additional <sup>1</sup>	
	A	G
Diphtheria – pharyngeal		
Group A streptococcal disease (in infants and young children) – pharyngitis, pneumonia or scarlet fever		
Haemophilus influenzae – pneumonia (in infants and young children), epiglottitis or meningitis		
Influenza		
Meningococcal diseases – meningitis, pneumonia, sepsis		
Measles		
Mycoplasma pneumoniae		
Parvovirus B19		
Pertussis		
Respiratory infections (in infants and young children) caused by Adenovirus, Parainfluenza virus or Respiratory syncytial virus (RSV)		✓
Rubella		

<sup>1</sup> - Additional Precautions: A - Contact Precautions  
Please note that this list is not exhaustive. For specific recommendations on isolated precautions, please consult Hospital Infection Control Team.

# Airborne precautions

- Apply to patients with known or suspected to be infected with pathogens that can be transmitted by airborne droplet nuclei (sizes  $\leq 5$  microns) containing microorganisms that can remain suspended in the air for a long period of time
  - e.g. pulmonary tuberculosis, chickenpox, measles and disseminated herpes zoster
- N95 respirator should be worn during care of patients with suspected airborne infections or when performing aerosol generating procedures
- Special air handling and ventilation should be considered



Airborne Precautions		Add additional <sup>1</sup>	
		D	C
Cholera <sup>2</sup>			✓
Herpes zoster <sup>2</sup> – localized in immunocompromised patient or disseminated			✓
Measles <sup>2</sup>			
Pulmonary tuberculosis			

Footnote:  
1: D – Droplet Precautions, C – Contact Precautions  
2: Immune patients, use N95 respirator required  
Please note that this list is not exhaustive. For quality recommendations on infection prevention, please consult Hospital Infection Control Team.

# Use of PPE in standard precautions and transmission-based precautions

**Appendix 2b: Summary of Recommended PPE Usage in Standard Precautions and Transmission-Based Precautions**

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

# PPE

(section 5.2 of the Guide)

- Adequate stock of PPE should be available
- Selection of PPE should be based on risk assessment
- PPE should be stored in appropriate area with suitable temperature and humidity as recommended by manufacturers and free from dust, insects and vermin
- PPE need to be examined for the expiry date and checked regularly to ensure integrity
- Use of PPE does not replace basic infection control measures such as hand hygiene

# Sequence of donning and doffing whole set of PPE





# Hand hygiene facility

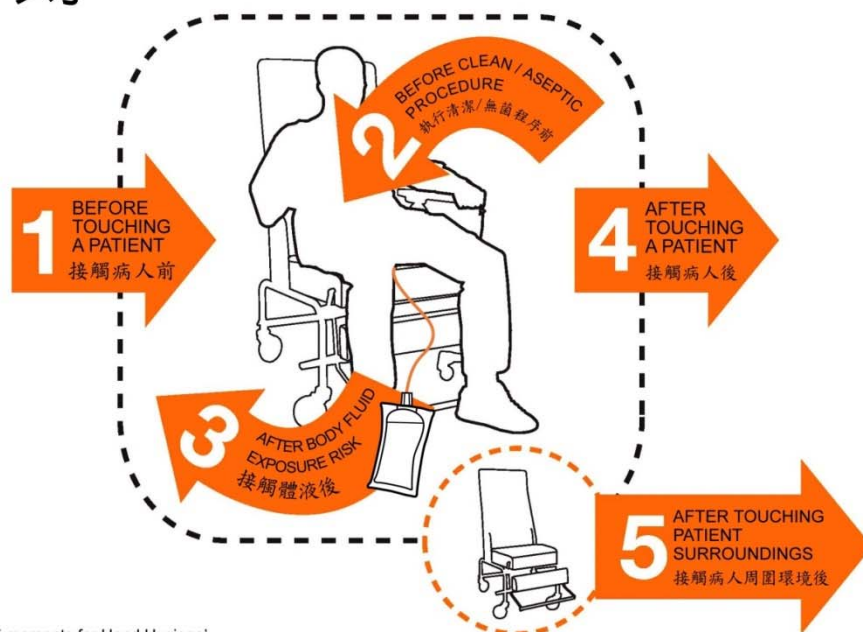
(section 5.1 of the Guide)

- Alcohol-based hand rubs vs hand washing with liquid soap and water
- Available at the point-of-care
- Accessible to staff and patients
- Clostridium difficile, or hand, foot and mouth disease (HFMD), norovirus infection



# 5 moments of hand hygiene

## 5 Moments for Hand Hygiene 潔手五時刻



# Proper hand hygiene technique

## With Soap And Water



## Alcohol-Based Handrub

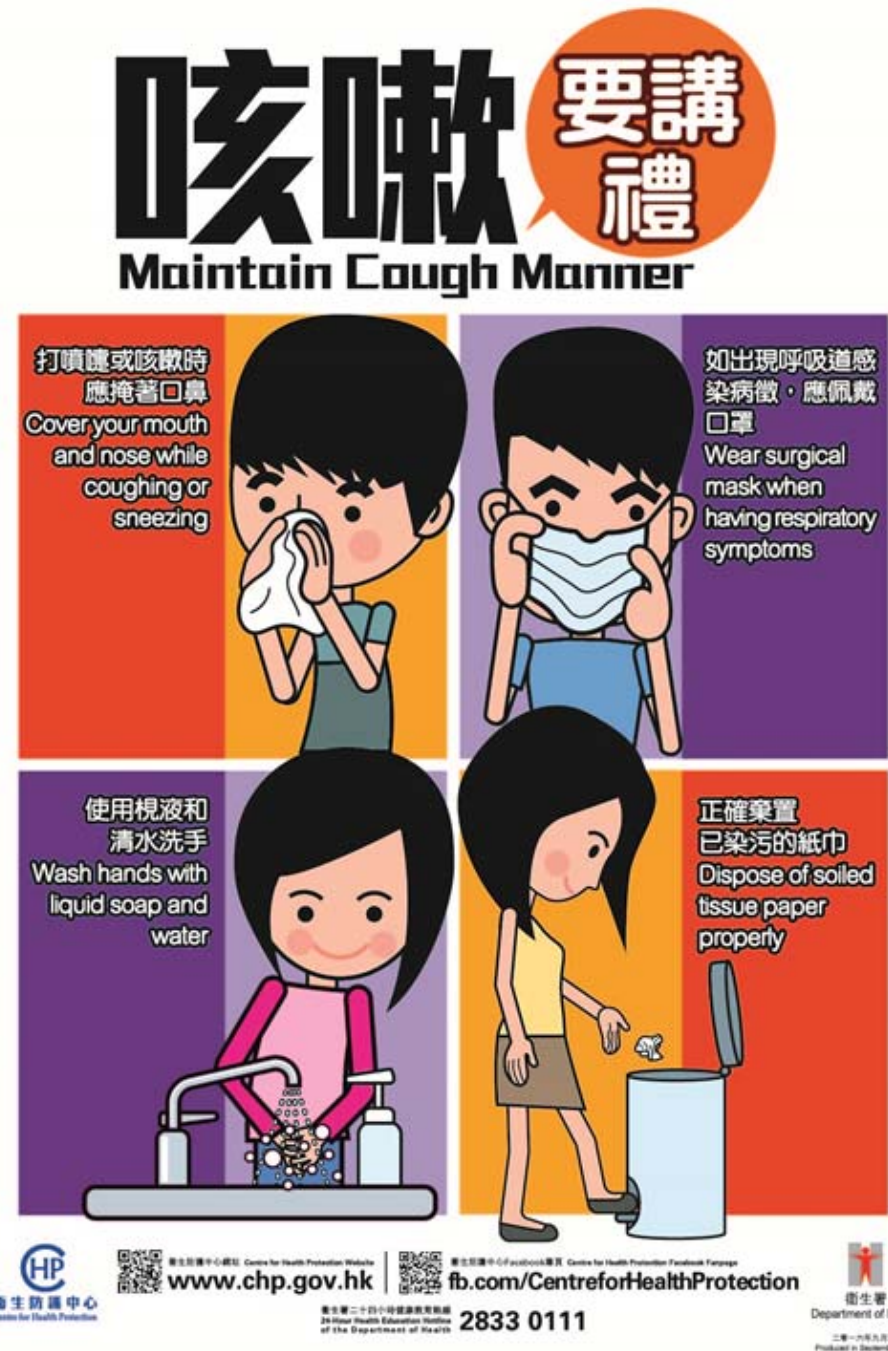




# Respiratory hygiene and cough etiquette

(section 5.3 of the Guide)

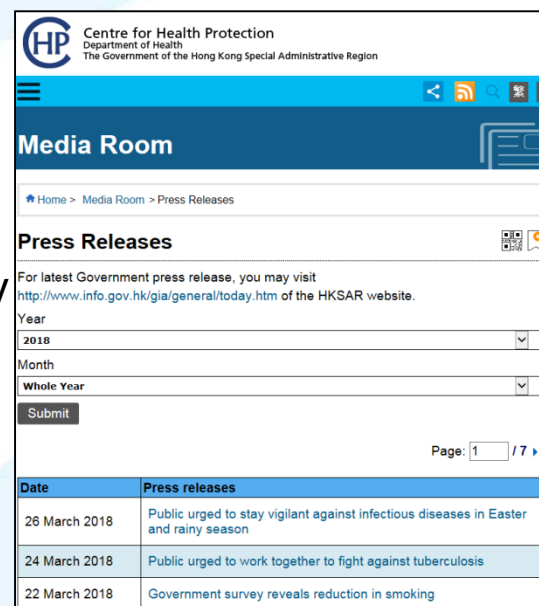
- Visual alerts in conspicuous places
- Adequate resources eg lidded waste receptacles, surgical masks, hand hygiene facilities



# Patient triage

(section 5.4 of the Guide)

- Collect triaging information (e.g. fever; travel history; contact history; and specific symptoms of targeted communicable diseases) at the time of booking appointment or registration
- Assess patients for conditions that require additional precautions and prioritize those who may require urgent consultation and isolation
- Patients with high suspicion of infectious risk
  - accommodated in designated area away from other patients to minimize cross infection
  - minimize the time of stay by early consultation and departure





# Sharps handling & Clinical waste disposal

(sections 5.5 and 5.8 of the Guide)



WARNING- DO NOT FILL ABOVE THE LINE  
警告-不得超越此線

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警告-不得超越此線



**Environmental Protection Department**  
The Government of the Hong Kong Special Administrative Region

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**Clinical waste management**  
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- The Clinical Waste Control Scheme
- Clinical Waste Producers
- Clinical Waste Collection
- Code of Practice
- Resources
- Our Services
- Enquiries

**Clinical Waste Web Guide**

Excellent healthcare is an important attribute of a thriving livable city. Equally critical is the proper management of clinical waste generated from the associated healthcare operations and services, medical laboratory analysis and medical and related research. Hong Kong possesses a dedicated system ([read more](#))

**Information for:**

**Major Clinical Waste Producers**

- Hospitals
- Government Clinics

**Small Clinical Waste Producers**

- Private Medical Clinics
- Private Dental Clinics
- Residential Care Homes for Elderies
- Veterinary Clinics



# Environmental cleaning and disinfection

(section 5.6 of the Guide)

- Routine, scheduled cleaning and disinfection regimens
- Spillage of blood and body substances

**慎用漂白水 安全又衛生**

衛生防護中心  
Centre for Health Protection

5.25% 漂白水 Bleach

請用量杯  
準確地量度所需  
漂白水的份量

作一般環境清潔  
1份家用漂白水  
加入99份清水 9900毫升清水

消毒被嘔吐物、排泄物或  
分泌物污染的表面或物件  
1份家用漂白水  
加入49份清水 4900毫升清水

消毒被血液污染的  
表面或物件  
1份家用漂白水  
加入4份清水 400毫升清水

100毫升家用漂白水  
(5.25%次氯酸鈉)

**調校稀釋漂白水小貼士**

- 確保空氣流通
- 佩戴適當個人防護裝備，例如：口罩、膠手套、膠圍裙和護眼罩
- 稀釋時要用冷水，熱水會令成份分解並失去效能
- 切勿與其他化學劑、清潔劑混合，免生意外及降低殺菌效能
- 稀釋後，應在24小時內使用，並儲存在陰涼處
- 若不慎被漂白水濺入眼睛，必須立即用水沖洗最少15分鐘，並盡早求醫

衛生署  
Department of Health

# Reprocessing of reusable medical devices

(section 5.7 of the Guide)

- Single use medical devices should not be reused or reprocessed
- Reusable medical devices must not be used in another patient before it has been properly cleaned and reprocessed
- Before disinfection or sterilization, thorough cleaning is essential because inorganic and organic materials that remain on the surfaces of medical devices would interfere the effectiveness of these processes
- Spaulding's classification is used to determine the degree of disinfection or sterilization required for various medical devices



# Spaulding's classification of medical devices

## Appendix 5a: Disinfection and Sterilization Methods according to Spaulding's Classification

Classification	Examples of Instrument	Level of Processing/Reprocessing	Methods (examples)
<b>Critical Item</b>  Enter sterile body cavity or vascular system	<ul style="list-style-type: none"> <li>• Surgical instruments</li> <li>• Biopsy instruments</li> <li>• Implants</li> </ul>	Cleaning followed by:  <b>Sterilization</b>  <i>Sterilization is a process that completely eliminates or kills all microorganisms &amp; spores</i>	<b>Sterilization</b> <ul style="list-style-type: none"> <li>• Steam Sterilization</li> <li>• Hydrogen peroxide gas plasma</li> <li>• &gt;2.4% glutaraldehyde-based formulations,</li> <li>• 0.95% glutaraldehyde with 1.64% phenol/phenate,</li> <li>• 7.5% stabilized hydrogen peroxide,</li> <li>• 7.35% hydrogen peroxide with 0.23% peracetic acid,</li> <li>• 0.2% peracetic acid, and</li> <li>• 0.08% peracetic acid with 1.0% hydrogen peroxide</li> </ul>
<b>Semi-critical Item</b>  Contact mucous membranes, or non-intact skin but do not penetrate them	<ul style="list-style-type: none"> <li>• Respiratory therapy equipment</li> <li>• Anaesthesia equipment</li> <li>• Tonometer</li> <li>• Ultrasound endocavity probes: transvaginal/ transrectal</li> <li>• Cryosurgical probes</li> <li>• Endoscopes,</li> <li>• Laryngoscope blades</li> <li>• Proctoscope</li> <li>• Vaginal speculum</li> </ul>	Cleaning followed by:  <b>High-Level Disinfection</b>  <i>High level disinfection eliminates all microorganisms, except for small number of bacterial spores</i>  (Steam sterilization is preferred if the items are heat stable.)	<b>High-Level Disinfection</b> <ul style="list-style-type: none"> <li>• Glutaraldehyde</li> <li>• Hydrogen peroxide solution</li> <li>• Ortho-pathalaldehyde (OPA)</li> <li>• Washer-disinfector that has a high-level disinfection cycle</li> </ul>
<b>Noncritical Item</b>  Contact intact skin	<ul style="list-style-type: none"> <li>• ECG machines</li> <li>• Oximeters</li> <li>• Bedpans, urinals, commodes</li> <li>• Blood pressure cuffs</li> <li>• Stethoscopes</li> </ul>	Cleaning followed by:  <b>Low-Level Disinfection</b> (in some cases, cleaning alone is acceptable)  <i>Low level disinfection kills most bacteria, some fungi, and inactivates some viruses but it cannot be relied on to kill resistant microorganisms</i>	<b>Intermediate and Low-Level disinfection</b> <ul style="list-style-type: none"> <li>• Alcohol</li> <li>• Diluted sodium hypochlorite solution</li> <li>• Hydrogen peroxide</li> <li>• Washer-disinfector</li> </ul>

# Steam sterilization - examples

Type of sterilizer	Item	Exposure time at 132°C	Drying time
Gravity displacement (Type N sterilizer)	Unwrapped nonporous instrument	3 min	0-1 min
Dynamic-air-removal e.g., prevacuum (Type B / S sterilizer)	Wrapped instruments	4 min	20-30 min



# Routine monitoring

- Mechanical indicators record cycle time, temperature, and pressure as displayed on the sterilizer gauges for each instrument load; and
- External chemical indicators such as autoclave tape are affixed on the outside of each instrument pack to show that the package has been processed through a sterilization cycle. An internal chemical indicator should be placed inside the packs to verify sterilant penetration; and
- Biological indicators should be tested at least weekly with spore vials placed at the area least favorable to sterilization (i.e., the area representing the greatest challenge to the biological indicator). This area is normally in the front, bottom section of the sterilizer, near the drain. The results of spore test should be recorded.
- When dynamic air removal sterilizer is used,
  - Appropriate steam penetration test such as Bowie-Dick test or Helix test should be performed before the first processed load of the day.

# Sterile storage

- Sterile supplies should be stored in an environment with suitable temperature and humidity which is free from dust, insects and vermin
- Storage of disposable items should be in accordance with the instructions of the device manufacturers

# Way forward

- The Guide has been uploaded onto CHP website for public consultation
- Enquirers may send their enquiries and comments through electronic mail via:  
[enquiry\\_chpweb@dh.gov.hk](mailto:enquiry_chpweb@dh.gov.hk)
- ICB will reply to enquirers, and review the Guide when necessary



Thank you