

美国民间健康基金会-中国

# 儿科护士教学大纲

## 基础课程

### 第十单元

#### 控制感染

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PROJECT HOPE/CHINA

PEDIATRIC NURSE  
TEACHING PROGRAM  
BASIC COURSE

MODULE 10  
INFECTION CONTROL

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## STUDY GUIDE: INFECTION CONTROL

### I. Objectives

Upon completion of the module the learner will be able to:

- A. Demonstrate the technique for proper handwashing.
- B. Identify the instance when handwashing is warranted.
- C. List the nursing responsibilities for Foley care and wound care.
- D. Describe the procedure for disinfecting equipment.

### II. Sources of Information.

Required Readings

- A. Procedure  
Sterile dressing technique
- B. Lesson  
Infection control

### III. Clinical Activities

- A. Perform the activities of the equipment nurse for one shift with a senior nurse present.
- B. With the nurse educator present change a sterile dressing.

### IV. Post Test

## LESSON: INFECTION CONTROL

### Overview

To reduce infections, there is no substitute for routine handwashing with soap and running water.

### I. Objectives

- A. To minimize risk of infection to the critically ill patient by:
  - 1. Meticulous hand washing plus good personal hygiene of personnel.
  - 2. Appropriate sterilization and cleaning of equipment that comes in contact with the patient.
- B. To prevent patient-to-patient spread of organisms by means of personnel, fomites, contact or air.
- C. To segregate patients or potential hazards to others by practicing satisfactory containment technique.

### II. Infection Control Measures: Personnel

- A. Hospital personnel should wash hands:
  - 1. When coming on duty.

## 学习指引：控制感染

### I. 目的

学员修毕本单元后应该能够：

- A. 懂得洗手的正确技术。
- B. 认识在何种情形下一定要洗手。
- C. 懂得 Foley 导尿管和伤口的护理。
- D. 掌握为器材进行消毒的程序。

### II. 资料来源

必修课程

- A. 操作程序  
    无菌包扎技术
- B. 课程  
    控制感染

### III. 临床活动

- A. 在高级护士监督下，执行一班器材护士的职责
- B. 在导师监督下换消毒敷料。

### IV. 测验

## 课程：控制感染

### 概论

没有一种减少感染的方法可以代替用肥皂和流水的常规式洗手方法。

### I. 目的

- A. 为病重的病人减少感染的危险有下列各方法：
  - 1. 护理人员小心洗手，保持良好个人卫生；
  - 2. 一切与病人接触的器材，要适当地清洁和消毒。
- B. 防止病人与病人之间经护理人员、物件或空气交叉感染；
- C. 以适当的隔离措施，防止感染的蔓延。

### II. 控制感染的方法：护理人员

- A. 医院护理人员要在下列情况下洗手：
  - 1. 上班时。

2. When hands are obviously soiled.
  3. Between handling individual patients.
  4. Before contact with face and mouth of patients.
  5. After personal use of the toilet.
  6. After blowing the nose.
  7. After handling soiled dressings, urinals, catheters, bedpans and diapers.
  8. Before and after eating.
  9. Upon completion of duty.
- B. Use effective hand washing technique; hand washing is the most effective infection control measure available.
1. Remove all rings and watches; organisms are difficult to remove from crevices.
  2. Lather and rub with friction for at least 15 minutes under a stream of water.
  3. Use a soap rack with good drainage. Clean rack routinely, because soap in a pool of liquid may support the growth of organisms.
  4. Rinse and dry hands; turn off faucet with a towel.
- C. Protect patients from organisms spread on clothing and hair. Clothing and hair can act as fomites for infection.
- Wear a lab coat or uniform not worn outside the hospital.
  - Wear hair covered or pulled back or short.
- D. Minimize traffic in the unit during sterile or invasive procedures. Close windows and doors as increased air movement increases bacteria in the air.
- E. Exclude personnel and visitors with bacterial infections. Personnel should not work with herpes, boils, impetigo, diarrhea, severe sore throat or fever.
- F. Personnel should not eat or drink in patient care area.

## I. Infection control Measures;

### A. Equipment

#### Equipment Cleaning schedule

1. Items used once, then cleaned and sterilized;
  - a. Suction catheters
  - b. Jelcos, Butterfly needles, IV needles
  - c. Any disposable invasive equipment
  - d. Feeding bottle and nipple
  - e. IV extension tubing
2. Items changed every day and replaced with clean equipment;
  - a. Respiratory equipment
    - Ventilator tubing
    - Humidifier

2. 手明显地被污染时。
  3. 接触不同病人之间。
  4. 与病人面和口接触前。
  5. 上厕所后。
  6. 擦鼻子后。
  7. 触摸被污染的敷料、尿瓶、导管、便壶和尿布后。
  8. 进食前后。
  9. 下班时。
- B. 用有效的方法洗手，洗手是最有效的控制感染方法。
1. 除去指环、腕表等，微生物藏在缝隙中，很难被清除。
  2. 涂肥皂、擦起泡沫，继续在流水下磨擦最少15分钟。
  3. 肥皂架要有良好引流，定时清洁肥皂架，肥皂浸在水中容易滋生微生物。
  4. 冲手、揩干，隔着毛巾关水龙头。
- C. 防止病人经衣服和头发被感染。衣服和头发可以是传播感染的媒介物。
- 穿上医院专用衣服或制服
  - 戴上头罩，或将头发扎好或留短头发。
- D. 尽量减少单位内的交通，特别是在进行无菌或侵袭性操作时，要减少空气移动。关上门窗，因为空气流动会增加空气中的细菌。
- E. 禁止患细菌感染的护理人员和访客进入病房。患疱疹、疮、脓疱、腹泻、严重喉痛和发热的人员，不应上班。
- F. 在病室范围内，护理人员不许饮食。

## I. 控制感染的措施

### A. 器材

#### 清洗器材的安排

1. 下列各项，用一次，洗净，然后消毒：
  - a. 抽吸管
  - d. Jelco管，蝴蝶型针，静注针
  - c. 所有一次性的侵袭性器材
  - b. 奶瓶和奶嘴
  - e. 静注伸延管
2. 下列各项要每天更换，然后清洗：
  - a. 呼吸器材
    - 通气管
    - 湿化器



- Nasal cannula
- All types of face mask
- Oxyhood

- b. Suction canister and tubing
  - c. Chest tube drainage system
  - d. Urine catheter drainage system
  - e. Feeding syringe
3. The following equipment is used for one patient at a time and then cleaned;
- a. Dinamapp cuffs
  - b. Self inflating bags and masks
  - c. Bulb syringes
  - d. Stethoscopes
  - e. O<sub>2</sub> Saturation sensors (oximeter)
  - f. Thermometers

#### Procedure for Equipment Cleaning

1. All reusable disposable equipment and all invasive equipment;
  - a. Wash items with water, remove all secretions and blood. Dispose of equipment that is impossible to thoroughly clean.
  - b. Allow items to dry.
  - c. Cover open ends, wrap in package suitable for sterilization seal and label.
  - d. Separate items requiring heat sterilization from those requiring gas sterilization.
  - e. Heat sterilize or gas sterilize following hospital policy.
2. Suction Catheters;
  - a. Sterile suction catheters are stored in a covered container.
  - b. Sterile catheters are removed from the container using sterile technique.
  - c. After each use, suction catheters are washed and all secretions removed. (Whenever possible, catheters are washed, dried, packaged and gas sterilized between uses. )
  - d. Soak in standard disinfecting solution for one hour.
  - e. While wearing a sterile glove, shake catheter dry and place in covered container.
3. Respiratory Equipment, Suction Canisters;
  - a. Take equipment apart.
  - b. Wash equipment, removing all secretions and blood.
  - c. Submerge and soak in standard disinfecting solution for 30 minutes.
  - d. Dry thoroughly using air compressor, fan, or air day.

- 鼻管
- 各类面罩
- 氧气头罩

- b. 抽吸管和罐
- c. 胸引流系统
- d. 导尿管系统
- e. 喂食注射器

3. 下列项目，每次只供一病人用，用后清洗：

- a. Dinamapp 压入袖带
- b. 自动充气皮囊和面罩
- c. 手泵式抽吸器
- d. 听诊器
- e. 氧测量仪
- f. 温度计

#### 清洁器材的操作程序

1. 下列步骤，适用于所有可供重复使用的一次性器材和一切侵袭性器材。

- a. 水洗，清除所有分泌物和血。如不能彻底清洁的器材，可以弃去。
- b. 待器材干燥。
- c. 包好器材，把开放端封好，以便消毒。
- d. 把需要用热力消毒和气体消毒的器材分开。
- e. 按医院规定进行热力或气体消毒。

2. 抽吸管：

- a. 已消毒的袖吸管应存放在有封闭的容器内。
- b. 已消毒的抽吸管要用无菌技术从容器内取出。
- c. 用后，所有管子要洗净，分泌物要彻底清除。  
(如可能的话，争取用后洗净，晾干，包好，然后消毒)。
- d. 浸在标准消毒溶液内一小时。
- e. 穿上消毒手套，摇干管子，放入封闭容器内。

3. 呼吸器材，抽吸罐等：

- a. 拆开器材。
- b. 水洗，清除分泌物和血。
- c. 全浸在标准消毒溶液中30分钟。
- d. 用压缩空气，风扇或在空气中吹干。

- e. Store in clean closed cabinet.
- 4. Chest tube drainage systems and urinary catheter drainage systems;
  - a. Take equipment apart.
  - b. Wash equipment, removing all secretions and blood.
  - c. Dry equipment.
  - d. Wrap, seal and label and send for heat sterilization.
- 5. Stethoscopes, Dinamapp cuffs, Thermometers, Oximeter sensors;
  - a. Wash with alcohol between patient use.
- 6. Bulb Syringes;
  - a. Was with water removing all secretions.
  - b. Submerge in standard disinfecting solution for 30 minures.
  - c. Dry.
  - d. Store in clean, dry cabinet.
- 7. Glass syringes, IV burettes and tubing and special procedure trays (Cutdown Kit);
  - a. Wash with water after use.
  - b. Place in container for Supply Department.
  - c. These items are picked up daily by Supply Department for further cleaning, wrapping and stedam sterilization.

#### B. Environment

- 1. Incubators, Radiant Warmers, Bili lights;
  - a. Daily, washed and dried by Unit Helper using disinfectant.
- 2. Floors and Sinks;
  - a. Floors are washed using disinfectant twice a day hy Unit Helper.
  - b. Sinks are cleaned using cleanser once a day by the Unit Helper.
- 3. Treatment Room;
  - a. IV solution, medications, blood products and formula are prepared in the Treatment room.
- 4. Dirty Utility Room;
  - a. Dirty linen and diapers are kept in dirty utility room until removed.
  - b. Urinals and bedpans are emptied in the dirty utility room.
  - c. Housekeeping equipment is stored here.
- 5. Unit Helper provides clean washcloths at every sink for hand drying.
- 6. Whenever possible, Clean (non-infected) patients are separated from dirty (infected) patients.
- 7. Ultraviolet Lights;
  - a. Turned on for one hour every shift in the patient care rooms.
  - b. Turned on for one hour, twice a day in the treatment room.

- e. 存放在封闭的柜内。
- 4. 胸引流系统和导尿管系统：
  - a. 拆开器材。
  - b. 洗净：清除所有分泌物和血。
  - c. 弄干。
  - d. 包好、封口、贴上标签，送交有关单位用热力消毒。
- 5. 听诊器，Dinamapp 袖带，温度计，氧气仪感受器等：
  - a. 用于不同病人之间要用酒精揩抹。
- 6. 手泵式抽吸器：
  - a. 水洗，清除所有分泌物。
  - b. 全浸在标准消毒溶液内30分钟。
  - c. 干燥。
  - d. 存放在封闭和干净的柜内。
- 7. 玻璃注射筒，静注滴定器和管，其它无菌包（静脉切开包）：
  - a. 用后水洗。
  - b. 放入器材供应单位的容器内。
  - c. 上列器材，由供应单位每天收回，进行清洁，包装或蒸气消毒。

## Ⅱ. 控制感染的措施：

### B. 环境

- 1. 温箱，辐射床，蓝光灯：
  - a. 每天与服务员合作，水洗抹干。
- 2. 地板，洗手盆：
  - a. 服务员每天用消毒药水洗地两次。
  - b. 服务员每天用清洁剂清洗洗手盆一次。
- 3. 治疗室
  - a. 静注液，药物，血制品和奶均要在治疗室内配备。
- 4. 污物室：
  - a. 污染了的被褥、尿布等要贮放在污物室。
  - b. 尿壶、便壶要在污物室清理。
  - c. 清洁用具要放在污物室。
- 5. 每个洗手盘由服务员负责供应抹布。
- 6. 如可能的话，把干净（无感染）的病人与脏（有感染）的病人分开。
- 7. 紫外线灯：
  - a. 每班在病房中开紫外线灯一小时。
  - b. 治疗室每天开紫外线灯二次，每次一小时。

## **IV. Nursing Responsibilities**

### **A. Urinary Catheter Care**

1. Urinary catheters are inserted using sterile technique, following hospital policy.
2. A new sterile drainage setup is attached each day.
3. Catheter insertion site is washed with soap and water every day.
4. Urinary catheter is removed as soon as possible following physician order.

### **B. Intravenous Therapy: (See Fluid and Medication Administration Module)**

1. Check the IV bottle for contaminants or cracks in bottle. Discard if any present.
2. Change IV tubing and burette to a sterile system every day.
3. Prepare the new IV site by prepping with Betadine and alcohol.
4. Whenever possible, do not open the IV system for medication administration. The best technique for IV medication administration is to use a T-piece and insert a sterile needle through the rubber port to inject the medication.

(For further infection control techniques, refer to intravenous therapy)

### **C. Respiratory Therapy.**

1. Use only sterile water to fill the humidifier reservoir.
2. Empty the condensed water from the tubing into a cup or the floor. Do not return condensed water to the humidifier.
3. For further infection control techniques refer to the Mechanical Ventilation Module.

### **D. Visitors**

1. Exclude visitors from room during sterile or invasive procedures. Increased movement produces increased bacteria in the air.
2. Ask visitors about signs of infection. Visitors should not enter the ICU if they are sick or have herpes, boils, impetigo, diarrhea, severe sore throat or fever.
3. Visitors must wash their hands before touching the patient. Teach visitors to use Handwashing Procedure, page 2.

## **PROCEDURE: STERILE DRESSING TECHNIQUE**

### **Overview**

Changing a sterile dressing is the nurse's opportunity to assess the condition of the wound and cleanse the wound. Keeping the wound clean and dry facilitates the healing process. The physician will order the frequency of dressing changes.

## IV. 护理的责任

### A. 导尿管的护理

1. 导尿管要按医院规定，用无菌操作放置。
2. 每天换上新的已消毒引流系统。
3. 插管部位要每天用肥皂和水洗一次。
4. 照医生吩咐，尽快除去导尿管。

### B. 静注（参考输液和给药单元）

1. 检查静注瓶，注意有无污染物和裂缝。如有则弃掉。
  2. 每天换静注管和滴定管一次。
  3. 进针部位先用 Betadine（碘酒）和酒精涂擦。
  4. 给药时尽可能不要打开静注系统。最佳给药方法是用 T 一管，以消毒针咀经橡胶入口注射药物。
- （其它控制感染方法，参考静注治疗一节）

### C. 呼吸治疗

1. 只用消毒清水注入湿化器。
2. 管子内凝聚的水，要排出到一杯子或地上，不可回流至湿化器。
3. 其它控制感染方法，参考机械性通气单元。

### D. 访客

1. 进行无菌或侵袭性操作时，要谢绝探访，因为空气流动越大，细菌越多。
2. 查问访客是否有感染症状。染病或患疱疹、疮、脓疱、腹泻、严重喉痛和发热的访客，不应进入病房。
3. 访客要洗手后才可触摸病人。指导访客按照页 2 的洗手步骤洗手。

## 操作程序： 无菌包扎技术

### 概 论

更换无菌敷料时，护士可以评估伤口情况和清洗伤口。保持伤口洁净和干燥可加速愈合，医生会订定换药次数。

## Equipment

### Sterile

- Two Forceps
- Gauze for cleaning
- Two dishes
- Gauze for dressing
- Antiseptic solution
- Normal Saline

### Unsterile

- Container for old dressing
- Adhesive tape cut to correct length

## Procedure

### Action

1. Wash hands.
2. Gather equipment. Open packages using sterile technique. Pour antiseptic into one dish and Normal Saline into the other dish using sterile technique.
3. Remove tape slowly and gently pulling tape toward the wound.
4. Using the first pair of sterile forceps, remove the old dressing and discard in the container.
5. Assess the wound for signs of healing or signs of infection.
6. Using second pair of forceps moisten gauze with antiseptic from dish and cleanse wound.  
Drop in discard container.
7. Using same forceps, moisten new gauze with normal saline from dish and rinse wound. Drop in discard container.
8. Using same forceps, dry wound with sterile gauze. Drop in discard container.
9. Using the same sterile forceps, cover wound with dry sterile gauze.
10. Tape dressing securely in place.

### Rationale

1. Prevent contamination.
2. Prepare equipment and dressing material to avoid contamination of wound.
3. Decreases pain and damage to the skin. Pulling tape away from the wound could tear newly formed tissue.
4. Avoid contaminating wound with hands.
5. Notify physician of swelling, redness, heat, any drainage or foul odor.
6. Cleanse wound moving from the center of the wound to the outside edges.
7. Rinse in the above manner.
9. Protects wound from trauma, collects drainage and promotes healing.

## 器材

### 已消毒

- 钳子两把
- 纱布，清洗用
- 盘子两个
- 纱布，包扎用
- 消毒药水
- 生理盐水

### 无消毒

- 盛旧敷料的容器
- 适当长度的粘贴胶纸

## 操作程序

### 步骤

1. 洗手。
2. 集中器材：  
用无菌操作打开敷料包，倒消毒药水入一  
盘子，注生理盐水入另一盘子，严格掌握  
无菌技术。
3. 慢慢除去胶纸，把胶纸扯向伤口方向。
4. 用第一把消毒钳，除下旧敷料，弃置于一  
容器内。
5. 评估伤口，注意愈合程度和有无感染。
6. 用另一把钳子，把纱布浸入消毒药水  
内，然后洗伤口。纱布弃在容器内。
7. 用同一把钳子，浸另一片纱布入生理盐水  
内，然后洗伤口。纱布弃在容器内。
8. 用同一把钳子，夹消毒纱布拭干伤口。纱  
布弃在容器内。
9. 用同一把消毒钳，夹干净的消毒纱布盖好  
伤口。
10. 把敷料贴好。

### 原因

1. 防止污染。
2. 准备器材和敷料，防止伤口污染。
3. 可减低痛楚和对皮肤的创伤。把胶纸扯  
离伤口会破坏新生组织。
4. 避免用手污染伤口。
5. 如有肿、红、热、臭味或有液体流出，  
要向医生报告。
6. 洗伤口时，要从伤口中心开始向外洗。
7. 照上述方法洗伤口。
9. 保护伤口，吸干引流物，可加速愈合。



11. Dispose of contaminated dressing.
11. Decreases chance of crosscontamination.
12. Document wound appearance, presence or absence of signs of infection, size of wound, date and time and type of dressing applied.

## POST TEST: INFECTION CONTROL

1. List five times when handwashing is imperative.
  - a.
  - b.
  - c.
  - d.
  - e.
2. Describe four types of respiratory equipment that should be changed every day and replaced with clean equipment.
  - a.
  - b.
  - c.
  - d.
3. Before parents visit in the ICU, they should be asked if they have any signs of: \_\_\_\_\_.
4. To prevent urinary tract infections in a patient with a urine catheter in place the nurse should:
  - a. Measure urine output hourly.
  - b. Wash the urinary meatus with soap every day.
  - c. Change the urine drainage system every day.
  - d. Do Multistick test every four hours.
5. Handwashing is:
  - a. Best when done with hot water.
  - b. Dangerous to the nurse in the winter because it causes dry skin and sores on the hands.
  - c. Unnecessary because neonates have very few bacteria on their skin.
  - d. The best way to prevent the spread of infection in the ICU.

### TRUE/FALSE

6. True/False; The neonate with diarrhea should be in a closed incubator with a good handwashing sign on the incubator.
7. True/False; Hospital acquired infections in ICU patients are extremely rare.