Infection Control Assessment Tool for Primary Health Care Facilities

January 2013

USAID
FROM THE AMERICAN PEOPLE

SIAPS
Systems for Improved Access to Pharmaceuticals and Services

Infection Control Self-Assessment Tool for Primary Health Care Facilities

January 2013

Systems for Improved Access to Pharmaceuticals and Services
Center for Pharmaceutical Management
Management Sciences for Health
4301 N. Fairfax Drive, Suite 400
Arlington, VA 22203 USA
Phone: 703.524.6575
Fax: 703.524.7898
E-mail: sps@msh.org

This tool is made possible by the generous support of the American people through the US Agency for International Development (USAID), under the terms of cooperative agreement numbers GHN-A-00-07-00002-00 (SPS) and AID-OAA-A-11-00021 (SIAPS). The contents are the responsibility of Management Sciences for Health and do not necessarily reflect the views of USAID or the United States Government.

About SIAPS

The goal of the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program is to assure the availability of quality pharmaceutical products and effective pharmaceutical services to achieve desired health outcomes. Toward this end, the SIAPS result areas include improving governance, building capacity for pharmaceutical management and services, addressing information needed for decision-making in the pharmaceutical sector, strengthening financing strategies and mechanisms to improve access to medicines, and increasing quality pharmaceutical services.

Recommended Citation

This tool may be reproduced if credit is given to SIAPS. Please use the following citation.

SIAPS. 2013. *Infection Control Self-Assessment Tool for Primary Health Care Facilities*. Submitted to the US Agency for International Development by the SIAPS) Program. Arlington, VA: Management Sciences for Health.

Key Words

Infection control, primary health care facilities, quality improvement

Systems for Improved Access to Pharmaceuticals and Services
Center for Pharmaceutical Management
Management Sciences for Health
4301 North Fairfax Drive, Suite 400
Arlington, VA 22203 USA
Telephone: 703.524.6575
Fax: 703.524.7898
E-mail: siaps@msh.org
Web: www.siapsprogram.org

TABLE OF CONTENTS

TABLE OF CONTENTS iii

ACKNOWLEDGMENTS vi

INTRODUCTION 1

INSTRUCTIONS ON HOW TO USE THE SELF-ASSESSMENT TOOL 2

MODULE 1. HEALTH FACILITY INFORMATION 5
- General Practices in the Facility 7

TECHNICAL NOTES: HEALTH FACILITY INFORMATION 8
- Background 8
- Notes on the Questions 8
- References 9

MODULE 2. EMPLOYEE HEALTH 10
- General Information 10
- Health Employee Exposures 11
- Control of Sharp Instruments 13

TECHNICAL NOTES: EMPLOYEE HEALTH 15
- Background 15
- Notes on the Questions 15

MODULE 3. CLEANING THE HEALTH FACILITY 17
- Knowledge of the Cleaning Technique 17
- Basic Equipment for Cleaning 19
- Responsibility of Staff in Cleaning Procedures 21

TECHNICAL NOTES: CLEANING THE HEALTH FACILITY 22
- Background 22
- Notes on the Questions 22

MODULE 4. HAND HYGIENE 24
- Hand Hygiene Equipment and Supplies 24
- Hand Hygiene Practices 26

TECHNICAL NOTES: HAND HYGIENE 28
- Background 28
- Notes on the Questions 28

MODULE 5. WASTE MANAGEMENT 30
- Policies Regarding Contaminated Waste 30
- Separation of Contaminated Waste 31

Waste Treatment 32

TECHNICAL NOTES: WASTE MANAGEMENT 33
Background 33
Notes on the Questions 33

MODULE 6. ISOLATION AND STANDARD PRECAUTIONS 35
Isolation Policies and Precautions 35
Supplies for Isolation Precautions 37
Respiratory Hygiene 38

TECHNICAL NOTES: ISOLATION AND STANDARD PRECAUTIONS 39
Background 39
Notes on the Questions 39

MODULE 7. LABOR AND DELIVERY 42
General Issues, Hygiene and Glove Use 42
Cleaning and General Hygiene 43
Glove Use for Vaginal Deliveries 44
Hand Washing for Vaginal Deliveries 45
Barriers Worn for Vaginal Deliveries 46
Invasive Devices in Labor and Delivery 47
Labor and Delivery Procedures 48
Postpartum Care 50

TECHNICAL NOTES: LABOR AND DELIVERY 51
Background 51
Notes on the Questions 51

MODULE 8. STERILIZATION AND DISINFECTION OF EQUIPMENT 55
General 55
Policies and Procedures 56
Decontamination and Cleaning of Instruments and Equipment 57
Sterilization and Disinfection of Instruments and Equipment 59
A. Steam/Pressure Sterilization (Autoclave) 61
B. High-Level Chemical Disinfection 62

TECHNICAL NOTES: STERILIZATION AND DISINFECTION OF EQUIPMENT 63
Background 63
Notes on the Questions 63

MODULE 9. PREPARATION AND ADMINISTRATION OF PARENTERAL MEDICATIONS 66
Injection Practices 66

TECHNICAL NOTES: PREPARATION AND ADMINISTRATION OF PARENTERAL MEDICATIONS 70
Background 70

Notes on the Questions 70

OBSERVATION CHECKLISTS 73

1. OBSERVATION CHECKLIST FOR HAND HYGIENE PRACTICES.....74

2. OBSERVATION CHECKLIST FOR CORRECT HAND WASHING PRACTICES 75

3. OBSERVATION CHECKLIST FOR ASSESSING HAND WASHING STATION SUPPLIES AND SINK CONDITION 76

4. OBSERVATION CHECKLIST FOR INJECTION ADMINISTRATION 77

5. CHECKLIST FOR WASTE DISPOSAL AFTER DELIVERY 78

REFERENCES 79

ANNEX 1. MODULE SCORING SHEET 82

ANNEX 2. MONITORING PRACTICES OF INFECTION PREVENTION IN PRIMARY HEALTH FACILITIES 83

ANNEX 3. HAND WASHING PROCEDURES 90

ACKNOWLEDGMENTS

This Infection Control Assessment Tool (ICAT) for primary health care facilities is based largely on the hospital ICAT, which was developed by the US Agency for International Development (USAID)-funded Rational Pharmaceutical Management Plus (RPM Plus) program implemented by Management Sciences for Health. The original version of the ICAT was developed and field-tested in collaboration with Harvard Medical School, Boston, Massachusetts; Institute for Healthcare Improvement, Mayo Clinic College of Medicine, Rochester, Minnesota; Makerere University, Kampala, Uganda; Uganda Ministry of Health, Kampala, Uganda; and the University of the Philippines, Manila, Philippines.

Under the follow on program, Strengthening Pharmaceutical Systems (SPS), the hospital ICAT was applied in countries such as Namibia, South Africa, and Swaziland, and in Guatemala where a need was identified for a similar, but more basic tool for use in primary health care facilities. This tool was developed based on the experience from Guatemala, with the Ministry of Health, the Sistema Integral de Atencion de Salud (SIAS) in particular; Elvita Dubon, Department of Developing Health Services; Luis Castellanos and Karen Castillo, Unit of Supervision, Monitoring and Evaluation; Carmina Reynosa, Department of Nursing; and Rachel de Morales MSH consultant.

The SIAPS team that developed this tool consisted of Jane Briggs, Wonder Goredema, Terry Green, Mohan P. Joshi, and Mupela Ntengu.

INTRODUCTION

Nosocomial or health-facility-acquired infections are a serious issue, representing one of the most significant causes of morbidity and mortality in healthcare systems and consuming many scarce resources, especially in developing countries. Although much has been done, particularly in the hospital setting, to reduce the risk of these infections, the problem persists and demands innovative and cost-efficient solutions.

Although the care provided in most primary health care facilities is predominantly ambulatory with few or no inpatient beds, infection prevention is still important to minimize or eliminate the risks of facility-acquired infections and assure quality patient care.

Health facilities and hospitals should have written infection control procedures and guidelines in place and should also be monitoring that these procedures are adhered to in both inpatient and ambulatory care settings.

The nine modules in the Infection Control Assessment Tool (ICAT) form part of a standardized approach that uses rapid cycles of quality improvement, where the tool is used to identify problem areas, and then specific indicators are used to monitor interventions. Each module includes sets of questions to assess current practices, followed by technical recommendations from recognized international agencies and institutions, such as the World Health Organization (WHO) and Centers for Disease Control and Prevention (CDC). In addition, the tool includes some observation checklists used in the assessment process and a module scoring sheet.

INSTRUCTIONS ON HOW TO USE THE SELF-ASSESSMENT TOOL

This tool was designed to improve practices for the prevention and control of infections by using easy-to-apply instruments that highlight deficiencies in current practices and suggesting corrective actions. The guide is one component of a standardized approach to reduce facility-acquired infections, the other component being the application of rapid cycles of quality improvement.

The modules of the self-assessment tool for primary health facilities can be applied by any healthcare facility, large or small, regardless of the number of beds or its budget, to assess their own infection control situation and develop actions to improve quality of care.

Modules in the Tool

1. Health Facility Information
2. Employee Health
3. Cleaning the Health Facility
4. Hand Hygiene
5. Waste Management
6. Isolation and Standard Precautions
7. Labor and Delivery
8. Sterilization and Disinfection of Equipment
9. Preparation and Administration of Parenteral Medications

The hospital version of the ICAT tool includes more modules, for example, microbiology laboratory, intravenous catheters, infection control program, pharmacy, and antibiotic use. If a health facility has an interest in applying any of these advanced modules that are not included in this more basic tool, they can access the hospital ICAT at http://www.msh.org/projects/sps/SPS-Documents/upload/ICAT-composite_FINAL_May-2009.pdf or http://www.msh.org/projects/sps/SPS-Documents/upload/ICAT-User-Manual_Global-May-09.pdf

The order of the modules in the tool is by type of practice. Each module consists of multiple sets of questions that can be answered by “yes/no”, multiple choice, or an observation checklist. Modules should be completed either for the facility as a whole or for a specific unit.

Modules are divided into sections covering different issues of the general topic (such as equipment and practices in the hand hygiene module). The scoring allocated to each section is calculated by adding up the total points associated with the answers checked for each question in that section. Each answer is given a score (between 0 and 3). The total assessment score for the module is the sum of each section, converted into a percentage by dividing by the total possible score for the module.

The overall quality of those practices assessed in each section is:

A – Excellent practices in this area (more than 75% of the possible total score)
B – Good practices in this area (from 50% to 75% of the possible total score)
C – Poor practices needing immediate attention (less than 50% of the possible total score)

The self-assessment is not intended as a test. The score helps respondents identify areas in which there are opportunities for improvement. For example, after completing the Delivery Area module, the results show that the section concerning the use of barrier equipment (such as gloves, special shoes, or robes) only scored 40% of the possible score; this low percentage shows that this issue requires special attention to control the spread of infections between mothers and newborns. Financial or logistic constraints may limit what is possible, but part of the assessment and quality improvement approach involves looking at alternatives that may be practical and cost-effective in a given situation.

Technical Recommendations

After the questions in each module, there are technical notes explaining the best practices for the issues being addressed. These notes are usually based on recommendations from respected organizations, such as WHO and the CDC, as well as from other internationally recognized experts on control of infections. With these recommendations, it is possible to compare local practices with internationally accepted standards.

Steps to Perform an Assessment

1. Identify the need for performing an assessment; the team or individuals planning an assessment should have clear, well-stated objectives that have been established in consultation with facility leadership and are clearly understood within the facility. Depending on the specific objectives, different combinations of assessment modules will be appropriate. For example, for a baseline of the practices implemented in a facility, an assessment should be performed using all the modules. If there are concerns in a specific department or area, only the required modules will be applied to assess specific issues. The idea is to implement simple interventions in order to measure progress in one area and progressively complete other modules.

2. Appoint a facilitator who knows the facility, has a good relationship with the management and staff, and understands nosocomial infections.

3. Set up an assessment team that involves staff from various disciplines in the facility (e.g., doctor or medical assistant; nurse, nurse auxiliary, or nurse assistant; and pharmacy staff) to develop integrated effective interventions.

4. Manage the assessment; make copies of the questionnaires and checklists, know which modules to apply and who the informants will be, and prepare a schedule with convenient dates and times.

5. Score the assessment. After the interview, the assessor will add the results for each question and each section and will calculate the total score for the module. It is important to follow the instructions for each question as to whether to mark one or several answers. The scores should be transferred to the Module Scoring Sheet (annex 1), including the name of the facility, name of the module, and date completed. The name of each section of the module should be written in each box with their respective scores; note the percentage score in Box 3, and assign letters A, B, or C as applicable to the scoring, based on the result for each section. After obtaining the percentage score for each section, calculate the total percentage score for the module, allocating a rating of A, B, or C in Box 4, based on the following criteria:

   A – assessment score over 75%
   B – assessment score between 50% and 75%
   C – assessment score less than 50%

   A low score shows the section or modules where intervention is required.

6. Share the results with the staff and involve them in the development of interventions as part of a quality improvement plan.

7. It is recommended to perform an initial measurement or baseline with the modules of interest and then design an intervention plan to improve practices. Specific indicators, measured using observation checklists, should be developed to gauge the effectiveness of interventions at preventing infections. This monitoring should be conducted monthly, or at least every three months, to feed into the rapid-cycle quality improvement approach. Some sample indicators are provided in annex 2. The module(s) can be applied again in about a year to assess overall progress and revise the action plan.

MODULE 1. HEALTH FACILITY INFORMATION

This module should be answered by the Head of the health facility or nurse.

For each item, mark the answer that best describes your current situation by putting a check mark ✓ inside the brackets [✓]. Note that some questions ask for only one answer, and others ask you to mark all answers that apply. Questions that are intended to provide contextual information only are not scored.

Name of facility: _____

Date: _____

Address: _____

_____

Person Completing this Questionnaire

Name: _____ Title: _____

Position: _____

Facility Demographic Information

The following questions provide information about your health facility's organization, bed capacity, bed utilization, and adherence to infection control guidelines.

1. How would you describe your health facility? (Check one answer) [ ] Public health facility (owned and operated by government and financed from general taxes) [ ] Private (for profit) health facility (owned and operated for financial gain) [ ] Charity (missionary health facility funded by charity)
2. Are you familiar with the Ministry of Health policies covering infection control? [ ] No, not aware of policies and guidelines (if no, omit question 3) [ ] Yes, aware of policies and guidelines
3. Has your health facility adopted the Ministry of Health policies governing infection control? (Omit this question if your answer to question 2 is no) [ ] No, have not adopted the policies [ ] Yes, have adopted the policies

Water Supply

The following questions cover the source and treatment of water within the health facility.

4. What is the general source of the health facility's water supply (e.g., water supply for sinks)? (Check one answer) [ ] Surface water (river or lake) [ ]1 Municipal water [ ]1 Well water [ ]1 Rainwater [ ]1 Water brought in by tanker trucks or containers
5. Does the water undergo purification to ensure potability prior to arriving at the health facility? If yes, omit question 6. [ ] No [ ]1 Yes
6. If no, does this water undergo additional treatment at the health facility? [ ] No [ ]1 Yes
7. Which method is used for additional treatment of water? (Mark the method that is generally used) [ ]2 Chlorination [ ]1 Filtration [ ]2 Boiling

Assessment section total: _____ **Possible section total:** 4 _____

General Practices in the Facility

The following questions cover the health facility's policies and procedures for general hygiene, cleaning and disinfecting instruments, and use of antiseptics.

8. Is there a written policy for general hygiene and cleaning of surfaces, walls, floors, toilets, beds, clothing, and general equipment on this unit?

[ ] No written policy or procedures
[ ] Policy/procedures communicated verbally only
[ ]1 Written policy/procedures available in a manual but not widely available for daily practice
[ ]2 Written policy/procedures in a manual but also posted on walls in clinical or support areas

9. Does the written policy cover processes for decontaminating areas contaminated by spillage (such as blood or body fluids)?

[ ]1 Yes
[ ] No

10. Are instruments soaked in antiseptic solution used for multiple patients?

[ ] Yes
[ ]1 No

11. Are cotton balls stored in antiseptic solution for use in prepping or cleaning the skin?

[ ] Yes
[ ]1 No

12. Are antiseptics routinely protected from direct sunlight and high heat?

[ ]1 Yes
[ ] No

Assessment section total: _____ **Possible section total:** 6

TECHNICAL NOTES: HEALTH FACILITY INFORMATION

Background

Public and private services should meet quality standards as described in *Prevention of Hospital-Acquired Infections: A Practical Guide* (WHO 2002, 47; ISO 9000 and ISO 14000 series). WHO recognizes that older health facilities and health facilities in developing countries may not be able to achieve these standards; however, the underlying principles should be considered when planning and during changes or revisions. Health facilities must comply with the current version of guidelines for preventing nosocomial infections of the Ministry of Health.

The transfer of microorganisms from environmental surfaces (such as walls, floors, beds, and general equipment) to patients is largely via hand contact. Hand hygiene is very important for minimizing the impact of this transfer, but cleaning and disinfecting environmental surfaces are fundamental in reducing their contribution to health care-associated infections (CDC 2003).

Notes on the Questions

4, 5, 6, 7. The physical, chemical, and bacteriological characteristics of water in health care institutions must meet local regulations. The institution is responsible for the quality of water once it enters the building. For specific uses, water taken from a public network must often be treated by physical or chemical treatment for medical uses (WHO 2003, 50). Water boiled for 1 to 5 minutes is considered safe to drink, and water boiled for 20 minutes is considered high-level disinfected. Alternatively, water can be disinfected and made safe for drinking by adding an appropriate amount of sodium hypochlorite solution. Chlorination should be done just before storing the water in a container, preferably one with a narrow neck as storage containers often become contaminated if the neck is large enough to permit hands or utensils to enter (Tietjen et al. 2003, 26-9).

8. Different areas of the facility require different types of cleaning. It is therefore important to develop written policies for appropriate cleaning techniques (procedure, frequency, and cleaning agents used for each type of room, from highly contaminated to the most clean) and to ensure that these practices are followed (WHO 2003, 13). Cleaning schedules should be planned, documented, and closely followed according to the needs of each area (walls, windows, ceilings, doors, tabletops, beds, etc.) (Tietjen et al. 2003, 16-6).

9. Written schedules and procedures for cleaning each specific area (including decontaminating areas contaminated by spillage) should be available and posted prominently (Tietjen et al. 2003, 16-5).

10. Antiseptics should be used to reduce or destroy microorganisms on skin and mucous membranes, and they should never be used to disinfect objects. Instruments should never be left soaking in an antiseptic solution (EngenderHealth 2004, “Introduction to Aseptic Technique”).

11. Cotton balls, cotton wool, or gauze sponges should never be left soaking in antiseptic solutions (EngenderHealth 2004, “Introduction to Aseptic Technique”).

12. Disinfectants and antiseptics should always be stored in a cool, dark place. They should never be stored in direct light or near excessive heat (EngenderHealth 2004, "Introduction to Aseptic Technique," "Steps of Chemical High-Level Disinfection").

References

EngenderHealth. 2004. Infection Prevention Online Course. http://www.engenderhealth.org/res/onc/index.html#start (accessed July 17, 2006).

World Health Organization (WHO). 2003. *Prevention of Hospital-Acquired Infections: A Practical Guide*. 2nd ed. WHO/CDS/CSR/EPH/2002.12. Geneva: WHO.

Tietjen, L., D. Bossemeyer, and N. McIntosh. 2003. *Infection Prevention: Guidelines for Healthcare Facilities with Limited Resources*. Baltimore, MD: JHPIEGO.

US Centers for Disease Control and Prevention (CDC). 2003. Guidelines for Environmental Infection Control in Health-Care Facilities: Recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee. *MMWR* 2003;52 (No. RR-10):1-48.

MODULE 2. EMPLOYEE HEALTH

These questions should be completed by the person in charge of employee health or another administrator familiar with the issue.

For each item, mark the answer that best describes your current situation by placing a check mark ✓ inside the brackets [✓]. Note that some questions ask for only one answer, and others ask you to mark all answers that apply. Questions that are intended to provide contextual information only are not scored.

General Information

These questions provide general information about the employee health program in the health facility. An employee health program protects both employees and patients from the spread of infection.

1. Does the health service have a formal employee health program? [ ] No [ ]1 Yes
2. Are there written policies and procedures for health activities for health employees? [ ] No written policy or procedures [ ] Policy/procedures communicated verbally only [ ]1 Written policy/procedures available in a manual but not generally available for daily practice [ ]2 Written policies/procedures in a manual but also posted on walls in clinical or support areas

Assessment section total: _____ **Possible section total:** 3

Health Employee Exposures

This series of questions provides information about the health facility's handling of employee exposures to various pathogens and available prophylaxis.

3. For which employee exposures does the health facility have written policies and procedures readily available to health facility staff? (Mark all answers that apply)

[ ] Rabies
[ ] Varicella zoster
[ ] Diphtheria
[ ] Hepatitis A
[ ] Hepatitis B
[ ] Hepatitis C
[ ] HIV
[ ] Meningococcal disease
[ ] Pertussis

[ ]1 One to four answers checked
[ ]2 Five or more answers checked

4. Is there a designated person to call when an exposure to a blood-borne pathogen occurs?

[ ] No
[ ]1 Yes

5. Are employees previously negative for TB given a baseline skin test after exposure to pulmonary/laryngeal TB, if precautions were not in place?

[ ] No
[ ]1 Yes

6. Are employees previously negative for TB given a follow-up skin test about 6–10 weeks after exposure to pulmonary/laryngeal TB?

[ ] No
[ ]1 Yes

7. Is prophylactic anti-TB treatment given to TB skin test converters following exposure to pulmonary/laryngeal TB?

[ ] No
[ ]1 Yes

8. Which of the following topics are routinely included in employee education programs that cover disease transmission, avoiding exposure, and what to do if exposed? (Mark all answers that apply)

[ ] TB
[ ] Viral hepatitis
[ ] HIV
[ ] Meningococcal disease
[ ] Pertussis
[ ] Viral hemorrhagic fever

[ ]1 One to three answers checked
[ ]2 Four or more answers checked

Assessment section total: _____ **Possible section total:** 8

Control of Sharp Instruments

These questions focus on policies and procedures for controlling the spread of infection by careful use of needles and other sharp instruments such as scalpels.

9. Are there written policies for reducing the risk of injuries to personnel by needles or other sharp instruments?

[ ] No written policy or procedures
[ ] Policy/procedures communicated verbally only
[ ]1 Written policy/procedures available in a manual but not generally available for daily practice
[ ]2 Written policies/procedures in a manual but also posted on walls in clinical or support areas

10. Are containers available for disposable needles and other sharps?

[ ] No
[ ]1 Yes

11. Which types of containers are used? (Mark the answer that best applies)

[ ] Containers not used
[ ] Non-puncture-resistant material containers
[ ]1 Puncture-resistant cardboard
[ ]1 Plastic
[ ]1 Glass

12. How often are these containers available where needles or other sharps are used? (Mark the answer that best applies)

[ ] Never
[ ] Sometimes
[ ]1 Usually
[ ]2 Always

13. Are these containers emptied or disposed of when they are three-quarters full? (Mark the answer that best applies)

[ ] Never
[ ] Sometimes
[ ]1 Usually
[ ]2 Always

14. How are containers handled when they are changed? (Mark the answer that best applies)

[ ] Emptied into another container and reused
[ ]1 Sent for disposal and not reused

15. How are the contents of these containers finally disposed of? (Mark the answer that best applies)

[ ] Landfill or dumping
[ ] Regular trash
[ ]1 Burial
[ ]1 Burning sterilization
[ ]2 Incineration sterilization

16. How often are needles recapped after use or prior to disposal? (Mark the answer that best applies)

[ ]2 Never
[ ]1 Sometimes
[ ] Usually
[ ] Always

17. How often are needles bent or broken prior to disposal? (Mark the answer that best applies)

[ ]1 Never
[ ] Sometimes
[ ] Usually
[ ] Always

18. Are retractable lancets available for obtaining blood? (Mark the answer that best applies)

[ ] Never
[ ] Sometimes
[ ]1 Usually
[ ]2 Always

19. Are capillary tubes used for diagnostic testing (e.g., malaria smears, hematocrits) ever broken or cracked by hand? (Mark the answer that best applies)

[ ] No capillary tubes used
[ ] Sometimes capillary tubes are broken or cracked
[ ]1 Capillary tubes are not broken or cracked ever

20. Are employee punctures and sharp injuries monitored? (Mark one answer only)

[ ] Incidents not tracked
[ ]1 Key features such as type of exposure (percutaneous, mucosal, skin, etc.), type of device (solid or hollow needle, etc.), circumstances at time of exposure (surgery, needle disposal), location of exposure, time of day of exposure, or length of hire of exposed staff member are recorded/documented

Assessment section total: _____ **Possible section total:** 18

TECHNICAL NOTES: EMPLOYEE HEALTH

Background

Health care workers are at risk of acquiring infection through occupational exposure. Health facility employees can also transmit infections to patients and other employees. Thus, a program must be in place to prevent and manage infections among health facility staff (WHO 2003, 61).

Notes on the Questions

1. The infection control objectives for personnel should be part of a health care organization's general program for infection control in a setting that delivers health services. These objectives cannot be met without the support of the health care organization's administration, medical staff, and other health care personnel (Bolyard et al. 1998).

9. A plan for the collection, handling, disposal, and predisposal treatment of health facility wastes should be developed on the basis of proper sharps disposal strategies. A sharps container capable of maintaining its impermeability after waste treatment to avoid subsequent physical injuries during final disposal should be used; place disposable syringes with needles, including sterile sharps that are being discarded (scalpel blades and other sharp items) into puncture-resistant containers. These containers should be located as close as practical to the point of use; do not bend, recap, or break used syringe needles before discarding them into a container (CDC 2003).

11. A proper sharps-disposal container is a puncture-resistant container. It may be made out of a heavy cardboard box, a bottle, an empty plastic jug, or a metal container. These should be conveniently located in any area where sharp objects are generated (such as treatment and injection rooms, operating theaters, labor and delivery rooms, and laboratories) (EngenderHealth 2004, "Needles and Other Sharps").

13. Sharps containers should be disposed of when they are three-quarters full. (Tietien et al. 2003, 7-13).

15. Although burning is the best way to dispose of medical waste, sharps are not destroyed by burning, except in industrial incinerators. If an industrial incinerator is not available, sharps can be rendered harmless by placing needles, plastic syringes, and scalpels in a metal container and then, when the container is three-quarters full, pouring in fuel and igniting and burning it until the fire goes out on its own. When this is done, the plastic syringes will melt and, when cool, become a solid block of plastic, with the sharps embedded within the block. The block can then be buried in the type of burial pit used for solid medical waste. If it is not possible to bury all medical waste on site, sharps should be given priority for burial because they pose the biggest risk of injury and infections (EngenderHealth 2004, "Waste Disposal").

16. Many accidental needlestick injuries occur when staff recap needles. Recapping is a dangerous practice; if at all possible, dispose of needles immediately without recapping them (EngenderHealth 2004, "Needles and Other Sharps")

17. Hypodermic needles should not be bent, broken, or cut before disposal (EngenderHealth 2004, "Needles and Other Sharps").

20. If an occupational exposure occurs, the circumstances and post-exposure management should be recorded in the exposed person's confidential medical record. Recommendations for the contents of the occupational exposure report are as follows: date and time of exposure; details of the procedure being performed, including where and how the exposure occurred; if related to a sharp device, the type and brand of device and how and when in the course of handling the device the exposure occurred; details of the exposure, including the type and amount of fluid or material and the severity of the exposure for a percutaneous exposure, depth of injury, and whether fluid was injected; for a skin or mucous membrane exposure, the estimated volume of material and the condition of the skin (e.g., chapped, abraded, intact); details about the exposure source (e.g., whether the source material contained HBV, HCV, or HIV; if the source is HIV-infected, the stage of disease, history of antiretroviral therapy, viral load, and antiretroviral resistance information, if known); details about the exposed person (e.g., hepatitis B vaccination and vaccine-response status); and details about counseling, post-exposure management, and follow-up (CDC 2001, 19).

References

Bolyard, E. A., O. C. Tablan, W. W. Williams, et al. 1998. Guideline for Infection Control in Healthcare Personnel. *Infection Control and Hospital Epidemiology* 19(6):407-63.

US Centers for Disease Control and Prevention (CDC). 2001. Updated US Public Health Service Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV and Recommendations for Postexposure Prophylaxis. *MMWR* 2001;50 (No. RR-11):19-20.

CDC. 2003. Guidelines for Environmental Infection Control in Healthcare Facilities: Recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee. *MMWR* 2003;52 (No. RR-10):1-48.

EngenderHealth. 2004. Infection Prevention Online Course. http://www.engenderhealth.org/res/onc/index.html#start (accessed July 17, 2006).

World Health Organization (WHO). 2003. *Prevention of Hospital-Acquired Infections: A Practical Guide*. 2nd ed. WHO/CDS/CSR/EPH/2002.12. Geneva: WHO.

Tietjen, L., D. Bossemeyer, and N. McIntosh. 2003. *Infection Prevention: Guidelines for Healthcare Facilities with Limited Resources*. Baltimore, MD: JHPIEGO.

MODULE 3. CLEANING THE HEALTH FACILITY

The questions of this module should be completed by the head of the health facility.

For each item, mark the answer that best describes your current situation by placing a check mark ✓ inside the brackets [✓]. Note that some questions require only one answer, and others require you to check all applicable answers. Questions that are intended to provide contextual information only are not scored.

Knowledge of the Cleaning Technique

The first set of questions focuses on the understanding of the cleaning technique.

1. When should patient areas be cleaned? (Check one answer) [ ]1 Every day [ ] Weekly [ ] Upon the patient's discharge [ ] Never
2. Which are the goals of a daily cleaning in health facilities? (Check all the applicable answers) [ ]1 Prevent the direct spread of microorganisms [ ]1 Provide a clean, comfortable environment to the patient [ ]1 Promote and maintain cleaning habits
3. In what order are the different parts cleaned? (Check all the applicable answers) [ ] Starting at the bottom working up [ ]1 Starting at the top working down [ ] Starting from out to in (inward) [ ]1 Starting from in to out (outward)
4. How do you clean the health facility floors? (Check one answer) [ ] Sweeping [ ] Mopping using water [ ]1 Mopping using water and soap [ ] Mopping using water and chlorine
5. What do you use to clean health facility surfaces? (Check one answer) [ ] A dry cloth [ ] A cloth damped with water only [ ]1 A cloth damped with soapy water [ ] A cloth damped with chlorine

6. What precautions should you take when removing dirty bed linen? (Check all the applicable answers)

[ ] None
[ ]1 Avoid contact of uniform with dirty bed linen
[ ]1 Avoid placing dirty bed linen on the floor

7. What should be done in the event of a spillage (secretions/discharges, blood, excretions)? (Check all the applicable answers)

[ ] A cleaner is called to mop the area
[ ]1 The spillage is cleaned using paper towel and disinfectant
[ ]1 The spillage is collected and placed in a plastic bag, and then labeled as "contaminated solid waste"
[ ]1 Gloves should be used
[ ]1 Afterwards, the area should be mopped using a chlorine solution

Assessment section total: _____ **Possible section total:** 14

Basic Equipment for Cleaning

8. What equipment is needed to clean? (Check all the applicable answers)

[ ]1 Two bowls – one with clean water; the other with soapy water
[ ]1 A container or bag intended for dirty bed linen
[ ]1 Cloths
[ ] Non-sterile gloves
[ ] Sterile gloves
[ ]1 Rubber gloves
[ ]1 Waterproof apron
[ ]1 Mop

9. Which liquids are used for “housekeeping” cleaning? (Check all the applicable answers)

[ ] None
[ ]1 Water and soap
[ ] Chlorhexidine gluconate (Hibitane)
[ ] Chlorine

10. Which liquids are used to disinfect? (Check all the applicable answers)

[ ] None
[ ] Water and soap
[ ]1 Chlorhexidine gluconate (Hibitane)
[ ]1 Chlorine

11. Is there a separate area intended as a temporary storeroom for dirty and contaminated bed linen and clothes?

[ ]1 Yes
[ ] No

12. Are unit’s dirty and contaminated clothes sorted into separate bags and /or space?

[ ]1 Yes
[ ] No

13. Where are mops and cloths washed? (Check all the applicable answers)

[ ] In the patient area sink
[ ]1 In a sink specially designed for this purpose outside the patient area

14. When should the cleaning equipment be washed? (Check all the applicable answers)

[ ]1 After each cleaning procedure
[ ] Every day
[ ] Weekly

15. What happens to the cleaning equipment after being used? (Check all the applicable answers)

[ ] It is used straight away to clean elsewhere
[ ] It is washed and stored when still wet
[ ]1 It is washed and let dry

Assessment section total: _____ **Possible section total:** 14

Responsibility of Staff in Cleaning Procedures

16. Are there written guidelines that summarize the cleaning procedure? [ ] No written policy or guide [ ] Policy/procedures communicated verbally only [ ]1 Written policy/guide available in a manual but not widely available for daily practice [ ]2 Written policy/guide in a manual but also posted on walls in clinical or support areas
17. Is the nursing staff trained in cleaning procedures? [ ]1 Yes [ ] No
18. Is the operational staff (e.g., cleaners) trained in cleaning procedures? [ ]1 Yes [ ] No
19. Is the operational staff monitored or supervised when cleaning? (Check one answer) [ ]2 Always [ ]1 Sometimes [ ] Never

Assessment section total: _____ **Possible section total:** 6

TECHNICAL NOTES: CLEANING THE HEALTH FACILITY

Background

The cleaning of the patient areas is one of the most common procedures in health facilities and is one of the simplest measures to reduce the amount of germs on beds and other pieces of furniture/equipment.

Notes on the Questions

1-2. The cleaning of the patient area including examination rooms should be performed daily. The goals of a concurrent cleaning are to avoid the spread of microorganisms, thereby reducing infections, and to provide a clean environment for patients' comfort and well-being.

3. The basic asepsis principles are applied: clean in a downward and outward direction; start from the cleanest and proceed to the dirtiest items/areas to avoid contamination.

4. The patients' rooms should not be swept, because this stirs up dust and pathogens that are on the floor with a risk of aerosolizing microorganisms. The floor should be mopped with water and soap whenever necessary.

7. In the event of a spillage of secretions/discharges, blood, or excretions, these should be cleaned up using paper towels and placed in a red plastic bag labeled as "contaminated waste". A 0.5% chlorine solution should be applied. This task should be performed using gloves.

8. The equipment required for cleaning is bowls – one with clean water and another with soapy water; a hamper-type bag intended for dirty clothes; cloths for cleaning; mop; rubber gloves; and apron.

9, 10. Chlorine or chlorhexidine gluconate should be used to disinfect, and water and soap are enough for a housekeeping cleaning. Never mix chlorine with detergent or soap, etc., for it not only discharges toxic vapors, but chlorine loses its disinfecting power.

11, 12. The temporary storage area for dirty bed linen should have separate spaces and containers for dirty and contaminated bed linen. The staff should sort the bed linen accordingly.

13. The facility should have a specific space to wash mops and cleaning cloths; use of sinks or basins targeted for equipment washing or hand washing stations should be avoided.

14, 15. As the unit's cleaning is finished, the tools/equipment used should be stored clean and dry in its corresponding location.

16. To facilitate compliance, procedures should be documented as policies or guidelines.

17. It is important to include training on cleaning principles and techniques in the staff training programs.

18, 19. Both nursing and operational staff should be trained and supervised to ensure cleaning procedures are properly implemented.

References

CDC 2003: Guidelines for Environmental Infection Control in Health-Care Facilities. Recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee (HICPAC). Accessed June 12, 2012

CDC 2011 Guide to infection prevention for outpatient settings. http://www.cdc.gov/HAI/settings/outpatient/outpatient-care-guidelines.html. Accessed on June 12, 2012.

JHU (no date) Housekeeping chapter of infection prevention guidelines: http://www.reproline.jhu.edu/english/4morerh/4ip/ip_manual/16_housekeeping.pdf. Accessed on June 12, 2012.

MODULE 4. HAND HYGIENE

These questions should be completed by the head of each clinical or service area assessed.

For each item, mark the answer that best describes your current situation by putting a check mark ✓ inside the brackets [✓]. Note that some questions ask for only one answer, and others ask you to mark all answers that apply. Questions that are intended to provide contextual information only are not scored.

What is the name of this unit or service area? _____

Hand Hygiene Equipment and Supplies

The first set of questions focuses on the availability of equipment and supplies recommended for good hand hygiene practices.

1. How many hand washing stations and how many different areas are in this facility? (Enter numbers for each in the space to the right on each side of the diagonal line, then mark one answer below)	___ / ___
[ ] None [ ]1 Fewer than one hand washing station per area [ ]2 One or more hand washing station per area	
2. What is the usual source of water for hand washing? (Check one answer) [ ] No water is usually available [ ] Water is scooped from a basin and poured over hands [ ]1 Water is usually poured over hands from a basin [ ]1 Water is usually available from a cistern or container with gravity flow [ ]2 Running water from sink	
3. How frequently is running water available? [ ] Never [ ] Sometimes [ ]1 Usually [ ]2 Always	
4. What type of soap is most frequently available for hand washing? (Check one answer) [ ] No soap is available [ ] Plain bar soap stored in a receptacle that does not allow water to drain [ ]1 Plain bar soap stored in a receptacle that allows water to drain [ ]1 Plain liquid soap [ ]1 Liquid soap with antimicrobial agent	

5. How frequently is soap available? (Check one answer)

[ ] Never
[ ] Sometimes
[ ]1 Usually
[ ]2 Always

6. What types of dispensers are used in the facility for liquid soaps? (Check one answer)

[ ] Liquid soaps are not used (omit question 7)
[ ] Handheld pour bottle dispenser
[ ]1 Hand operated pump dispenser
[ ]1 Foot pump dispenser

7. How are liquid soap dispensers usually cleaned? (Check one answer)

[ ] Liquid soaps are not used
[ ] Dispensers are topped off or refilled without cleaning
[ ]1 Dispensers are emptied, washed, and dried before refilling
[ ]1 Dispenser or dispenser insert is disposed of when empty and new one is used

8. What method is usually available for drying hands after hand washing? (Check one answer)

[ ] None (air dry)
[ ] Multiple-use cloth towel
[ ]1 Single-use cloth towel
[ ]1 Paper towels
[ ]1 Hot air dryer

9. Is a waterless, alcohol-based hand antiseptic used for hand hygiene when there has not been contact with body fluids? (Check one answer)

[ ] No
[ ]1 Yes, alcohol-based antiseptic without emollient
[ ]2 Yes, alcohol-based antiseptic with emollient

10. How frequently is there a sufficient supply of waterless, alcohol-based hand antiseptic for hand washing? (Check one answer)

[ ] Alcohol-based hand antiseptic is not available
[ ] Supply of alcohol-based antiseptic is never sufficient
[ ] Sometimes is sufficient
[ ]1 Usually is sufficient
[ ]2 Always is sufficient

11. How many dispensers of waterless alcohol-based antiseptic are available in the facility? (Check one answer)

[ ] Alcohol-based hand antiseptic is not available
[ ]1 Fewer than one for every area
[ ]2 One or more for every area

Assessment section total: _____ **Possible section total:** 18

Hand Hygiene Practices

The following questions address hand hygiene practices in the clinical areas of your health facility.

12. In which of the following situations do health care personnel routinely wash their hands with soap and water or a waterless, alcohol-based hand antiseptic? (Read the situations and mark all answers that apply)

[ ]1 Before contact with patients
[ ]1 After contact with individual patients or their immediate environment
[ ]1 Before manipulating medical devices such as intravenous catheters, or before handling wound dressing
[ ]1 After touching potentially contaminated objects or surfaces
[ ]1 After removing gloves
[ ]1 After using bathroom, toilet, latrine

13. Is there a policy on covering skin lesions and cuts with waterproof dressings?
[ ] No
[ ]1 Yes

14. Is there a policy on keeping finger nails short and/or not using artificial nails or nail extenders?
[ ] No
[ ]1 Yes

15. Is it usual practice to wear gloves instead of washing hands for contact with patients or potentially contaminated environmental surfaces? (Check one answer)
[ ]1 No
[ ] Yes

16. Is hand lotion (emollient) available for staff to use at the end of working day? (Check one answer)
[ ] No
[ ]1 Yes, hand lotion in disposable containers
[ ]1 Yes, hand lotion in reusable containers

17. When a hand lotion container is empty, what usually happens? (Check one answer)
[ ] Hand lotion is not usually available
[ ] Container is refilled without cleaning
[ ]1 Container is emptied, washed, and dried before refilling
[ ]1 Container is disposed of when empty and new container is used

18. Is there a written policy or guide on hand hygiene on this unit?
[ ] No written policy or guide
[ ] Policy/procedures communicated verbally only
[ ]1 Written policy/guide available in a manual but not widely available for daily practice
[ ]2 Written policy/guide in a manual but also posted on walls in clinical or support areas

19. Does the health facility have at least one poster on hand washing? (Check one answer)
[ ] No poster exists
[ ]1 There is one poster on hand washing
[ ]2 There is more than one poster on hand washing

Assessment section total: _____ **Possible section total:** 15

TECHNICAL NOTES: HAND HYGIENE

Background

Infectious agents frequently contaminate the hands of health care personnel. Certain effective and frequent hand hygiene procedures can prevent the acquisition and spread of infectious microorganisms from health care personnel to patients and other health facility workers when done properly. Good hand hygiene practices are an important, and one of the simplest, inexpensive methods of preventing the spread of nosocomial infections. A sample of a hand washing procedure is provided in annex 3.

Notes on the Questions

1. Easy access to sinks will allow health care workers to clean their hands immediately before and after patient contact. Health care personnel are more likely to use sinks if they are within immediate or easy reach. It is most desirable for a sink to be in each patient care area.

2, 3. Microorganisms can live and multiply in stagnant water. Scooping water, probably with a ladle, can mean that the ladle is likely set down on a surface that may be contaminated between uses, and the ladle inserted in the water for the next use. Pouring is cleaner because nothing has been inserted into the water. Freely flowing water inhibits the growth of microorganisms and will prevent hands from being re-exposed to pathogens. Flowing water may be delivered by a cistern or container with gravity flow or through pipes from a distant source.

4. The use of soap has been shown to reduce debris and microorganisms from hands. Soap is especially effective when hands are vigorously scrubbed beneath flowing water. Bars of soap that sit in a pool of water in a soap dish can become heavily contaminated, so if bar soap is used, there should be good drainage from the soap dish. Antimicrobial soap has inherent microbicidal activity.

5. Because soap should be used before and after all patient encounters, an adequate supply should always be available.

6. Because liquid soap is dispensed before hands are clean, soap dispensers may become contaminated by microbes on the users' hands. The use of pump dispensers can minimize or prevent contact with contaminated hands or the use of elbow-operated or foot-pump dispensers.

7. Microorganisms can live and grow in liquid soap. Even antimicrobial soaps can harbor bacteria. If containers are refilled without being completely emptied and cleaned first, bacteria in the residual soap may contaminate the entire container. To prevent contamination, soap dispensers should be emptied and thoroughly washed and dried before reuse.

8. Hands should be dried after washing to remove residual bacteria and minimize recolonization of infectious microorganisms. Acceptable methods include single-use paper and cloth towels and hot air driers. Towels should not be reused as they may become contaminated after each use.

9. Alcohol-based hand antiseptics are quick and convenient, and their proper use reduces hand flora more effectively than hand washing with soap. The alcohol content should be 60–90%. Unlike hand washing, alcohol-based antiseptics will not remove dirt or debris. So if any visible dirt or debris is present, hands should be washed with soap and dried before using an alcohol-based antiseptic. Emollients such as glycerine, propylene glycol, and sorbitol protect and soften skin and prevent irritation. The use of emollients improves compliance with alcohol-based hand antiseptics by staff. The formula for preparing alcohol-based antiseptics locally is 95% isopropyl alcohol and 5% glycerine.

10. An adequate supply of alcohol-based antiseptics will ensure that proper hand hygiene can always be practiced. Easy availability will facilitate compliance with alcohol-based hand antiseptics. An adequate number of dispensers conveniently placed in patient care areas will facilitate compliance by personnel.

12. Hands must be cleaned immediately before and after every patient encounter. Hands must also be cleaned after contact with any potentially contaminated area or object. These include—

- Objects in contact with patients (i.e., dressings and linens)
- Surfaces in clinical or laboratory areas
- Bathrooms, toilets, and latrines

15. Gloves do not provide complete protection against the transmission of bacteria and viruses because hands are easily contaminated in the process of glove removal and hands must be washed immediately after glove removal.

Bacteria from patients can be recovered from a significant number of health care workers who wear gloves. Some health facility workers have contracted blood-borne pathogens, such as hepatitis B, from patients despite wearing gloves. Gloves may have microscopic defects, particularly if they are reused (washed and sterilized again). Thus, glove use *should not alter* hand-hygiene practices (washing and drying) in any way.

16. Skin irritation can occur when hands are frequently washed. The periodic use of hand lotions can prevent dermatitis and inhibit bacterial growth. This practice should be done by personnel at the end of the working day.

17. Bacteria can grow in hand lotion dispensers, therefore, containers with appropriate dispensers should be provided to prevent such contamination. The use of small, disposable containers will minimize colonization. Reusable containers should be emptied, thoroughly washed, and dried frequently to eliminate residual bacteria before refilling.

18, 19. It is important to have a guide on hand washing that explains the correct procedure, such as described in annex 3. Posters are also useful as a reminder of hand washing.

References

WHO 2006. WHO Guidelines on hand hygiene in health care (advanced draft) 2006. http://www.who.int/patientsafety/information_centre/Last_April_versionHH_Guidelines%5b3%5d.pdf Accessed June 12, 2012

MODULE 5. WASTE MANAGEMENT

These questions should be completed by staff familiar with waste management practices throughout the facility in all departments and services.

For each item, mark the answer that best describes your current situation by placing a check mark ✓ inside the brackets [✓]. Note that some questions ask for only one answer, and others ask you to mark all answers that apply. Questions that are intended to provide contextual information only are not scored.

Policies Regarding Contaminated Waste

The following questions provide contextual information on health facility policies and guidelines for handling contaminated waste and staff training.

1. Is there a written facility policy about the handling of contaminated waste?

[ ] No written policy or procedures
[ ] Policy/procedures communicated verbally only
[ ]1 Written policy/procedures available in a manual but not widely available for daily practice
[ ]2 Written policy/procedures in a manual and also available or posted on walls in clinical or support areas

2. Which health facility staff are trained in the handling/disposal of contaminated waste? (Mark all answers that apply)

[ ] No training provided
[ ]1 All clinical staff (including doctors, nurses, and laboratory personnel)
[ ]1 All health facility cleaning and maintenance staff

Assessment section total: _____ **Possible section total:** 4_____

Separation of Contaminated Waste

3. Is infectious waste stored separately from routine waste? [ ] No [ ]1 Yes
4. Are clearly labeled containers used to store contaminated waste? [ ] No [ ]1 Yes
5. How do contaminated waste containers differ from routine waste containers? (Mark all answers that apply) [ ] No separate containers are used [ ] Containers have no special labeling [ ]1 Contaminated waste containers have clearly visible label and red bag
6. Where are contaminated waste containers found in the health facility? (Mark all answers that apply) [ ] No separated contaminated waste containers are used [ ]1 Easily accessible in outpatient care areas [ ]1 In all procedure rooms [ ]1 In clinical laboratory [ ]1 In central supply/sterilization facility
7. Is there a specific area to collect contaminated waste or a collection center? (Mark all answers that apply) [ ] No [ ]1 Yes, easily accessible in outpatient care areas [ ]1 Yes, easily accessible in procedure areas and laboratory [ ]1 Yes, easily accessible to special transportation for moving to final disposal

Assessment section total: _____ **Possible section total:** 10

Waste Treatment

These questions focus on treatment procedures for non-infectious and contaminated waste.

8. How is routine waste treated? (e.g., paper, food remains) (Mark one answer)

[ ] There is no specific treatment
[ ] It is taken to the community dump
[ ]1 It is taken to a waste treatment plant/landfill

9. How is contaminated waste treated? (Check one answer) (If the answer is incineration, go to question 10; if not, omit question 10)

[ ] Sent to community dump
[ ] Burial
[ ]1 Incineration
[ ]1 Disinfection and crushing

10. In the case of incineration, where does incineration of contaminated solid waste usually occur? (Check one answer)

[ ]1 Open incinerator
[ ]2 Closed or oil drum incinerator
[ ]2 Formal incinerator or incineration plant

11. How is sharp waste treated? (Check one answer)

[ ] No treatment at all
[ ] Burial
[ ]1 Incineration
[ ]1 Disinfection and crushing

12. How is contaminated liquid waste usually disposed of? (Check one answer)

[ ] General community drainage system
[ ] Septic tank
[ ]1 Waste water treatment plant

13. What is the treatment for lab specimens? (Check one answer)

[ ] Go into routine waste
[ ]1 Sterilization
[ ]1 Incineration

Assessment section total: _____ **Possible section total:** 7

TECHNICAL NOTES: WASTE MANAGEMENT

Background

The proper identification, handling, and disposal of potentially infectious waste are essential to prevent infection and injury to patients, clinical and custodial staff, and persons in the community.

Notes on the Questions

1. In each service, there should be an explicit protocol or specific policies, widely disseminated among staff, that define what contaminated waste is and how it should be handled, i.e., clearly separated from routine waste as soon as it is generated, handled in a way that prevents further contamination, and in a manner that will both inactivate microorganisms and prevent environmental contamination.

2. Anyone responsible for generating, handling, or transporting contaminated waste must be duly trained. Training should occur at the time of employment and be refreshed periodically. The staff who must be trained include the following—

- Clinical staff (doctors, nurses)
- Laboratory staff
- Support staff (including personnel responsible for linens, central sterilization, and cleaning staff)
- Administrative staff

3. Contaminated or infectious waste is defined as any disposable material or object that may have been in contact with pathogens. These include—

- Waste products, body fluids, and tissue specimens from patients
- Objects that have been in contact with body fluids or tissues, including intravenous catheters, wound dressings, gloves, and others
- Sharp instruments, such as scalpels and needles
- Microbiology specimens, including liquid and plated cultures

4. Clearly labeling receptacles of infectious (contaminated) waste will both prevent contamination of routine waste and reduce costs by lowering the overall quantity of material that has to be treated as infectious waste.

5. The optimal labeling process is an internationally accepted standard supported by WHO (WHO 2003). According to this standard, containers and bags for infectious waste should be red, and/or clearly display the international biohazard symbol.

6. Containers for contaminated waste should be easily accessible in any area where such waste might be generated. This includes all outpatient care areas, procedure rooms, laboratories where potentially contaminated specimens are handled, and linen and supply areas where reusable items are sterilized.

7. Comprehensive and well-implemented waste management minimizes the risks of nosocomial contamination, work-related accidents, environmental pollution, illness spread, and reduction of vectors. On-site solid waste (infectious and non-infectious) disposal, in the setting where it is generated, minimizes the dangers of handling and transport to off-site locations and minimizes the risk of attracting insects, rats, mice, dogs, and vultures, as well as standing pools of water that could breed mosquitoes. If non-infectious waste is transported to an incinerator, the problem is minimized.

8. Routine waste is everything that does not represent a danger of transporting pathogen microorganisms, e.g., sterile equipment wrapping, food remains that do not come from isolation wards, non-contaminated clothes, fruit peel, and paper. When routine waste is handled separately from infectious waste, costs are minimized because this can be taken out by a residential (community) extraction service. Ideally, this waste should go directly to a treatment plant for solid waste.

9. Infectious or contaminated waste must be treated by incineration or disinfection and crushing. If the health facility does not have the means for the proper treatment of this waste, it is recommended that the disposal should be off-site, using an authorized system.

10. Incineration is a process by which the risks of contaminated waste are removed and further allows a reduction in its volume. Burning should be in a closed incinerator or oil drum, rather than an open fire, to minimize airborne dispersal and contamination. Sterilizing procedures, such as autoclaving and incineration, are the ideal methods for disposing of contaminated waste.

It is important to mention that classified, packed, and labeled waste must be stored in proper collection centers that comply with national standards for its further recollection, treatment, and disposal. Disposal is the last step in the process of handling waste and it does not have to be done on the site of the health facility.

11. Sharp waste (needles, scalpel, lancets, and thin glass sheets) must have special treatment. It must be discarded in puncture-resistant, sharps-disposal plastic containers, and these should not be more than two-thirds full. Final treatment must be done on the site of the health facility by incineration or disinfection and crushing.

12. It is not acceptable for contaminated liquid waste to be buried or poured directly into the general drainage system; it should go through a waste water treatment plant. If the health facility does not have a waste water treatment plant, contaminated liquids should be disinfected with a chlorine solution before pouring them into the general drainage system.

13. Because cultures and specimens in microbiology labs have particularly high concentrations of human pathogens, these must be sterilized before disposal. Such specimens should be autoclaved even if they will be subsequently incinerated.

References

World Health Organization (WHO). 2003. *Prevention of Hospital-Acquired Infections: A Practical Guide*. 2nd ed. WHO/CDS/CSR/EPH/2002.12. Geneva: WHO.

MODULE 6. ISOLATION AND STANDARD PRECAUTIONS

This module should be completed by the person who can best report on infection control activities in the facility.

For each item, mark the answer that best describes your current situation by putting a check mark ✓ inside the brackets [✓]. Note that some questions ask for only one answer, and others ask you to mark all answers that apply. Questions that are intended to provide contextual information only are not scored.

Isolation Policies and Precautions

The following questions focus on your facility's policies and precautions for isolating patients with potential contagious infections to prevent the spread to other patients and to health care workers.

1. Does your facility have a formal written policy for placing patients with potentially contagious infections in isolation or for instituting specific procedures (often called precautions) to prevent spread to other people?

[ ] No written policy or procedures
[ ] Policy/procedures communicated verbally only
[ ]1 Written policy/procedures available in an operations manual but not generally available for daily practice
[ ]2 Written policy/procedures in a manual but also posted on walls in clinical or support areas

2. Does your facility have a written policy for standard precautions similar to those defined by the US Centers for Disease Control (CDC) or other agencies*?

[ ] No written policy or procedures
[ ] Policy/procedures communicated verbally only
[ ]1 Written policy/procedures available in an operations manual but not generally available for daily practice
[ ]2 Written policy/procedures in a manual but also posted on walls in clinical or support areas

***Answer yes if the policy is similar to the following CDC recommendation—**
Standard Precautions are designed to reduce the risk of transmission of microorganisms from both recognized and unrecognized sources of infection…. They apply to **all patients** receiving care…, regardless of their diagnosis or presumed infection status. Standard Precautions should be used when contact with the following body substances or sites is anticipated: 1) blood; 2) all body fluids, secretions, and excretions except sweat, regardless of whether or not they contain visible blood; 3) non-intact skin; and 4) mucous membranes.[1]

[1] Centers for Disease Control and Prevention. 2007. *Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings*: http://www.cdc.gov/hicpac/pdf/isolation/Isolation2007.pdf_accessed 12 June 2012.

3. Are there specific isolation precautions for patients infected with the following pathogens? (Mark all that apply)

[ ] This facility does not have an isolation system based on specific types of infection
[ ]1 TB
[ ]1 Measles
[ ]1 Cholera (or other diarrheal diseases; please specify diseases:_____)
[ ]1 Sudden acute respiratory syndrome
[ ]1 Influenza
[ ]1 Group A streptococcus disease
[ ]1 Staphylococcus aureus
[ ]1 Varicella

4. Do the isolation precaution guidelines include instructions about the following? (Mark all that apply)

[ ] Handling of linen
[ ] Handling of equipment and supplies
[ ] Disposal of waste and corpses
[ ] Cleaning
[ ]1 All of the above
[ ]1 Patient placement in specific rooms according to their disease or mode of transmission
[ ]1 Transport of isolated patients to other locations in facility (X-ray)

Assessment section total: _____ **Possible section total:** 15

Supplies for Isolation Precautions

This question seeks information on supplies available for isolation precautions.

5. Which of the following items needed for isolation precautions are usually available in adequate supply? (Mark all that apply)

[ ]1 Standard surgical masks
[ ]1 Special respirator masks (such as N95 or powered air purifying respirators [PAPRs])
[ ]1 Thick utility gloves
[ ]1 Nonsterile gloves (e.g., latex, nitrile)
[ ]1 Protective eye wear
[ ]1 Full face shields
[ ]1 Protective caps
[ ]1 Fluid resistant gowns
[ ]1 Non-fluid resistant gowns
[ ]1 Fluid resistant aprons
[ ]1 Fluid-proof shoes or shoe covers

Assessment section total: _____ **Possible section total:** 11

Respiratory Hygiene

6. Does the facility have policy and procedures to contain respiratory secretions in persons with signs and symptoms of a respiratory infection?

[ ] No written policy or procedures
[ ] Policy/procedures communicated verbally only
[ ]1 Written policy/procedures available in an operations manual but not generally available for daily practice
[ ]2 Written policy/procedures in a manual but also posted on walls in clinical or support areas

7. Are signs with instructions posted for patients with symptoms of respiratory infection on how to cover the mouth and nose when coughing?

[ ] No
[ ]1 Yes

8. Are persons with symptoms of respiratory infection encouraged to sit in a separate area or as far away as possible from other patients?

[ ] Never
[ ] Sometimes
[ ]1 Usually
[ ]1 Always

Assessment section total: _____ **Possible section total:** 4

TECHNICAL NOTES: ISOLATION AND STANDARD PRECAUTIONS

Background

There are two tiers of isolation precautions. The first tier "Standard Precautions" is designed for the care of all patients, regardless of their diagnosis or presumed infection status. Implementation of these standard precautions is the primary strategy for successful nosocomial infection control. The second tier "Transmission-Based Precautions" is designed for the care of patients known or suspected to be infected by epidemiologically important pathogens that are spread by airborne or droplet transmission, such as TB, or by contact with dry skin or contaminated surfaces (CDC 2007).

Notes on the Questions

1, 2. Isolation and other barrier precautions should be available to staff in clearly written standardized policies that are adaptable to infectious agents and patients. These include standard precautions to be followed for all patients and additional precautions for selected patients (WHO 2002, 44). Standard precautions apply to blood; all body fluids, secretions, and excretions except sweat, regardless of whether or not they contain visible blood; non-intact skin; and mucous membranes. Standard precautions are designed to reduce the risk of transmission of microorganisms from both recognized and unrecognized sources of infection in facilities (CDC 2007).

3. Transmission-Based Precautions are designed for patients documented or suspected to be infected with highly transmissible or epidemiologically important pathogens for which additional safety measures beyond Standard Precautions are needed to interrupt transmission in the clinical setting. There are three types of Transmission-Based Precautions—airborne, droplet, and contact. They may be combined for diseases that have multiple routes of transmission. When used either singularly or in combination, they are to be used in addition to Standard Precautions.

- Airborne precautions are designed to reduce the nosocomial transmission of particles 5 µm or less in size that can remain in the air for several hours and be widely dispersed. Microorganisms spread wholly or partly by the airborne route include TB, chicken pox (varicella virus), and measles (rubeola virus). Airborne precautions are recommended for patients with either known or suspected infections with these agents. For example, an HIV-infected person with a cough, night sweats, or fever; and a patient with clinical or X-ray findings that suggest TB should go on airborne precautions until TB is ruled out.

- Droplet precautions reduce the risks for nosocomial transmission of pathogens spread wholly or partly by droplets larger than 5 µm in size (e.g., *H. influenzae*, *N. meningitides meningitis*, *M. pneumoniae*, flu, mumps, and rubella viruses). Other conditions include diphtheria, pertussis pneumonic plague, and strep pharyngitis (scarlet fever in infants and young children). Droplet precautions are simpler than airborne precautions because the particles remain in the air only for a short time and travel only a few feet; therefore, contact with the source must be close for a susceptible host to become infected.

- Contact precautions reduce the risk of transmission of organisms from an infected or colonized patient through direct or indirect contact. They are indicated for patients infected or colonized with enteric pathogens (hepatitis A or echo viruses), herpes simplex and hemorrhagic fever viruses, and multidrug-resistant bacteria. Interestingly, chicken pox is spread both by the airborne and contact routes at different stages of the illness. Among infants, there are a number of viruses transmitted by direct contact. In addition, contact precautions should be implemented for patients with wet or draining infections that may be contagious (e.g., draining abscesses, herpes zoster, impetigo, conjunctivitis, scabies, lice, and wound infections) (Tietjen et al. 2003, 21-3; CDC 1996).

4. Although soiled linen may be contaminated with pathogenic microorganisms, hygienic and common sense storage and processing of clean and soiled linen are recommended. The methods are determined by facility policy and any applicable regulations (see Tietjen et al. 2003, 8-3, for recommendations on handling, transporting, and laundering soiled linen).

Contaminated, reusable critical medical devices or patient-care equipment (i.e., equipment that enters normally sterile tissue or through which blood flows) or semi-critical medical devices or patient-care equipment (i.e., equipment that touches mucous membranes) are sterilized or disinfected after use to reduce the risk of transmission of microorganisms to other patients; the type of reprocessing is determined by the article and its intended use, the manufacturer's recommendations, and facility sterilization policy. Noncritical equipment (i.e., equipment that touches intact skin) contaminated with blood, body fluids, secretions, or excretions is cleaned and disinfected after use. Contaminated disposable (single use) patient-care equipment is handled and transported in a manner that reduces the risk of transmission of microorganisms and decreases environmental contamination in the facility; the equipment is disposed of according to facility sterilization policy. Dishes, glasses, cups, or eating utensils should be cleaned with hot water and detergents.

Patients admitted to rooms previously occupied by patients infected or colonized with nosocomial pathogens are at increased risk of infection from contaminated environmental surfaces and bedside equipment unless the room has been adequately cleaned and disinfected. Limiting the movement and transport of patients infected with virulent or epidemiologically important microorganisms and ensuring that such patients leave their rooms only for essential purposes reduces opportunities for transmission of microorganisms. When patient transport is necessary, appropriate barriers (e.g., masks, impervious dressings) should be worn or used by the patient to reduce the opportunity for transmission of pertinent microorganisms to other patients, personnel, and visitors, and to reduce contamination of the environment; personnel in the area to which the patient is to be taken should be notified of the impending arrival of the patient and of the precautions to be used. Patients should be informed of ways by which they can assist in preventing the transmission of their infectious microorganisms to others (CDC 2007; Tietjen et al. 2003, 8-3).

5. Various types of masks, goggles, and face shields are worn alone or in combination to provide barrier protection. A mask that covers both the nose and the mouth and goggles or a face shield are worn by staff during procedures and patient care activities that are likely to generate splashes or sprays of blood, body fluids, secretions, or excretions; the goal is to protect the mucous membranes of the eyes, nose, and mouth from contact transmission of pathogens. A surgical

mask generally is worn by facility personnel to protect against spread of infectious, large-particle droplets that are transmitted by close contact and generally travel only short distances (up to about 1 meter from infected patients who are coughing or sneezing). High-efficiency masks should be worn by staff entering airborne isolation rooms. Gowns prevent contamination of clothing and protect the skin from blood and body fluid exposures. Impermeable gowns, leg coverings, boots, or shoe covers provide greater protection to the skin when splashes or large quantities of infective material are present or anticipated. Gowns also are worn during the care of patients infected with epidemiologically important microorganisms to reduce the opportunity for transmission from patients or items in their environment to other patients or environments; when gowns are worn for this purpose, they are removed before leaving the patient's environment and then hands are washed (CDC 2007; WHO 2002, 45).

6, 7, 8. Triage and separation of patients with respiratory symptoms at the first point of encounter within a health care setting as well as orientation on cough etiquette is particularly important during an outbreak such as SARS or H1N1. Through implementation of this strategy, transmission to other patients in the facility is reduced (CDC 2007).

References

Centers for Disease Control and Prevention (CDC). 2007. Centers for Disease Control and Prevention. 2007. Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings; http://www.cdc.gov/hicpac/pdf/isolation/Isolation2007.pdf (accessed June 12, 2012).

Tietjen, L., D. Bossemeyer, and N. McIntosh. 2003. *Infection Prevention: Guidelines for Healthcare Facilities with Limited Resources*. Baltimore, MD: Jhpiego.

World Health Organization (WHO). 2002. *Prevention of Hospital-Acquired Infections: A Practical Guide*. 2nd ed. WHO/CDS/CSR/EPH/2002/12. Geneva: WHO.

WHO and CDC. 1998. *Infection Control for Viral Hemorrhagic Fevers in the African Health Care Setting*. Geneva: WHO and CDC. http://www.cdc.gov/ncidod/dvrd/spb/mnpages/vhfmanual.htm (accessed July 19, 2006).

WHO/Regional Office for Africa (AFRO), Commonwealth Regional Health Community Secretariat (CRHCS), and East, Central and Southern African College of Nursing (ECSACON). 2001. *Manual of Infection Prevention and Control Policies and Guidelines*. Prepared by U. V. Reid.

MODULE 7. LABOR AND DELIVERY

This module is designed for those primary health facilities that provide services for labor and delivery. This survey should be completed by the head of the labor and delivery area of the health facility. The module should be omitted in facilities where no deliveries are attended.

For each item, mark the answer that best describes your current situation by placing a check mark ✓ inside the brackets [✓]. Note that some questions require only one answer, and others require you to check all applicable answers. Questions that are intended to provide contextual information only are not scored.

General Issues, Hygiene and Glove Use

This module is designed to provide contextual information on labor and delivery practices in the health facility. The first set of questions looks at staff education.

1. In the past year, did you lead or participate in education programs for labor and delivery personnel related to preventing nosocomial infections?

[ ] No (If no, omit question 2)
[ ]1 Yes

2. If yes, which of the following topics were discussed? (Mark all answers that apply)

[ ] Hand hygiene
[ ] Standard precautions
[ ] Prevention of chorioamnionitis
[ ] Prevention of infection after vaginal delivery
[ ] Prevention of postpartum endometritis
[ ] Prevention of peripartum infections in the newborn
[ ] Prevention of intravenous catheter-associated infections
[ ] Care of breast milk pumps, and/or stored breast milk
[ ] Skin and cord care of the baby (neonate)
[ ] Preparation of commercial formulas
[ ] Eye care for the baby (neonate)

[ ]1 At least six items checked
[ ]2 Seven to eleven items checked

3. Are there designated rooms or areas for women in labor? (Mark all answers that apply)

[ ] General ward
[ ]1 Dedicated labor and delivery rooms

Assessment section total: _____ **Possible section total:** 4 _____

Cleaning and General Hygiene

The following questions focus on general hygiene practices in the labor and delivery suite.

4. Is there a written policy for general hygiene and cleaning of surfaces such as walls, floors, and toilets on this unit? [ ] No written policy or procedures [ ] Policy/procedures communicated verbally only [ ]1 Written policy/procedures available in a manual but not generally available for daily practice [ ]2 Written policies/procedures in a manual but also posted on walls in clinical or support areas
5. Does the policy cover clothing and equipment? [ ] No [ ]1 Yes
6. Do the guidelines cover processes for decontaminating areas contaminated by spillage of blood or body fluids? [ ] No [ ]1 Yes

Assessment section total: _____ **Possible section total:** 4 _____

Glove Use for Vaginal Deliveries

7. How frequently are gloves worn for antepartum and postpartum vaginal exams and vaginal deliveries? (Check one answer) [ ] Never [ ] Sometimes [ ]1 Usually [ ]2 Always
8. How frequently are gloves changed between patients? (Check one answer) [ ] Never [ ] Sometimes [ ]1 Usually [ ]2 Always

Assessment section total: _____ **Possible section total:** 4 _____

Hand Washing for Vaginal Deliveries

The following questions focus on washing and scrub practices prior to vaginal deliveries.

9. Is the delivery staff required to scrub prior to vaginal deliveries?

[ ] No
[ ]1 Yes

10. Is running water usually available for the scrub?

[ ] No
[ ]1 Yes

11. How does the person doing the scrub usually turn the water on and off? (Check one answer)

[ ] Hand-operated faucet handle
[ ]1 Elbow-operated faucet handles
[ ]1 Someone else turns the water on and off

12. What types of soap or antiseptics are usually used for the scrubs prior to vaginal delivery? (Check one answer)

[ ] No antiseptic is used
[ ] Plain bar soap
[ ]1 Liquid soap
[ ]2 Soap with chlorhexidine

13. How are antiseptic containers/dispensers usually cleaned? (Check one answer)

[ ] Containers not used
[ ] Dispensers are topped up and refilled without cleaning
[ ]1 Dispensers are emptied, washed, and dried before refilling
[ ]1 Dispensers are disposed of when empty and new one is used

14. How do personnel usually dry their hands after the wash and scrub? (Check one answer)

[ ] None (air dry)
[ ] Multiple-use cloth towel
[ ]1 Single-use cloth towel
[ ]1 Paper towels
[ ]1 Hot air dryer

Assessment section Total: _____ **Possible section total:** 7

Barriers Worn for Vaginal Deliveries

The following questions focus on barriers worn for vaginal deliveries, including the use of gowns and other protective equipment.

15. Does the delivery staff usually wear a cover gown or apron during the delivery? (Check one answer)

[ ] None
[ ]1 Gown
[ ]1 Apron

16. How often is a gown or apron available for use? (Check one answer)

[ ] Never
[ ] Sometimes
[ ] Usually
[ ]1 Always

17. Are gowns or aprons usually changed between patients?

[ ] No
[ ]1 Yes

18. Are gowns fluid proof?

[ ] No
[ ]1 Yes

19. Do the gowns have long sleeves?

[ ] No
[ ]1 Yes

20. Are the following items readily available and routinely worn during vaginal deliveries? (Mark one answer in each row)

Protective eye wear (e.g., goggles)	[ ]	No
	[ ]1	Yes
Closed toe shoes or shoe covers (e.g., booties)	[ ]	No
	[ ]1	Yes
Masks	[ ]	No
	[ ]1	Yes
Cap	[ ]	No
	[ ]1	Yes

Assessment section total : _____ **Possible section total:** 9

Invasive Devices in Labor and Delivery

The following questions examine the use of invasive devices, such as clamps, during labor and delivery.

21. How often are delivery kits available to birth attendants for vaginal deliveries? (Mark the answer that best applies) [ ] Never [ ] Sometimes [ ]1 Usually [ ]1 Always
22. Are kits for delivery intended for single use (disposable) or reusable? (Check one answer) [ ] Reusable [ ]1 Disposable (single use)
23. Are sterile umbilical clamps/ties routinely used? [ ] No [ ]1 Yes
24. Are cord clamps intended for single use (disposable) or reusable? (Check one answer) [ ] Reusable [ ]1 Disposable (single use)

Assessment section total : _____ **Possible section total:** 4_____

Labor and Delivery Procedures

The following questions provide an overview of labor and delivery practices in the health facility, including examinations, antenatal preparation, and postpartum practices including cord care.

25. In a routine, uncomplicated vaginal delivery, how many vaginal exams are usually performed during Stage 1 labor by all personnel caring for mother?

[ ] More than two per hour in first stage of labor
[ ]1 Two or less per hour in first stage of labor

26. In a routine, uncomplicated vaginal delivery, how many vaginal exams are usually performed during Stage 2 labor by all personnel caring for mother?

[ ] More than one per hour in second stage of labor
[ ]1 One or less per hour in second stage of labor

27. How is the perineum usually prepped for delivery? (Check one answer)

[ ] No cleansing performed routinely
[ ] Tap water
[ ] Distilled water
[ ] Sterile water
[ ]1 Betadine
[ ]1 Chlorhexidine gluconate solution containing alcohol

28. What types of suction devices are routinely used for cleaning of nasopharynx or meconium post-delivery? (Check one answer)

[ ] No suction devices used
[ ] Mouth-to-tube suctioning
[ ]1 Suction device attached to wall
[ ]1 Bulb suction

29. What agent is usually used to clean the cord prior to clamping and cutting? (Check one)

[ ] No cleansing performed
[ ] Tap water
[ ] Distilled water
[ ]1 Sterile water
[ ]1 Betadine
[ ]1 Chlorhexidine gluconate solution

30. Are single-use scissors used to cut the cord?

[ ] No
[ ]1 Yes

31. What agent is usually used for cord care? (Check one answer)

[ ] Tap water
[ ] Distilled water
[ ] Tetracycline
[ ]1 Chlorhexidine gluconate solution containing alcohol
[ ]1 Betadine

32. What is usually used to wash the newborn after delivery? (Mark all answers that apply) [ ] Baby not washed [ ] Distilled water [ ] Tap water [ ]1 Sterile water [ ]1 Sterile saline solution
33. How are the newborn's eyes treated after birth to prevent gonococcal infection? (Check one answer) [ ] No agent used [ ] Ceftriaxone (parenteral) [ ] Chloramphenicol (topical) [ ]1 Silver nitrate (topical) [ ]1 Erythromycin (topical)
34. Is the newborn received in clean facility linen? [ ] No [ ]1 Yes

Assessment section total : _____ **Possible section total:** 11

Postpartum Care

The following questions cover postpartum care practices for mother and neonate.

35. Are neonate and mother separated under any of the following conditions? (Mark all answers that apply)

[ ] Never
[ ] Mother has a postpartum infection
[ ] Mother has eclampsia
[ ] Mother has group A streptococcus infection
[ ] Mother has oral herpes simplex virus
[ ] Mother has genital herpes simplex virus
[ ] Mother has fever
[ ] Mother has HIV
[ ]1 Mother has active tuberculosis

36. How often is “rooming in” practiced for mother and baby? (Check one answer)

[ ] Never
[ ] Sometimes
[ ]1 Usually
[ ]1 Always

37. Is there a policy for preventing group B streptococcus infection in the newborn? (Check one answer)

[ ] No policy
[ ] Pregnant women are screened at 35 to 37 weeks and positive cultures treated intrapartum
[ ]1 No screening but intrapartum treatment for high-risk women (i.e., duration of membrane rupture greater than 18 hours, gestation less than 37 weeks, intrapartum fever)

38. What is the average duration of stay for an uncomplicated vaginal delivery? (Check one answer)

[ ] More than two days
[ ]1 Less than one day
[ ]1 One to two days

Assessment section total: _____ **Possible section total:** 4 _____

TECHNICAL NOTES: LABOR AND DELIVERY

Background

In developing countries, postpartum infection remains second only to postpartum hemorrhage as a cause of maternal deaths and is the leading cause of serious maternal complications of childbirth. This is still the case, despite the fact that more than 150 years have elapsed since it was determined that hand washing and boiling all instruments and utensils after use prevented sepsis (Tietjen et al. 2003, 25-3).

Notes on the Questions

4–6. WHO recommends that there be written policies specifying the frequency of cleaning and types of cleaning agents used for walls, floors, windows, beds, curtains, screens, fixtures, furniture, baths and toilets, and all reused medical devices. Methods must be appropriate for the likelihood of contamination, including spillage and necessary levels of asepsis (WHO 2003, 33-34).

7, 8. To minimize the risk of infection, a clean pair of examination gloves should be used for each vaginal examination. Sterile surgical gloves are not required (Tietjen et al. 2003, 25-9). Gloves should be changed by staff between care activities and procedures with the same patient (WHO/AFRO et al. 2001, 40).

10. Microorganisms grow and multiply in standing water. Hands should not be scrubbed in a basin that contains standing water, even if an antiseptic solution is added (EngenderHealth 2004 "Surgical Scrub and Surgical Attire"). Optimal hand hygiene requires running water and large washbasins that require little maintenance and have antisplash devices and hands-free controls (WHO 2003, 31).

13. Soap should not be added to a partially empty soap dispenser. The practice of "topping up" dispensers can lead to bacterial contamination of soap (CDC 2002a, 33). Disposable containers are preferred for liquid products. Reusable containers should be thoroughly washed and dried before refilling, and routine maintenance schedules should be documented and followed (WHO/AFRO et al. 2001, 33).

14. After performing the surgical scrub, hands should preferably be dried with a sterile towel (Mangram 1999, 267).

15,16. Gowns should be worn to protect uncovered skin and to prevent soiling of clothing during procedures and patient care activities that are likely to generate splashes or sprays of blood, body fluids, secretions, or excretions. Plastic aprons are recommended where splashes are likely to occur (WHO/AFRO et al. 2001, 42).

17. Staff should remove soiled gowns as promptly as possible and wash hands to avoid transfer of microorganisms to other patients or environments (Garner 1996).

18. Surgical gowns made of fluid-resistant materials play an important role in keeping blood and other fluids (amniotic fluid) off the skin of personnel, particularly in the surgical, delivery, and emergency areas (Tietjen et al. 2003, 5-6).

19. If surgical gowns are worn, sleeves should either taper gently toward the wrists or end with elastic or ties around the wrists (Tietjen et al. 2003, 5-6).

20. Steps that can be taken to decrease the risk of maternal infection during delivery also include wearing a face shield (or a mask and goggles), shoe covers that are resistant to fluids (Tietjen et al. 2003, 25-11), and a cap.

23, 24. High-level disinfected or sterile cord clamp or cloth to tie off the cord should be available for a safe delivery (Tietjen et al. 2003, 25-9).

25, 26. When babies are born in a health care facility, frequent vaginal examinations, especially those performed by medical and midwifery students, increase the risk of maternal infection. One study found that the risk of endometritis was 27% if seven or fewer vaginal examinations were performed, but rose to 71% when more than seven were performed (Tietjen et al. 2003, 25-9).

29-31. No single method of cord care has proved to be better than others in preventing infection. General suggestions are to keep the cord stump clean and dry; if the cord stump gets soiled or dirty, gently wash it with boiled soapy water and dry with a clean cloth (Tietjen et al. 2003, 25-15). A recent recommendation in settings of poor hygiene and high neonatal mortality is the application of 4% chlorhexidine liquid or gel which is shown to reduce neonatal mortality (PATH 2011 and PATH 2012).

32. Minimizing the risk of nosocomial infection in the newborn dictates that staff wear gloves and a plastic or rubber apron when handling the infant until blood, meconium, or amniotic fluid has been removed from the infant's skin. Careful removal of blood and other body fluids with a cotton cloth, not gauze, soaked in warm water followed by drying the skin may minimize the risk of infection. In some health facilities, bathing or washing the newborn is delayed until the baby's temperature has stabilized (usually about 6 hours). The buttocks and perineal areas are the most important to keep clean. They should be washed after each diaper change using a cotton cloth soaked in warm soapy water, and then carefully dried (Tietjen et al. 2003, 25-14).

33. Silver nitrate or erythromycin eye drops are recommended to prevent gonococcal eye infections in the neonate.

34. A clean drape or cloth for wrapping the baby should be available (Tietjen et al. 2003, 25-10).

35. The baby can be with the mother even with a group A streptococcal infection if the mother has been treated for at least 24 hours. The baby can be with the mother with herpes simplex if the mother has been trained in a rigorous barrier technique to avoid inoculating the infant.

37. Where antenatal services include laboratory testing, most neonatal group B streptococcal infections can be prevented through the use of intrapartum antimicrobial prophylaxis in women at increased risk of transmitting the infection to their newborns. Such women can be identified

by having a positive anogenital culture for this pathogen at 35–37 weeks or by having at least one of the following risk factors associated with early infection—

- Group B streptococci bacteriuria during pregnancy
- Previously delivered an infant infected with group B streptococci
- Preterm birth (less than 37 weeks of gestation)
- Rupture of membranes (more than 18 hours)
- Clinically evident intra-amniotic infection syndrome with maternal temperature greater than 38 °C
- Prior infected child (Tietjen et al. 2003, K-1, K-2).

Treatment should be started as close to four hours prior to delivery as possible and include the baby.

References

Bratzler, D. W., P. M. Houck, Surgical Infection Prevention Guidelines Writers Workgroup, et al. 2004. Antimicrobial Prophylaxis for Surgery: An Advisory Statement from the National Surgical Infection Prevention Project. *Clinical Infectious Diseases* 38(12):1706-15.

US Centers for Disease Control and Prevention (CDC). 2002. Guideline for Hand Hygiene in Health-Care Settings. Recommendations of the Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force. *MMWR* 2002;51 (No. RR-16):1-44.

EngenderHealth. 2004. Infection Prevention Online Course. http://www.engenderhealth.org/res/onc/index.html#start (accessed July 17, 2006).

Garner, J. S. 1996. Guideline for Isolation Precautions in Hospitals. The Hospital Infection Control Practices Advisory Committee. *Infection Control and Hospital Epidemiology* 17(1):53-80.

Mangram, A. J., T. C. Horan, M. L. Pearson, et al. 1999. Guideline for Prevention of Surgical Site Infections. *Infection Control and Hospital Epidemiology* 20(4):250-80.

PATH (2011) Chlorhexidine for Umbilical Cord Care: Nepal Dissemination Meeting Report, http://www.healthynewbornnetwork.org/sites/default/files/resources/CHX%20Nepal%20meeting%20report%2012-02-2011%20FINAL.PDF; accessed on June 12, 2012.

PATH 2012 Technology solutions for global health: Chlorhexidine for umbilical cord care. http://www.path.org/publications/files/TS_update_chlorhexidine.pdf accessed 12 June 2012.

Tietjen, L., D. Bossemeyer, and N. McIntosh. 2003. *Infection Prevention: Guidelines for Healthcare Facilities with Limited Resources*. Baltimore, MD: JHPIEGO.*

World Health Organization (WHO). 2003. *Prevention of Hospital-Acquired Infections: A Practical Guide*. 2nd ed. WHO/CDS/CSR/EPH/2002.12. Geneva: WHO.

WHO/Regional Office for Africa (AFRO), Commonwealth Regional Health Community Secretariat (CRHCS), and East, Central and Southern African College of Nursing (ECSACON). 2001. *Manual of Infection Prevention and Control Policies and Guidelines*. Prepared by U. V. Reid.

MODULE 8. STERILIZATION AND DISINFECTION OF EQUIPMENT

These questions should be completed by the person in charge of sterilization and disinfection in the health facility.

For each item, mark the answer that best describes your current situation by putting a check mark ✓ inside the brackets [✓]. Note that some questions require only one answer, and others require you to check all applicable answers. Questions that are intended to provide contextual information only are not scored.

General

1. Where in the facility is equipment sterilized and disinfected?

[ ]2 Central unit
[ ]1 Labor and delivery support unit
[ ] Other (specify) _____

2. Please indicate your background education for this responsibility (mark all answers that apply). If no one is formally designated as in charge, skip to question 3.

[ ] No training
[ ] On the job training
[ ]1 Lectures or seminars
[ ]2 Formal training program

Assessment section total: _____ **Possible section total:** 4_____

Policies and Procedures

These questions provide contextual information about the health facility's sterilization and disinfection procedures and practices.

3. Are there written facility policies and procedures for sterilizing materials and equipment? (Check one answer) [ ] No written policies or procedures [ ] Policy/procedures communicated verbally only [ ]1 Written policy/procedures available in a manual but not widely available for daily practice [ ]2 Written policies/procedures in a manual but also posted on walls in clinical or support areas
4. Do the written policies explicitly identify the items that require sterilization? [ ] No written policies [ ] No, items not explicitly identified [ ]1 Yes
5. What is the required procedure when sterilizer failures are detected? (Mark all answers that apply) [ ] No written procedure [ ]1 Reporting of failure [ ]1 Recall potentially contaminated items from clinical units

Assessment section total: _____ **Possible section total:** 5

Decontamination and Cleaning of Instruments and Equipment

The following questions cover policies and practices for decontamination and cleaning of instruments and other equipment.

6. Is there a written facility health policy regarding the decontamination of instruments before cleaning? (Check one answer)

[ ] No written policies or procedures
[ ] Policy/procedures communicated verbally only
[ ]1 Written policy/procedures available in a manual but not widely available for daily practice
[ ]2 Written policies/procedures in a manual but also posted on walls in clinical or support areas

7. How are soiled and clean items separated from each other? (Check one answer)

[ ] Processed in the same work area
[ ] Same room, separate areas
[ ]1 Separate utility rooms for soiled and clean items

8. Which disinfectant is usually used to disinfect used items? (Mark the one that is most commonly used)

[ ] Not all used items are decontaminated
[ ]1 Ethyl or isopropyl alcohol
[ ]1 Glutaraldehyde
[ ]1 Phenolic
[ ]2 Sodium hypochlorite or other chlorine compound

9. Does disinfection occur before cleaning or any other handling of used items?

[ ] No
[ ]1 Yes

10. Equipment disinfection is done in a chlorine solution
[ ] That is not diluted
[ ] Diluted in 5 parts of chlorine and 5 parts of water
[ ]1 Diluted in 1 part of chlorine and 9 parts of water
[ ] No chlorine is used

11. For disinfection, equipment is kept in chlorine solution for:
[ ] 5 minutes
[ ]1 10 minutes
[ ] 30 minutes
[ ] Only rinsed with the solution

12. How are soiled instruments usually cleaned? (Mark all answers that apply)

[ ] Rinsing
[ ]1 Vigorous scrubbing with brush

13. Which of the following solutions is used to remove organic material from soiled instruments? (Check one answer) [ ] Water [ ]1 Water with detergent
14. What material is usually used to package items for sterilization? (Check one answer) [ ] No wrapping [ ] Canvas [ ]1 Paper [ ]1 Cotton [ ]1 Muslin [ ]1 Newsprint
15. How many layers are used to wrap items to be sterilized? (Check one answer) [ ] One layer [ ]1 Two layers

Assessment section total: _____ **Possible section total:** 12

Sterilization and Disinfection of Instruments and Equipment

The following questions ask you to identify methods used for disinfection and sterilization and the specified methods and indicators used for sterilization, packaging, and storage. After answering questions 16-23, answer the questions in sections A and B according to the methods used in such areas.

16. Which methods are used for equipment sterilization? (Mark all answers that apply)

[ ] Microwave
[ ]1 Flash steam/vapor sterilization (autoclave)
[ ]1 High-level chemical disinfection

17. Are indicators used to monitor the success of sterilization? (Check one answer)

[ ] No indicator is used
[ ]1 Chemical indicators used

18. How often are monitoring indicators used? (Check one answer)

[ ] Neither is used
[ ] Once a week
[ ] Once a month
[ ]1 Every day
[ ]2 Every cycle

19. How frequently are autoclaves checked by a service or maintenance person? (Check one answer)

[ ] No autoclaves available in health facility
[ ] Only when serviced as needed for repairs
[ ]1 Only when serviced by maintenance per service contract
[ ]1 Once a month
[ ]1 Several times a year

20. How are sterile instrument packs stored? (Mark all answers that apply)

[ ] Directly on shelves or carts
[ ] In cardboard boxes
[ ] In paper bags
[ ]1 In enclosed plastic or metal boxes
[ ]1 In plastic bags

21. Is the date of sterilization written on sterile packs?

[ ] No
[ ]1 Yes

22. In what order are sterile supplies removed from storage for use? (Check one answer)

[ ] Newest sterile packs are used first
[ ] Randomly or as convenient
[ ]1 Oldest sterile packs are used first

23. Is there a written policy regarding shelf-life after which unprotected items must be re-sterilized?

[ ] No written policy or procedures
[ ] Policy/procedures communicated verbally only
[ ]1 Written policy/procedures available in a manual but not widely available for daily practice
[ ]2 Written policy/procedures in manual but also posted on walls in clinical or support areas

Assessment section total: _____ **Possible section total :** 12

A. Steam/Pressure Sterilization (Autoclave)

Complete this section only if steam/pressure sterilization is used. Skip if not applicable.

24. Are written procedures available to personnel performing steam/pressure sterilization? (Check one answer) [ ] No written policy or procedures [ ] Policy/procedures communicated verbally only [ ]1 Written policy/procedures available in a manual but not widely available for daily practice [ ]2 Written policies/procedures in a manual but also posted on walls in clinical or support areas
25. How often are time, temperature, and pressure monitored during the steam/pressure sterilization process? (Check one answer) [ ] Once a week [ ] Once a month [ ] Several times a year (not regularly) [ ] Only when serviced by maintenance per service contract [ ] Only when serviced by maintenance as needed for repairs [ ]1 On schedule recommended by manufacturer [ ]1 Every day [ ]2 Every cycle
26. How are items dried after removal from the autoclave? (Check one answer) [ ] No drying [ ] Air dried [ ]1 Dry heat (i.e., oven) [ ]1 Forced air (i.e., fan)

Assessment section total: _____ **Possible section total:** 5

B. High-Level Chemical Disinfection

Complete this section only if high-level disinfection with a chemical agent is used. Skip if not applicable.

27. Is there a written policy for monitoring the chemical disinfection solution for efficacy?
    - [ ] No written policies or procedures
    - [ ] Policy/procedures communicated verbally only
    - [ ]1 Written policy/procedures available in a manual but not usually widely available for daily practice
    - [ ]2 Written policies/procedures in a manual but also posted on walls in clinical or support areas

28. What agent is used most commonly for high-level chemical disinfection? (Check one answer)
    - [ ]1 Hydrogen peroxide
    - [ ] Isopropyl alcohol
    - [ ] Ethyl alcohol
    - [ ]1 Glutaraldehyde
    - [ ]1 Glutaraldehyde/phenol
    - [ ]1 Chlorine
    - [ ]1 Orthopthaldehyde
    - [ ] Iodophors
    - [ ]1 Ethylene oxide

29. What is used to rinse items after high-level chemical disinfection? (Check one answer)
    - [ ] Tap water alone
    - [ ] Distilled water alone
    - [ ]1 Distilled water followed by alcohol rinse
    - [ ]1 Tap water followed by alcohol rinse
    - [ ]1 Sterile water

Assessment section total: _____ **Possible section total:** 4

TECHNICAL NOTES: STERILIZATION AND DISINFECTION OF EQUIPMENT

Background

This section is devoted to the preparation of instruments used in patient care. The following terms are used in this section.

- Decontamination: Immersion of an instrument into a chemical solution to make it safe for handling and processing. Decontamination should inactivate the human immunodeficiency virus (HIV), hepatitis B virus (HBV), and hepatitis C virus (HCV).

- Cleaning: Mechanical cleaning of instruments by washing or scrubbing to remove large or visible particles or debris.

- High-level disinfection (HLD): Chemical treatment that eliminates nearly all microorganisms. Spore-forming gram-positive bacteria are not usually removed. This treatment method is appropriate for heat-sensitive instruments that will not contact normally sterile spaces.

- Sterilization: Treatment that renders an instrument free of all microorganisms, including gram-positive spores. This treatment is required for surgical instruments and vascular devices that will contact normally sterile spaces.

- Autoclave: A device that sterilizes instruments by using pressurized steam.

Notes on the Questions

1–4. It is best to perform all equipment cleaning, disinfection, packaging, and sterilization in a designated central area. This ensures that all procedures and practices are carried out in a uniform manner that minimizes variability and maximizes experience and comfort among the staff. Formal training and written protocols will help practices conform to recognized standards. To minimize confusion, written protocols should specifically name which items require sterilization.

5. Sterilizer failures or malfunctioning can jeopardize the integrity of medical and surgical instruments and fluids. All materials that may have been incompletely sterilized should be recalled. Furthermore, failure should be reported to supervisory personnel in order to make necessary repairs, log maintenance problems, and if necessary, involve the manufacturer.

6–11. Clean and soiled instruments must be separated, ideally into different rooms. This will reduce the risks of contaminating or confusing clean instruments with soiled ones. Decontamination markedly reduces the level of microbial contamination of surgical instruments. If instruments and other items are to be cleaned by hand, decontamination will minimize the risk of infection and reduce microbial contamination. Chlorine solutions made from hypochlorite are

the least expensive and the most rapid acting and effective products to use, although 70% ethyl or isopropyl alcohol and 0.5–3.0% phenolic compounds can also be used (Tietjen et al. 2003). The recommended process for decontaminating soiled surgical instruments, surgical gloves, and other items is to place them in a 0.5% chlorine solution for 10 minutes. This step rapidly inactivates HBV, HCV, and HIV and makes the items safer for those cleaning them. Dilute chlorine solutions can be prepared from liquid bleach for both decontamination and HLD.

12, 13. Neither sterilization nor HLD is effective without prior cleaning. Cleaning effectively reduces up to 80% of microorganisms, especially endospores that cause tetanus. The use of soap, preferably liquid, is important for effective cleaning. Thorough washing with soap and clean water physically removes organic material such as blood and body fluids. Wearing gloves while cleaning instruments is important so that sterilization staff can avoid contact with blood-borne and other pathogens. Mechanical cleaning can be accomplished by scrubbing with a soft brush.

14, 15. Cotton, paper, muslin, and newsprint are all acceptable packaging materials as they are durable and yet allow steam to penetrate. Canvas does not allow steam to effectively penetrate and therefore should not be used (EngenderHealth 2004). Two layers of wrapping material are recommended, as there are frequently small tears in individual layers. A second layer will prevent instruments from contamination before use, and two layers are thin enough to allow steam to penetrate and sterilize the item.

17, 18. Standardized biological and chemical indicators should be used as often as possible to monitor the effectiveness of equipment sterilization. Biological indicators should be used once daily, and chemical indicators (such as indicator tape) should be used with each cycle.

19. In addition to needed repairs, autoclaves should be routinely inspected and maintained by qualified personnel.

20. Sterile items should be kept either in their packaging or in a simultaneously sterilized outer container. Damage or moisture to the packaging can cause instrument contamination, so enclosed plastic or metal boxes will provide the best protection. Clean plastic bags are also acceptable and will extend the shelf life of sterilized items. Check that the storage of the items is in a clean and dry place away from windows and doors to prevent exposure to air, dust, and sunlight.

21-23. The shelf life of sterilized items is variable, depending on such factors as handling, packaging, and storage (Tietjen et al. 2003 for further details). The date of sterilization should be written on sterile packs to ensure that the oldest packs are used first. This should be further documented as a written policy.

25. Items being sterilized by steam/pressure (autoclave) should be sterilized at 121 °C (250 °F) for 30 minutes for wrapped items and 20 minutes for unwrapped items. Wait 20 to 30 minutes (or until the pressure gauge reads zero) before opening the lid or door. Time the process with a clock.

26. Expeditious drying is important to ensure that the integrity of packing materials is maintained and microbial colonization is minimized. The rapidity of ambient drying is variable. In very dry climates, ambient drying may be sufficient, but in more humid environments, drying may be

slow or may never be completely achieved. Thus, dry ovens or fans are encouraged to expedite drying.

27. HLD is a treatment process that eliminates all microorganisms with the exception of some gram-positive spores. These include species of *Bacillus* and *Clostridium*. Instruments that may be treated with chemical HLD are those that are heat-sensitive and thus cannot be sterilized by autoclave. HLD differs from chemical sterilization, in which chemical treatment will afford true sterilization.

HLD is appropriate for instruments that will not enter a normally sterile space, such as tissue or blood. Flexible fiber optic endoscopes may be treated with HLD, but it should be emphasized that removable components of endoscopy equipment, such as biopsy forceps, should be treated by sterilization when possible. Other devices appropriate for HLD include gynecologic equipment (such as forceps, specula) and respiratory equipment (such as endotracheal tubes). Thorough cleaning is critical before HLD.

28. Several chemicals are acceptable for HLD: glutaraldehyde (alone or in combination with phenol), paracetic acid (alone or in combination with hydrogen peroxide), hydrogen peroxide, ortho-phthalaldehyde, chlorine, and ethylene oxide.

There are some commonly used chemicals that should not be routinely used for HLD. Alcohol (ethanol or isopropyl) is often used for HLD, but it is not active against bacterial endospores and some viruses (coxsackie viruses, echovirus). Iodophors lack activity against gram-positive spores and some fungi, and *Pseudomonas aeruginosa* is known to multiply in iodophor solutions. Formaldehyde is an effective agent for HLD, but it is noxious and potentially carcinogenic; thus it should be used only if other chemicals are unavailable.

29. Equipment should be thoroughly rinsed with sterile water following chemical treatment. If this is not available, then it is acceptable to rinse with distilled or tap water followed by an alcohol rinse.

References

EngenderHealth. 2004. Infection Prevention Online Course. http://www.engenderhealth.org/res/onc/index.html#start (accessed July 17, 2006).

Tietjen, L., D. Bossemeyer, and N. McIntosh. 2003. Infection Prevention: Guidelines for Healthcare Facilities with Limited Resources. Baltimore, MD: JHPIEGO.

MODULE 9. PREPARATION AND ADMINISTRATION OF PARENTERAL MEDICATIONS

This module should be completed by the head nurse for each unit where parenteral medications are used.

For each item, mark the answer that best describes your current situation by putting a check mark ✓ inside the double brackets [✓]. Note that some questions ask for only one answer, and others ask you to mark all answers that apply. Questions that are intended to provide contextual information only are not scored.

Injection Practices

The following questions focus on the use of needles and syringes for injections in the health facility.

1. How often do you use reprocessed needles for injections? (Check one answer) [ ] Sometimes [ ] Usually [ ] Always [ ]2 Never
2. Do you use the same needle in multiple patients without formal reprocessing? (Mark one answer) [ ] Sometimes [ ] Usually [ ] Always [ ]3 Never
3. Are auto-disposable needles available? (Check one answer) [ ] Never [ ] Sometimes [ ]1 Usually [ ]2 Always
4. When drawing medications or vaccines from vials, do you swab the top of the vial with alcohol or alcohol-containing (e.g., tincture of iodine) disinfectant? [ ] No [ ]1 Yes
5. Do you leave the needle sticking into multi-dose vials so that the solution can be withdrawn easily for multiple patients? [ ] Yes [ ]1 No

6. Do you use the same syringes in multiple patients without formal reprocessing? (Mark one answer) [ ] Sometimes [ ] Usually [ ] Always [ ]1 Never
7. Do you use glass ampoules that must be cracked open by hand? [ ] Yes [ ]1 No
8. Are ampoules cracked using sterile gauze to protect the hands and to keep the contents sterile? [ ] No [ ]1 Yes
9. Do you have routine training sessions to educate staff about safe injection practices? [ ] No [ ]1 Yes

Assessment section total: _____ **Possible section total:** 13

Preparation of Intravenous Fluids and Medications

These questions provide contextual information for understanding the use of intravenous (IV) fluids and medications in the health facility, including the preparation of IV fluids, handling and changing infusion tubing, and procedures for using single or multi-dose vials of injectable fluids.

10. Where are standard IV fluids used in this unit admixed (e.g., addition of KCL)? (Mark the description that applies best)

[ ] Where patient care is performed
[ ]2 In the pharmacy
[ ]1 In a designated "clean" area (e.g., in a room specifically designated for this purpose)

11. What is the source of premixed IV fluids available in this unit? (Check one answer)

[ ] None are used
[ ] Prepared on ward
[ ] Prepared centrally in facility
[ ]2 Commercial source

12. How frequently is commercial IV infusion tubing available with connections that are compatible with the bottles or bags used in this unit? (Check one answer)

[ ] Never
[ ] Sometimes
[ ]1 Usually
[ ]2 Always

13. How frequently are single-dose vials used for injectable fluids/medications? (Check one answer)

[ ] Never
[ ] Sometimes
[ ]1 Usually
[ ]2 Always

14. When multi-dose vials are used for injectable fluids/medications, how often do they have rubber, silicon, or latex diaphragms? (Check one answer)

[ ] Never
[ ] Sometimes
[ ]1 Usually
[ ]2 Always

15. If vials with latex/silicon diaphragms are used, is the diaphragm disinfected with alcohol or iodinated disinfectant prior to access?

[ ] No
[ ]1 Yes

16. Is there a written policy for handling and storage of multi-dose vials? [ ] No [ ]2 Yes
17. Does the policy state that opened vials should be marked with the date and time of expiration? (Check one answer) [ ] No policy [ ] No [ ]1 Yes
18. Are medications manufactured or intended for use in a single patient used for multiple patients? [ ] Yes [ ]2 No

Assessment section total: _____ **Possible section total:** 16_____

TECHNICAL NOTES: PREPARATION AND ADMINISTRATION OF PARENTERAL MEDICATIONS

Background

The World Health Organization (WHO) estimates that each year unsafe injection practices result in 80,000 to 160,000 new HIV-1 infections, 8 to 16 million hepatitis B virus (HBV) infections, and 2.3 to 4.7 million hepatitis C virus (HCV) infections worldwide. Together, these illnesses account for 1.3 million deaths. Even under the auspices of WHO regional immunization programs, an estimated 30% of immunization injections are administered with unclean, commonly reused syringes. And, more than 50% of injections of other medications are deemed unsafe, with rates as high as 90% in some immunization campaigns (Drucker et al. 2001, 1989).

It is estimated that about 50% of all patients admitted to health facilities will receive IV therapy, creating a large population at risk for local and systemic bloodstream infections. Catheters inserted into the venous and arterial bloodstream bypass the normal skin defense mechanism; therefore, these devices provide a way for microorganisms to enter the bloodstream at the time of insertion through several routes—from the device at the time of insertion; from subsequent contamination of the device or attachments (e.g., tubing connected to the blood monitoring apparatus or the fluids being administered); or from pathogens on the skin surrounding the insertion site (Tietjen et al. 2003, 24-1).

Notes on the Questions

1. Needles are difficult to clean and sterilize or HLD. Reprocessing used needles represents an inappropriate reuse of disposables and can be responsible for infection. Wherever economically possible, disposable products should be used and safely disposed of after decontamination (Tietjen et al. 2003, Ch. 7-9).

2. Contaminated needles are responsible for injuries and the risk of transmitting life-threatening diseases. Several studies have documented that unsafe injection practices, such as using the same needle, syringe, or both for more than one injection, or using improperly processed syringes and needles, are responsible for transmitting HIV, HBV, and HCV (Drucker et al. 2001, 1989).

3. Best infection control practices for intradermal, subcutaneous, and intramuscular injections recommend the use of a new, single-use injection device for each injection. Syringes with a reuse prevention feature (auto-disable) offer the highest level of safety for injection recipients. They should be considered for use where local data indicate that unsafe practices are particularly common. There are many types of auto-disable syringes, but the key feature of all of them is that they permit the syringe to be filled and emptied only once. Although they are similar to conventional syringes, most health workers will require training and practice in correctly filling them to avoid wasting medication, syringes, and needles (Tietjen et al. 2003, Ch. 7-11).

4. Before drawing medications or vaccines from vials, the top of the vial should be wiped with a cotton swab soaked in a 60–90 percent alcohol solution or other available disinfectant containing alcohol (Tietjen et al. 2003, Ch. 7-11).

5. The needle should not be left inserted in multi-dose vials. This practice provides a direct route for microorganisms to enter the bottle and contaminate the fluid between uses (Tietjen et al. 2003, Ch. 7-11).

6. Best infection control practices for intradermal, subcutaneous, and intramuscular injections recommend the use of a new, single-use injection device for each injection. Syringes with a reuse prevention feature (auto-disable) offer the highest level of safety for injection recipients. They should be considered for use where local data indicate that unsafe practices are particularly common. There are many types of auto-disable syringes, but the key feature of all of them is that they permit the syringe to be filled and emptied only once. Although they are similar to conventional syringes, most health workers will require training and practice in correctly filling them to avoid wasting medication, syringes, and needles (Tietjen et al. 2003, Ch. 7-11).

7, 8. Pop-open ampoules should be selected rather than ampoules that require use of a metal file to open (WHO/SIGN 2003). When using ampoules that require a metal file to open, fingers should be protected with a clean barrier (e.g., small gauze pad) (WHO/SIGN 2003).

9. When injections are medically indicated, they should be administered safely. A safe injection does not harm the recipient, does not expose the provider to any avoidable risk, and does not result in any waste that is dangerous for other people. Eliminating unnecessary injections is the highest priority for preventing injection-associated infections. These best practices are measures that have been determined through scientific evidence or expert consensus to most effectively protect patients, providers, and communities (WHO/SIGN 2003).

The three strategies for the safe and appropriate use of injections are (1) behavior change among patients and health care workers to decrease injection overuse and achieve injection safety; (2) availability of necessary equipment and supplies, and (3) management of waste sharps (WHO 2003).

10, 11. All routine parenteral fluids should be admixed in the pharmacy in a laminar-flow hood by using aseptic technique (CDC 2002b, 15). Where laminar-flow hoods are not available, choose a clean, separate area in the pharmacy; or if there is no pharmacy, admix in a similar area near the point of care.

12. All components of the IV infusion system should be compatible to minimize leaks and breaks in the system (CDC 2002b, 15).

13. To prevent contamination of injection equipment and medication, single-dose vials are recommended rather than multi-dose vials (WHO/SIGN 2001).

14, 15. If multi-dose vials are used, the access diaphragm should be cleaned with a 70% alcohol solution before inserting a device into the vial. Sterile devices must be used to access a multi-

dose vial, avoiding touch contamination of the device before penetrating the access diaphragm. Multiple dose vials should be discarded if sterility is compromised (CDC 2002b, 11).

17. All sterile products should bear an appropriate expiration date. The expiration date assigned should be based on currently available drug stability information and sterility considerations (ASHP 2000).

18. Single-use vials are frequently preservative-free and pose a risk for contamination if they are punctured several times. Leftover contents of single-use vials ideally should be discarded and should not be saved for later use (CDC 2002b, 11).

References

American Society of Hospital Pharmacists (ASHP) Council on Professional Affairs. 2000. ASHP Guidelines on Quality Assurance for Pharmacy-Prepared Sterile Products. *American Journal of Health-System Pharmacy* 57(12):1150-69.

Drucker, E. M., P. G. Alcabes, and P. A. Marx. 2001. The Injection Century: Consequences of Massive Unsterile Injecting for the Emergence of Human Pathogens. *Lancet* 358(9297):1989–92.

World Health Organization (WHO). 2003. *Prevention of Hospital-Acquired Infections: A Practical Guide*. 2nd ed. WHO/CDS/CSR/EPH/2002.12. Geneva: WHO.

WHO, Safe Injection Global Network (SIGN). 2003. Department of Blood Safety and Clinical Technology Recommendations. *Guiding Principles to Ensure Injection Device Safety*. WHO/BCT/03.12. Geneva: WHO. http://www.who.int/injection_safety/toolbox/docs/en/Guiding_Principle_Inj.pdf (accessed August 17, 2006).

Tietjen, L., D. Bossemeyer, and N. McIntosh. 2003. *Infection Prevention: Guidelines for Healthcare Facilities with Limited Resources*. Baltimore, MD: JHPIEGO.

US Centers for Disease Control and Prevention (CDC). 2002b. Guidelines for the Prevention of Intravascular Catheter-Related Infections. *MMWR* 2002;51 (No. RR-10):1-26.

World Health Organization (WHO), Safe Injection Global Network (SIGN), International Council of Nurses. 2001. *Best Infection Control Practices for Skin-Piercing Intradermal, Subcutaneous, and Intramuscular Needle Injections*. Geneva: WHO.

OBSERVATION CHECKLISTS

1. OBSERVATION CHECKLIST FOR HAND HYGIENE PRACTICES

Health Facility: _____ Patient area: _____ Date: _____

For each observation, choose the answer that best describes the situation by marking the applicable box with an "X" in the appropriate column. Use the same sheet for as many observations as possible in the same area of the facility. At the end of the sheet, add up the total of each column and calculate the percentage.

For each hand washing observed, also apply checklist #2 to assess if hands are washed correctly.

Patient Contact	Type of Health Worker				Type of Patient Contact		Type of Hand Hygiene before Patient Contact			Type of Hand Hygiene after Patient Contact		
	Dr	Nurse	Aux nurse	Other	Invasive	Non-invasive	Hand washing	Alcohol rub	None	Hand washing	Alcohol rub	None
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Total												

2. OBSERVATION CHECKLIST FOR CORRECT HAND WASHING PRACTICES

Clinical Hand Washing

No	Criteria				1		2		3		4		5		6		7		8			
Obser-vation	Type of staff				Are hands free of jewelry and other accesso-ries?		Are sleeves above the elbow?		Is soap applied?		Rubbing palms and backs of hands, fingers, spaces between fingers, and wrists?		Are hands rinsed with sufficient running water?		Dry hands with paper towel, individual towel, or electric hand dryer?		Avoid recontam-ination of hands when switching off the tap?		Wash hands for no less than 30 seconds?		All criteria met	
	Doctor	Nurse	Aux. nurse	Other	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
1																						
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						
13																						
14																						
15																						
16																						
17																						
18																						
19																						
20																						
% of observations fulfilling all the criteria																						

3. OBSERVATION CHECKLIST FOR ASSESSING HAND WASHING STATION SUPPLIES AND SINK CONDITION

NAME OF FACILITY: _____ DATE:_____

	SUPPLIES										SINK CONDITION									
	Is running water available?		Liquid soap present?		Is the soap dispenser new or in a clean condition?		Are disposable towels, individual towels available?		All 4 supply components met		Sink is clean		The taps are not leaking		The drainage pipes are not leaking		Running water is available all the time		All 4 components met	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Sink 1																				
Sink 2																				
Sink 3																				
Sink 4																				
Sink 5																				
Sink 6																				
Sink 7																				
Sink 8																				
Sink 9																				
Sink 10																				
Sink 11																				
Sink 12																				
Sink 13																				
Sink 14																				
Sink 15																				
Sink 16																				
Sink 17																				
Sink 18																				
Sink 19																				
Sink 20																				
% of sinks fulfilling all the criteria										%	% of sinks fulfilling all the criteria									%

4. OBSERVATION CHECKLIST FOR INJECTION ADMINISTRATION

Facility: _____ Area: _____ Date: _____

Circle the appropriate code (see below) in each column. Tally the number of Y or NA for each column (see below) and calculate the percentage.

	Person giving injection	Hand hygiene before injection*	Use of sterile needle and syringe	Disinfection of vial with alcohol	Use of sterile cotton or gauze to break the ampoule	Closed storage of multidose vial after use†	Clean, single-use gloves used for IV injection‡	Disinfection of skin/IV port with alcohol	Disposal of sharps in a sharps solid container	Hand hygiene after injection*	All components♦
1	D N AN O	Y N	Y N	Y N	Y N	Y N NA	Y N NA	Y N	Y N	Y N	Y N
2	D N AN O	Y N	Y N	Y N	Y N	Y N NA	Y N NA	Y N	Y N	Y N	Y N
3	D N AN O	Y N	Y N	Y N	Y N	Y N NA	Y N NA	Y N	Y N	Y N	Y N
4	D N AN O	Y N	Y N	Y N	Y N	Y N NA	Y N NA	Y N	Y N	Y N	Y N
5	D N AN O	Y N	Y N	Y N	Y N	Y N NA	Y N NA	Y N	Y N	Y N	Y N
6	D N AN O	Y N	Y N	Y N	Y N	Y N NA	Y N NA	Y N	Y N	Y N	Y N
7	D N AN O	Y N	Y N	Y N	Y N	Y N NA	Y N NA	Y N	Y N	Y N	Y N
8	D N AN O	Y N	Y N	Y N	Y N	Y N NA	Y N NA	Y N	Y N	Y N	Y N
9	D N AN O	Y N	Y N	Y N	Y N	Y N NA	Y N NA	Y N	Y N	Y N	Y N
10	D N AN O	Y N	Y N	Y N	Y N	Y N NA	Y N NA	Y N	Y N	Y N	Y N
11	D N AN O	Y N	Y N	Y N	Y N	Y N NA	Y N NA	Y N	Y N	Y N	Y N
12	D N AN O	Y N	Y N	Y N	Y N	Y N NA	Y N NA	Y N	Y N	Y N	Y N
13	D N AN O	Y N	Y N	Y N	Y N	Y N NA	Y N NA	Y N	Y N	Y N	Y N
14	D N AN O	Y N	Y N	Y N	Y N	Y N NA	Y N NA	Y N	Y N	Y N	Y N
15	D N AN O	Y N	Y N	Y N	Y N	Y N NA	Y N NA	Y N	Y N	Y N	Y N
16	D N AN O	Y N	Y N	Y N	Y N	Y N NA	Y N NA	Y N	Y N	Y N	Y N
17	D N AN O	Y N	Y N	Y N	Y N	Y N NA	Y N NA	Y N	Y N	Y N	Y N
18	D N AN O	Y N	Y N	Y N	Y N	Y N NA	Y N NA	Y N	Y N	Y N	Y N
19	D N AN O	Y N	Y N	Y N	Y N	Y N NA	Y N NA	Y N	Y N	Y N	Y N
20	D N AN O	Y N	Y N	Y N	Y N	Y N NA	Y N NA	Y N	Y N	Y N	Y N
	%	%	%	%	%	%	%	%	%	%	%

D = doctor, N = nurse, AN = auxiliary nurse, O = other

*Record Y for hand hygiene if either hand washing with soap and water or use of alcohol hand rub was practiced.

†Record NA if multidose vial was not used; in columns marked with † and ‡, NA is equivalent to Y when determining the tally and calculating the percentage.

♦If all components in row are Y or NA, mark Y; if any component is N, mark N.

5. CHECKLIST FOR WASTE DISPOSAL AFTER DELIVERY

Health Facility: _____ Labor and Delivery Suite Date: _____

Circle the appropriate code (see below) in each column. Tally the number of Y responses for each column and calculate the percentage.

	Disposal of Placenta in a Bucket	Disposal of Sharps in a Sharps Solid Container?	Disposal of Gloves in a Red Bag	Disposal of Swabs and Other Contaminated Materials in a Container with Red Bag	Disposal of Noncontaminated Materials in a Black Bag	All Components*
1	Y N	Y N	Y N	Y N	Y N	Y N
2	Y N	Y N	Y N	Y N	Y N	Y N
3	Y N	Y N	Y N	Y N	Y N	Y N
4	Y N	Y N	Y N	Y N	Y N	Y N
5	Y N	Y N	Y N	Y N	Y N	Y N
6	Y N	Y N	Y N	Y N	Y N	Y N
7	Y N	Y N	Y N	Y N	Y N	Y N
8	Y N	Y N	Y N	Y N	Y N	Y N
9	Y N	Y N	Y N	Y N	Y N	Y N
10	Y N	Y N	Y N	Y N	Y N	Y N
11	Y N	Y N	Y N	Y N	Y N	Y N
12	Y N	Y N	Y N	Y N	Y N	Y N
13	Y N	Y N	Y N	Y N	Y N	Y N
14	Y N	Y N	Y N	Y N	Y N	Y N
15	Y N	Y N	Y N	Y N	Y N	Y N
16	Y N	Y N	Y N	Y N	Y N	Y N
17	Y N	Y N	Y N	Y N	Y N	Y N
18	Y N	Y N	Y N	Y N	Y N	Y N
19	Y N	Y N	Y N	Y N	Y N	Y N
20	Y N	Y N	Y N	Y N	Y N	Y N
	%	%	%	%	%	%

*If all components in the row are Y, mark Y; if any component is N, mark N.

REFERENCES

ASHP Council on Professional Affairs. 1995. ASHP Guidelines: Minimum Standard for Pharmacies in Hospitals. *American Journal of Health-System Pharmacy* 52(23):2711-17.

ASHP Council on Professional Affairs. 1999. ASHP Therapeutic Guidelines on Antimicrobial Profilaxis in Surgery. *American Journal of Health-System Pharmacy* 56(18):1839-88.

ASHP Council on Professional Affairs. 2000. ASHP Guidelines on Quality Assurance for Pharmacy-Prepared Sterile Products. *American Journal of Health-System Pharmacy* 57(12):1150-69.

Bolyard, E. A., O. C. Tablan, W. W. Williams, et al. 1998. Guideline for Infection Control in Healthcare Personnel. *Infection Control and Hospital Epidemiology* 19(6):407-63.

Bratzler, D. W., P. M. Houck, Surgical Infection Prevention Guidelines Writers Workgroup, et al. 2004. Antimicrobial Prophylaxis for Surgery: An Advisory Statement from the National Surgical Infection Prevention Project. *Clinical Infectious Diseases* 38(12):1706-15.

CDC. 2001. Updated US Public Health Service Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV and Recommendations for Postexposure Prophylaxis. *MMWR* 2001;50 (No. RR-11):1-52.

CDC. 2002a. Guideline for Hand Hygiene in Health-Care Settings: Recommendations of the Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/ IDSA Hand Hygiene Task Force. *MMWR* 2002;51 (No. RR-16):1-44.

CDC. 2002b. Guidelines for the Prevention of Intravascular Catheter Related Infections. *MMWR* 2002;51 (No. RR-10):1-29.

CDC. 2003. Guidelines for Environmental Infection Control in Healthcare Facilities: Recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee. *MMWR* 2003;52 (No. RR-10):1-43.

CDC. 2004. Guidelines for Preventing Health-Care–Associated Pneumonia, 2003: Recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee. *MMWR* 2004;53 (No. RR-35).

CDC. 2007. Centers for Disease Control and Prevention. 2007. Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings http://www.cdc.gov/hicpac/pdf/isolation/Isolation2007.pdf (accessed June 12, 2012).

CDC 2011 Guide to Infection Prevention for Outpatient Settings; accessed June 12, 2012; http://www.cdc.gov/HAI/settings/outpatient/outpatient-care-guidelines.html.

Dellinger, E. P., P. A. Gross, T. R. Barrett y col. 1994. Quality Standard for Antimicrobial Profilaxis in Surgical Procedures. *Clinical Infectious Diseases* 18(3):422-27.

Drucker, E. M., P. G. Alcabes, and P. A. Marx. 2001. The Injection Century: Consequences of Massive Unsterile Injecting for the Emergence of Human Pathogens. *Lancet* 358(9297):1989–92.

EngenderHealth. 2004. Infection Prevention Online Course. http://www.engenderhealth.org/res/onc/index.html#start (accessed July 17, 2006).

Garner, J. S. 1996. Guideline for Isolation Precautions in Hospitals. The Hospital Infection Control Practices Advisory Committee. *Infection Control and Hospital Epidemiology* 17(1):53-80.

Hopkins, C. C. 2004. Pharmacy Service. In *Hospital Epidemiology and Infection Control*, 3rd edition, edited by C. G. Mayhall, 1315. Philadelphia: Lippincott, Williams & Wilkins.

JHU (no date) Housekeeping chapter of infection prevention guidelines: http://www.reproline.jhu.edu/english/4morerh/4ip/ip_manual/16_housekeeping.pdf. Accessed June 12, 2012.

Joint Commission International (JCI). 2002. Care of Patients in *Joint Commission International Accreditation Standards for Hospitals*. 2nd ed. Oak Brook, IL: JCI.

Mangram, A. J., T. C. Horan, M. L. Pearson, et al. 1999. Guideline for Prevention of Surgical Site Infections. *Infection Control and Hospital Epidemiology* 20(4):250-80.

Saint, S., and B. A. Lipsky. 1999. Preventing Catheter-Related Bacteriuria. Should we? Can we? How? *Archives of Internal Medicine* 159(8):800–808.

Scheckler, W. E., D. Brimhall, A. S. Buck et al. 1998. Requirements for Infrastructure and Essential Activities of Infection Control and Epidemiology in Health Facilities: A Consensus Report. SHEA Position Paper. *Infection Control and Hospital Epidemiology* 19(2):114-24.

Tietjen, L., D. Bossemeyer, and N. McIntosh. 2003. *Infection Prevention: Guidelines for Healthcare Facilities with Limited Resources*. Baltimore, MD: JHPIEGO.

World Health Organization (WHO). 2003. *Prevention of Hospital-Acquired Infections: A Practical Guide*. 2nd ed. WHO/CDS/CSR/EPH/2002.12. Geneva: WHO. http://whqlibdoc.who.int/hq/2003/WHO_CDS_CSR_EPH_2002.12_spa.pdf.

WHO, SIGN, International Council of Nurses. 2001. *Best Infection Control Practices for Skin-Piercing Intradermal, Subcutaneous, and Intramuscular Needle Injections*. Geneva: WHO.

WHO, Safe Injection Global Network (SIGN). 2003. Department of Blood Safety and Clinical Technology Recommendations. *Guiding Principles to Ensure Injection Device Safety*. WHO/BCT/03.12. Geneva: WHO. http://www.who.int/injection_safety/toolbox/docs/en/Guiding_Principle_Inj.pdf; (accessed August 17, 2006).

WHO/Regional Office for Africa (AFRO), Commonwealth Regional Health Community Secretariat (CRHCS), and East, Central and Southern African College of Nursing (ECSACON). 2001. *Manual of Infection Prevention and Control Policies and Guidelines*. Prepared by U. V. Reid.

WHO 2006. WHO Guidelines on hand hygiene in health care (advanced draft) 2006. http://www.who.int/patientsafety/information_centre/Last_April_versionHH_Guidelines%5b3%5d.pdf Accessed June 12, 2012.

Wiblin, R. T., and R. P. Wenzel. 1998. The Infection Control Committee. In the publication *A Practical Handbook for Hospital Epidemiologists*, edited by L. A. Herwaldt and M. Decker. Thorofare, NJ: SLACK Incorporated.

Wong, E. S. 1983. CDC Guideline for Prevention of Catheter-Associated Urinary Tract Infections. *American Journal of Infection Control* 11(1):28–36. http://www.cdc.gov/ncidod/dhqp/gl_catheter_assoc.html

ANNEX 1. MODULE SCORING SHEET

Name of facility: _____

Name of module: _____

Date completed: _____

Module Section	1	2	3	4
	Assessment Total	**Possible Total**	**Percent Score**	**Rating Based on Percent Score**
Total for Module			**%**	

Column Notes:

1. **Assessment Total**—Sum of points for all marked responses
2. **Possible Total**—Sum of all possible points for the question
3. **Percent Score**—(Column 1/Column 2) × 100
4. **Rating**—

More than 75% of possible points:	A – Excellent practices in this area
50–75% of possible points:	B – Good practices in this area
Less than 50% of possible points:	C – Poor practices needing immediate attention

ANNEX 2. MONITORING PRACTICES OF INFECTION PREVENTION IN PRIMARY HEALTH FACILITIES

Introduction

This section shows how to routinely measure some key infection prevention indicators, to monitor progress in the interventions intended to improve practices to prevent facility-acquired infections. The steps of monitoring are stated here with the suggested periodicity of measuring and the supporting instruments.

Indicator 1. Percentage of health care staff who wash their hands correctly before and after providing care to each user.

- This indicator should be measured monthly initially and thereafter every 3 months.
- On an established date, the designated person goes around the various areas or departments (outpatient care, emergency room, labor and delivery area, laboratory, etc.) to observe two to three health care staff at each care unit.
- The observer waits for the staff to attend to a patient in order to establish whether they wash their hands correctly before and after contact with the patient.
- Providers could be doctors (D) or medical assistants, nursing (N) or auxiliary nursing (AO) staff, or other staff (O) (e.g. lab staff); check the applicable box. This allows for subsequent sub-analysis of the indicator by staff category.
- If the provider has no patient contact, another health care staff should be chosen.
- The observation instrument for this indicator includes 5 criteria that have to be scored as yes (√) or no (X).
- For a person who is being observed to be considered compliant with the correct hand washing procedure before and after patient contact, he/she should score positive in all 5 criteria.
- For each criterion, percentage compliance is calculated by adding the number of √'s in the column and dividing the result by the total number of observations performed × 100.
- In the column following criterion 5, a check mark (√) shall be placed if the person observed complied with the 5 criteria, and an "X" if the result is negative.
- Subsequently, the overall result of those who washed their hands correctly before and after patient contact (all 5 criteria were fulfilled) should be totaled.
- Divide this number by the total number of observations performed, and then multiply it by 100 in order to obtain Indicator 1.

Indicator 2. Percentage of areas in the facility that correctly classify solid waste

- This indicator should be measured once a month.
- The observer should walk through the various patient care areas once a month with the observation instrument to check how the different areas classify solid waste.
- The waste recipients are observed in each area.
- For an area to be considered compliant with classifying waste correctly, it should fulfill the 5 criteria included in the instrument.
- In each unit, place a check mark (√) on the items that are applied and an "X" on those items that are not fulfilled.
- For each criterion, the percentage compliance is calculated by adding the number of √'s in the column and dividing the result by the total number of observations performed × 100.
- It is considered that an area correctly classifies waste when it fulfills all 5 established criteria.
- The percentage outcome for the indicator is calculated by dividing the number of units that correctly classify waste by the total number of units observed × 100.

Indicator 3. Percentage of staff members that meet the biosafety standards when administering parenteral drugs.

- This indicator should be measured monthly by using the observation instrument for indicator 3 which includes 6 criteria.
- In each department, two or three staff administering parenteral drugs or performing a peripheral vein catheterization will be observed to see which criteria they fulfill.
- For each observation, place a check mark (√) on the items that are applied and an "X" on those items that are not fulfilled.
- For each criterion, the percentage compliance is calculated by adding the number of √'s in the column and dividing the result by the total number of observations performed × 100.
- For staff to be compliant with the biosafety standards, they should fulfill all 6 criteria.
- The percentage of this indicator is calculated by dividing the number of staff members who fulfilled all criteria by the total number of observed persons × 100.

Suggested Indicators to be Monitored in Primary Health Care Facilities for Improvement of Infection Control Practices

No	Standard	Indicator	Formula	Verification Means	Frequency
1	Health care staff who wash their hands correctly before and after attending a patient	Percentage of health care staff who wash their hands correctly before and after attending a patient	Number of health care staff in all departments who washed their hands correctly before and after attending a patient/total number of health care providers observed × 100	Observation checklist and verification of existing stock of supplies	Monthly
2	The facility classifies solid waste	Percentage of patient care areas that classify waste correctly	Number of areas that classify waste correctly/total number of units observed x 100	Observation of waste recipients in each department; the observer uses the observation checklist	
3	Facility staff meets the biosafety standards when administering parenteral drugs	Percentage of staff that meet the biosafety standards when administrating parenteral drugs	Number of staff who meet the biosafety standards when administering parenteral drugs/total number of providers observed x 100	Observation of staff administering parenteral drugs who are using the checklist	

Instrument to Measure Indicator 1. Percentage of Health Care Staff that Wash their Hands Correctly Before and After Attending a Patient

Facility: **Date measured:**

Item		Type of staff				Criteria to be scored					Result
Obser-vations	Patient care area	Dr	Nurse	AN	Other	1 Washed hands before attendin g patient	2 Washed hands correctly (no jewelry; sleeves above the elbow; liquid soap; rubs on palm, side, fingers, wrists; rinses with enough water)	3 Dried with disposable paper or personal-use towel	4 Avoided contamin-ation before patient contact	5 Washed after attending patient	All compo-nents met yes/no
1	OP										
2	OP										
3	OP										
4	Emer										
5	Emer										
6	Emer										
7	Labor										
8	Labor										
9	Labor										
10	Delivery										
11	Delivery										
12	Delivery										
13	Lab										
14	Lab										
15	Lab										
16	Other										
17	Other										
18	Other										
% fulfilling each criteria											
Percentage of health care staff who washed their hands correctly before and after attending a patient											

Instrument to Measure Indicator 2. Percentage of Patient Care Areas that Classify Solid Waste Correctly

Facility: **Date measured:**

No		Criteria to be assessed					Results
Observa-tions	**Patient care area**	**1 All waste containers have a plastic bag (red, black, or white)**	**2 All containers are labeled**	**3 All containers have a bag in the color corresponding to the label**	**4 Correct waste observed inside the bags**	**5 Sharp items discarded in the appropriate container (puncture-proof)**	**All components met yes/no**
1	Outpatient care						
2	Emergency room						
3	Labor area						
4	Delivery area						
5	Laboratory						
6	Other						
% fulfilling each criteria							
		Percentage of departments that correctly classify solid waste					

Notes: Black bag to discard common waste
Red bag to discard contaminated waste
White bag to discard special waste

Instrument to Measure Indicator 3. Percentage of Health Care Staff who Meet Biosafety Standards when Administering Parenteral Drugs

Facility: **Date measured:**

Item	Patient care area	Criteria						Results
Obser-vations		1 Washes hands before preparing/ administering parenteral drugs	2 Uses disposable gloves to administer injections	3 Uses alcohol to disinfect the vial lid	4 Avoids re-covering the needle	5 Discards sharp materials in a hard, puncture-proof container	6 Washes hands after procedure	All components met (yes/no)
1	Outpatient care							
2								
3								
4	Emergency room							
5								
6								
7	Labor area							
8								
9								
10	Delivery area							
11								
12								
13	Laboratory							
14								
15								
16	Other							
17								
18								
% fulfilling each criteria								
		% of staff who meet the biosafety standards when administering parenteral drugs						

REPORT OF THE INDICATORS BY MONTH

Facility:

Item	Indicators	Date: /Value	Date: /Value	Date: /Value	Date: /Value	Date: /Value	Date: /Value
1	Percentage of health care staff who wash their hands correctly before and after attending a patient						
2	Percentage of departments or patient care areas that classify waste correctly in a facility						
3	Percentage of health care staff that meet the biosafety standards when administrating parenteral drugs						

ANNEX 3. HAND WASHING PROCEDURES

Description

Hand washing is the simplest, lowest cost, and important practice to prevent infections. Hand washing involves cleaning one's hands by appropriately rubbing them with water and soap.

Purpose

The purpose of hand hygiene is to reduce or eliminate resident and transient microbial flora from the skin covering the hands and forearms to prevent infections from being transmitted.

Hand Washing is Determined by the Following Criteria

- Type of contact with patient, blood, or body fluids
- Likelihood of microbial transmission
- Vulnerability to infections
- Type of procedure to be conducted

Types of Hand Washing

- Hand washing with soap and water
- Hand sanitization with alcohol rub
- Surgical hand washing

1. Hand Washing with Soap and Water

Purpose

To reduce the concentration of transient bacterial flora acquired by contact with patients to prevent contamination and infection

Technique

- Remove jewelry and accessories
- Turn on the water faucet to moderate pressure
- Wet your hands
- Apply sufficient liquid antiseptic soap, spread it all over the surface, covering hands, fingers, and wrists
- Rub your hands including palms and backs of hands
- Using your right hand, rub the fingers of your left hand one by one with circular movements
- Using your left hand, rub the fingers of your right hand one by one with circular movements
- Rub the spaces between fingers of both hands
- Rinse your hands with sufficient water
- Dry your hands with a disposable paper towel, an individual towel not shared with others, or an electric dryer
- Turn off the faucet without contaminating your hands (by using the paper towel used to dry your hands)
- Spend no less than 40–60 seconds for the whole process

2. Hand Sanitization with Alcohol Rub

Hand sanitization consists of briefly rubbing hands with an alcohol/emollient-based antiseptic solution. Hand sanitization does not replace clinical hand washing; in addition, hands should be clear of organic material, i.e., “not visibly dirty” before they can be sanitized.

Purpose

To destroy transient bacterial flora and reduce resident flora from hands to prevent transmission

Technique

- Apply a solution of alcohol rub on one of your hands
- Spread it all over the surface covering your hands, spaces between fingers, and wrists
- Rub gently
- Let air dry
- The process should take at least 20 seconds

3. Surgical Hand Washing

Surgical hand washing refers to a thorough cleansing of hands and forearms prior to conducting any invasive procedure. All staff participating in invasive procedures should conduct a surgical hand washing.

Purpose

To reduce the concentration of bacteria in the resident flora and to completely remove transient flora, acquired by recent contact with patients

Technique Using Liquid Antiseptic Soap

- Remove your watch, rings, and other accessories
- Wet your hands and forearms with antiseptic soap
- Start timing
- Scrub each side of each finger, between the fingers, and the back and front of the hand for two minutes
- Proceed to scrub the arms, keeping the hand higher than the arm at all times; this helps to avoid recontamination of the hands by water from the elbows and prevents bacteria-laden soap and water from contaminating the hands
- Wash each side of the arm from wrist to the elbow for one minute
- Repeat the process on the other hand and arm, keeping hands above elbows at all times; if the hand touches anything except the brush at any time, the scrub must be lengthened by one minute for the area that has been contaminated
- Rinse hands and arms by passing them through the water in one direction only, from fingertips to elbow; do not move the arm back and forth through the water
- Proceed to the operating room suite holding hands above elbows
- At all times during the scrub procedure, care should be taken not to splash water onto surgical attire
- Once in the operating room suite, hands and arms should be dried using a sterile towel and aseptic technique before putting on gown and gloves
- Use a water faucet activated by a pedal or the elbow, or use a photoelectric faucet

References

WHO 2006. WHO Guidelines on hand hygiene in health care (advanced draft) 2006. http://www.who.int/patientsafety/information_centre/Last_April_versionHH_Guidelines%5b3%5d.pdf Accessed June 12, 2012.