



# Medical Laboratory

## NTQF Level III

### Learning guide #10

**Unit of Competence:-** Applying Infection Prevention Techniques and Workplace

**Module Title:** Applying Infection Prevention Techniques and Workplace

**LG Code:-** HLT MLT3 M02 LO5-LG10

**TTLM Code:-** HLT MLT3 TTLM 0919 v1

### LO 5: Limit contamination



## Instruction Sheet

## Learning Guide #5

This learning guide is developed to provide you the necessary information regarding the following **content coverage and topics** –

### Limit contamination

- Demarcating of Clean and contaminated zones
- Storage of records, materials and medicaments to a clean zone
- well-designating Contaminated instruments and equipment to contaminated zone

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, upon completion of this Learning Guide, you **will be able to** –

- demarcate and maintain clean and contaminate zones in all aspects of health care work
- confine records, materials and medicaments are to a well-designated clean zone
- Confined contaminate instruments and equipment to a well-designated contaminated zone

### Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described in number **3 to 16**.
3. Read the information written in the “Information Sheets 1”. Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.
4. Accomplish the “Self-check 1” **in page 8**.
5. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-check 1).
6. If you earned a satisfactory evaluation proceed to “Information Sheet 2”. However, if your rating is unsatisfactory, see your trainer for further instructions or go back to Information sheet 1.
7. Submit your accomplished Self-check. This will form part of your training portfolio.
8. Read the information written in the “Information Sheet 2”. Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.



9. Accomplish the “Self-check 2” in page 16.
10. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-check 2).
11. Read the information written in the “Information Sheets 3”. Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.
12. Accomplish the “Self-check 3” in page 19.
13. Ask your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-check 3).
14. If you earned a satisfactory evaluation proceed to “Operation Sheet 1” in page 21; However, if your rating is unsatisfactory, see your trainer for further instructions or go back to Information sheet 3.
15. Read the “Operation Sheet 1 and try to understand the procedures discussed.
16. Do the “LAP test” in page 22 (if you are ready). Request your trainer to evaluate your performance and outputs. Your trainer will give you feedback and the evaluation will be either satisfactory or unsatisfactory. If unsatisfactory, your trainer shall advice you on additional work. But if satisfactory you can proceed to Learning Guide #2.



### ***Demarcating Clean and contaminated zones***

When something has been exposed to infectious agents it is considered to have been contaminated.

Ways to limit contamination in the healthcare setting may include:

- cleaning surfaces
- protecting all materials, equipment and instruments from contaminants
- maintaining sterile objects
- being aware of the guidelines for single-use objects.

An important strategy to limit contamination in healthcare settings is to set and maintain:

- clean zones
- treatment zones
- contaminated zones.

Maintaining these three zones helps reduce the risk of contamination. it is the responsibility of every person working in the healthcare environment to:

- understand where the clean, treatment and contaminated zones are
- do what is required to maintain them.

#### **Zones**

Maintaining clean, treatment and contaminated zones helps reduce the risk of contamination and makes it easier to remember that anything entering a clean zone must first be decontaminated.

#### **The clean Zone**

Clean areas include those surfaces and drawers where clean, disinfected or sterilized instruments are stored and never come in contact with contaminated instruments or equipment

The clean zones are areas where non-contaminated items are kept. Example of these items and zones include:

- sterile instruments
- clean linen
- medical records
- kitchen preparation areas
- supply stores.

Before entering a clean zone it is important to remove contaminated gloves and other PPE and perform hand hygiene (decontamination).

#### **The treatment Zone**

The treatment zone is where items are currently being used by the client or healthcare worker.

For example, the client's bedside is a treatment zone as it has been exposed to microorganisms.

#### **Contaminated zone**

Contaminated zones are for objects and waste that is waiting for decontamination sterilization or disposal

The contaminated zone boundaries should be clearly defined, because this has implications for surface management and for the placement of equipment.



Instruments placed into the contaminated zone for a treatment session but not used during the session must be regarded as contaminated. For this reason, all bulk supplies such as opened boxes of gloves, cotton rolls or gauze must be stored outside the contaminated zone and protected from contamination from splashes and aerosols.

An example of this zone is a linen skip, in which used linen is stored while awaiting decontamination in the laundry.

If there is any possibility that any item **may** have been contaminated, it should be treated as if it **has** been contaminated.

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| <b>Self-Check 1</b> | <b>Written Test</b> |
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**Directions:** Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Ways to limit contamination in the healthcare setting may include:
  - A. cleaning surfaces
  - B. protecting all materials, equipment and instruments from contaminants
  - C. maintaining sterile objects
  - D. being aware of the guidelines for single-use objects.
  - E. ALL**
2. An important strategy to limit contamination in healthcare settings is to set and maintain:
  - A. clean zones
  - B. treatment zones
  - C. contaminated zones
  - D. ALL**
3. Ways to limit contamination in the healthcare include all of the following, except
  - a. Cleaning surfaces
  - b. Protecting all materials from contaminants
  - c. Maintaining sterile objects
  - d. None of the above**
4. An important strategy to limit contamination in healthcare settings is to set and maintain
  - a. Demarcation among different zones**
  - b. Effective treatment
  - c. Taking prophylaxis
  - d. Isolation of patients
5. Areas where non-contaminated items are kept is
  - a. Treatment Zone
  - b. Contaminated zone
  - c. Clean zone**
  - d. Patient zone
- 6.

**Note: Satisfactory rating - 10 points                      Unsatisfactory - below 5 points**  
You can ask you teacher for the copy of the correct answers.

**Answer Sheet**

Score = \_\_\_\_\_

Rating: \_\_\_\_\_  
Page 6 of 18

|                             |   |  |
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Name: \_\_\_\_\_

Date: \_\_\_\_\_

### Short Answer Questions

1. \_\_\_\_\_

\_\_\_\_\_

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2. \_\_\_\_\_

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3. \_\_\_\_\_

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4. \_\_\_\_\_

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5. \_\_\_\_\_

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6. \_\_\_\_\_

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7. \_\_\_\_\_

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**Information Sheet 2**

Storage of records, materials and medicaments to a clean zone

**Storage of records, materials and medicaments to a clean zone**

**Records, materials and medicaments**





All records that are kept and archived should be kept in a clean zone. All packaging materials and medicaments should be kept in a clean zone. These items should not be stored in a contaminated zone or a risk of cross contamination will occur.

### **Contaminated instruments and equipment**

When items are received into the sterilizing facility, all reusable items that have been used or unused during patient treatment need to be cleaned in a physically separate area to prevent possible contamination of processed items

|                     |                     |
|---------------------|---------------------|
| <b>Self-Check 2</b> | <b>Written Test</b> |
|---------------------|---------------------|

**Instructions:** Answer all the questions listed below. Illustrations may be necessary to aid some explanations/answers. Write your answers in the sheet provided in the next page.

1. All records that are kept and archived should be kept in

**A. a clean zone**



- B. Treatment Zone
  - C. Patient zone
  - D. Contaminated zone
  - E.
2. All packaging materials and medicaments should be kept in (4 points)
- A. a clean zone
  - B. Treatment Zone
  - C. Patient zone
  - D. Contaminated zone
3. Which zone is used for objects and waste that is waiting for decontamination sterilization or disposal
- A. Treatment Zone
  - B. Contaminated zone
  - C. Clean zone
  - D. Patient zone

**Note: Satisfactory rating - 12 points      Unsatisfactory – below 12 points**

You can ask your trainer for the copy of the correct answers.

**Answer Sheet**

Score = \_\_\_\_\_

Rating: \_\_\_\_\_

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Short Answer Questions**

1. \_\_\_\_\_  
\_\_\_\_\_

2. \_\_\_\_\_



**Information Sheet 3**

well-designating Contaminated instruments and equipment to contaminated zone

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3.

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4.

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5.

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well-designating Contaminated instruments and equipment to contaminated zone

**Workflow**

To maintain the separation of clean and contaminated zones, workflow should be from the cleanest to the most contaminated areas – this ensures that there is never any movement of contaminated items into clean zones.

The cleanest to most contaminated approach also applies to cleaning surfaces, when you should start at the cleanest area and work out toward the most contaminated area. Make sure that cleaning equipment



is correctly decontaminated and stored after use, to prevent it becoming another source of contamination.

Objects that have moved from the clean to the contaminated zone may only return when they have been cleaned, decontaminated, or sterilized as required. Take them from the contaminated zone, decontaminate them, and then place them in the clean zone. Be careful not to place a newly decontaminated item back in a contaminated zone, such as on a contaminated bench.

If there is a possibility that something may possibly have been contaminated, it should be treated as if it has definitely been contaminated.

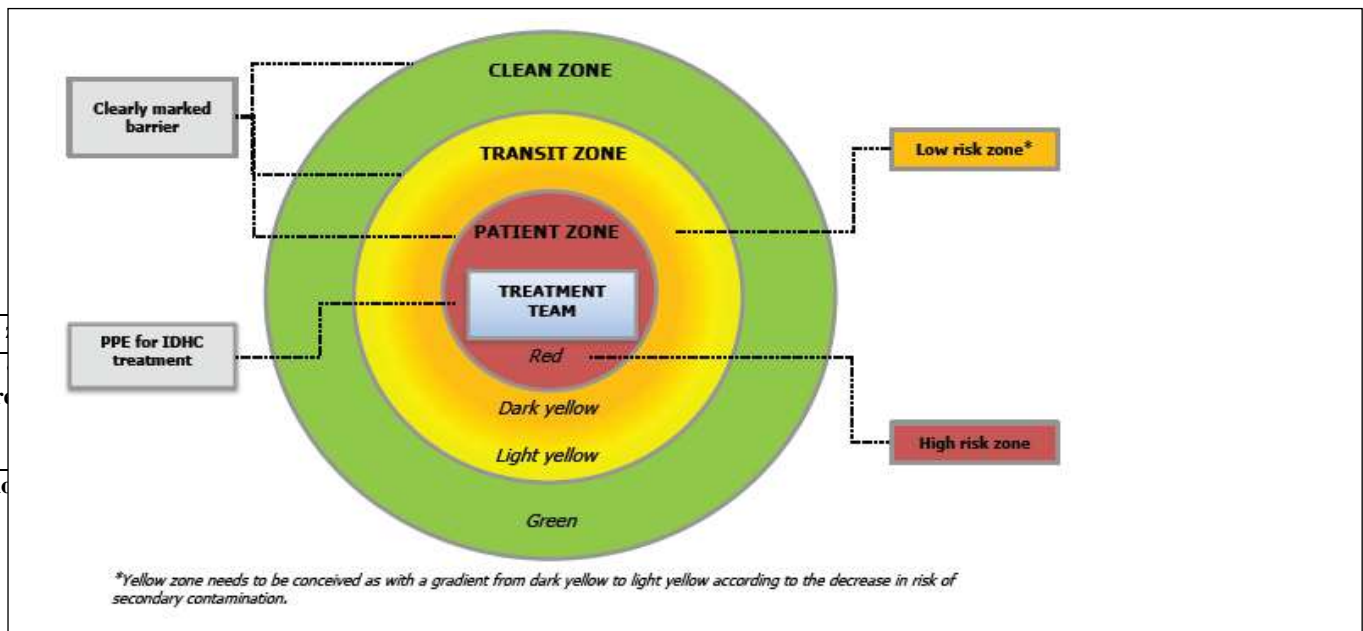
Many healthcare facilities use dedicated trolleys and containers for holding and moving contaminated items and clean or sterile items, and you must ensure that the correct trolleys and containers are used. If a single trolley is used for both, it must be thoroughly cleaned before use for clean items. Clean and contaminated items can never be placed on the trolley together.

**There are two basic rules to follow to limit contamination.**

- Maintain clean zones and contaminated zones within the workplace.
- All movement of instruments and equipment must be from clean to contaminated.

The aim of barrier nursing is to protect the HCW but also the community from transmission of Infectious disease. Proper barrier management is the cornerstone in containing the spread of Infectious disease. in healthcare settings.

**Figure . Zones and colour code**



Different  
Red zone  
Patient treatment area

Dark yellow

|                   |   |   |
|-------------------|---|---|
| Light yellow zone | <ul style="list-style-type: none"> <li>• Storage of waste</li> <li>• Hand disinfection for HCW before stepping into the green zone</li> </ul>   | <ul style="list-style-type: none"> <li>• Additional generously dimensioned waste storage areas.</li> <li>• Supervisor (barrier nursing guardian)</li> </ul> |
| Green Zone        | <ul style="list-style-type: none"> <li>• Second step re-entry of staff from light yellow zone</li> <li>• Complete assisted donning for entry HCW</li> <li>• Briefing and de-briefing of staff</li> <li>• Staff coordination and supervision of activities</li> <li>• Inbound and outbound communications</li> </ul> | <ul style="list-style-type: none"> <li>• Strict access control</li> <li>• Space for clean supplies</li> <li>• Zones for staff recreation</li> </ul>         |



Functionally, the yellow zone needs to be understood as the decisive area, in which secondary contamination is prevented and controlled: Here a contaminated HCW exiting from the red zone is brought in to clean conditions, which enable him or her to safely re-enter the green zone. In addition, any material coming from the red zone, such as waste bags, re-usable PPE items, patient samples needed to be processed outside of the isolation unit are first cleaned and disinfected in the yellow zone. A particular function lies in the temporary storage of considerable amounts of waste produced every day in the nursing of a patient with an Infectious disease.

### Practical hints

- Different zones need to be clearly marked.
- Prevention and control of secondary contamination happens in the yellow zone.
- The yellow zone has a virtual gradient from 'high potential for contamination' (dark yellow) to 'low potential of contamination' (light yellow).
- Instructions for staff should be displayed at the entry of the isolation area.
- If there is a cross-contamination incident outside the red zone (e.g. patient leaving the red zone), the contaminated area has also to be considered as a red zone. New yellow and green zones need to be established around the new red zone. The zones can be put back into normal function by room disinfection, once the patient has been dismissed.
- Donning and doffing areas must be separated and visually marked. The donning area is in the green zone.
- The doffing area must be in the dark yellow zone, but has to be clearly separated from the light yellow zone.

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|---------------------|---------------------|
| <b>Self-Check 3</b> | <b>Written Test</b> |
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**Instructions:** Answer all the questions listed below. Illustrations may be necessary to aid some explanations/answers. Write your answers in the sheet provided in the next page:

1. Patient treatment zone
  - A. Red zone
  - B. Dark yellow zone
  - C. Green Zone
  - D. NONE
2. Critical zone for prevention and control of secondary contamination.
  - A. Red zone
  - B. Dark yellow zone
  - C. Green Zone
  - D. NONE
3. Zones for staff recreation
  - A. Red zone
  - B. Dark yellow zone
  - C. Green Zone



- D. NONE
- A.

**Note: Satisfactory rating - 09 points                      Unsatisfactory - below 09 points**  
You can ask you teacher for the copy of the correct answers.

**Answer Sheet**

Score = \_\_\_\_\_

Rating: \_\_\_\_\_

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Short Answer Questions**

1. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Operation Sheet 3****Prepare tools and equipment for identification and measuring Muda.**

1. Discuss and plan to prepare tools and equipment for Muda identification.
2. Prepare tools and equipment for Muda identification.



|                 |                                |
|-----------------|--------------------------------|
| <b>LAP Test</b> | <b>Practical Demonstration</b> |
|-----------------|--------------------------------|

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Time started: \_\_\_\_\_ Time finished: \_\_\_\_\_

**Instructions:** Given necessary templates, workshop, tools and materials you are required to perform the following tasks.

Task 1: Identify and prepare tools and equipment for measuring and identification of Muda.





### List of Reference Materials

1. Federal Ministry of Health Ethiopia, April 2012, Infection Prevention and Patient Safety, Addis Ababa, Ethiopia: Federal Ministry of Health
2. Federal Ministry of Health, Ethiopia. 2004. *Infection Prevention Guidelines for Health Care Facilities in Ethiopia*. Addis Ababa, Ethiopia: Federal Ministry of Health.
3. Linda, Tietjen, Débora, Bossemeyer Noel McIntosh JHPIEGO, USIAD 2003 Guidelines for Healthcare Facilities with Limited Resources, , Johns Hopkins University,
4. WHO, , 2004, Practical Guidelines for Infection Control in Health Care Facilities World Health Organization Regional Office for Western Pacific, Manila Regional Office for South-East Asia, New Delhi
5. Helen Lemass , Niamh McDonnell , Dr. Nuala O'Connor , Dr. Sheila Rochford HCAI/AMR 2013, "INFECTION PREVENTION AND CONTROL FOR PRIMARY CARE IN IRELAND" ,
6. AG, Australian Guidelines for the Prevention and Control of Infection in Healthcare (2010)



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