Medical Laboratory

NTQF Level III

Learning Guide 25

Unit of Competence: Collect and Process Medical Samples

Module Title: Collect and Process Medical Samples

LG Code: HLT MLT3 LO4-025

TTLM Code: HLT MLT3 TTLM 0919v1

LO4-Transport and handle sample

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described in number 5 to 11.
3. Read the information written in all Information Sheets. Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.
4. Accomplish all Self-check according to learning session separately
5. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-checks).
6. If you earned a satisfactory evaluation proceed to next Information Sheet. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to pervious Learning Activity.
7. Submit your accomplished Self-check. This will form part of your training portfolio.
8. Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.
9. Accomplish the all Self-checks.
10. After you accomplish self check proceed to operation sheet if available.
11. If you perform operation procedure correctly proceeds to LAP. test if available

Information sheet-1	Confirm the number and nature of samples/items to be handled on arrival

Learning out comes (objectives): At the end of this module the trainee will be able to:-

4.1. Confirm the number and nature of samples/items to be handled on arrival

Collection of sufficient quantity is important to permit detection of parasites and to prevent rapid drying.

The stool specimen should contain at least 4 ml. Once the specimen collected; If possible, process:

- Liquid stool: < 30 minutes of passage at Room Temperature.
- Semi-formed stool: < 1 hour of passage at Room Temperature.
- Formed stool: < 24 hours of passage, 4C^{O}

If delay is unavoidable, place in suitable preservative or transport medium

4.1.1. Macroscopic Examination

- Stool specimen is examined with the naked eye for:
- Presence of worms**:-** may have adult helminthes or segments Example: Ascaris, Taenia species, E.vermicularis and gravid Taenia species.
- Consistency (degree of moisture**)-** It varies in diet but certain clinical conditions associated with parasite presence may be suggested by particular consistencies. - It will be described as hard, formed, semi-formed and diarrheic (watery).
- Color: - any abnormal color E.g., pale yellowish passed in steatorrhoeac conditions such as giardiasis, dark or black stools occur when iron or bismuth is taken or when there is intestinal hemorrhage
- Pathologic odour Offensive, non-offensive
- Abnormal features seen (composition): mucus, blood or fat globules.
  Up on arrival the physical examination of urine usually gives hint for the subsequent urinalysis.
- Volume:-Normally, 600 – 2000 ml of urine is voided per 24 hr.
- Odor:-Normally fresh voided urine from healthy individuals has faint aromatic odor, which comes from volatile acids, normally found in urine, mostly, ammonia.
- Foam:**-**Normally when urine specimen is voided in a container, it produces small amount of white foam.
- Color: - Normally color of urine may vary within a day; in the morning it has dark yellow color while in the afternoon or evening, the color ranges from light yellow to colorless. Normal urine color varies from straw (light yellow color) to dark amber (dark yellow)
  - Appearance (Transparency):-Fresh voided urine specimen is normally clear and transparent. On long standing, due to chemical changes that occur in normal constituents of urine through time, as described in the introduction part of this lecture note, it becomes turbid.

PH:-A test that determine acidity, neutrality or alkalinity of a solution.

PH =7 indicates neutrality.

PH < 7 indicate acidity.

PH > 7 indicates alkalinity.

Normally, freshly voided urine pH range from 5-7 in healthy individuals, and average is pH 6.

Specific Gravity of Urine: - Specific gravity is defined as the ratio of the weight of a fixed volume of solution to that of the same volume of water at a specified temperature.

Self-Check 1	Written Test

Answer the Following Questions (2 point each)

1. Macroscopic/Physical Examination Stool specimen includes all the except
   A. Presence of worms
   B. Consistency (degree of moisture)
   C. Pathologic odour
   D. Types of parasite

2. Which of the following is not true about urine specimen?
   A. Normally, freshly voided urine color is straw to dark amber.
   B. It is straw (light yellow color) in the morning
   C. It is dark amber (dark yellow) at afternoon.
   D. None

Note: Satisfactory rating - 4 points Un satisfactory below-4 points

You can ask you teacher for the copy of the correct answers

Answer Sheet

Score _____

Rating _____

Name: _____ Date: _____

Short Answer Question

1._____

2._____

Information sheet-2	Ensure samples are matched to request format

4.2. Ensure samples are matched to request format

- Test requisition

The collection of appropriate and optimum samples is the responsibility of the laboratory, even though the actual collection process is often carried out by persons who are not part of the laboratory staff. The sample may be collected at the bedside by a nurse if the patient is being managed in a hospital. The health care provider may collect a sample in a clinic setting.

The laboratory can help to ensure good samples by providing collection information to health care personnel at the collection site, making sure that appropriate containers and collection supplies are available, defining a good labeling system and checking all samples carefully when they arrive in the laboratory.

The first step in the process of obtaining the sample is the request for testing. The laboratory must make available a test request form that specifies all the information that will be needed for proper handling and reporting.

- Essential information for the test request form includes:

✓ Patient identification;
✓ Tests requested;
✓ Time and date of the sample collection;
✓ Source of the sample, when appropriate;
✓ Clinical data, when indicated;
✓ Contact information for the health care provider requesting the test.

Collection of samples in the field for epidemiological studies should be accompanied by a form that includes the patient's name, a unique identification number, demographic information, and the patient's health status. The additional information is necessary to assist in identifying the source of an infection, and finding potential contacts.

Self-Check-2	Written Test

Answer the Following Questions (5point)

1. In laboratory sample collection what are essential information for the test request form?

Note: Satisfactory rating -5points unsatisfactory below-5 points

You can ask you teacher for the copy of the correct answers

Answer Sheet

Score _____

Rating _____

Name: _____ Date: _____

Short Answer Question

1._____
_____
_____
_____
_____
_____
_____
_____
_____

Information sheet-3	Apply the requirements of sample transport

4. Apply the requirements of sample transport

4.3.1. Packaging requirements

All three categories of samples have specific packaging instructions and labeling requirements depending on their classification. All potentially hazardous material requires triple packaging.

- The primary container is a tube or vial containing the sample; it is made with either glass, or metal, or plastic. It must have a leak-proof seal; if necessary it can be wrapped with waterproof tape. The tube or vial must be labeled with a permanent marker.
- The secondary container is a watertight polyethylene box intended to protect the primary container. It is supplied with cardboard or bubble-wrap or a vial holder in which several primary containers can be placed in order to protect them. Absorbent material (gauze, absorbent paper) must be added in a sufficient quantity to absorb the fluid completely in case of breakage.
- The outer container is a strengthened cardboard box used to protect the secondary container. Both the secondary and outer containers are reusable as long as they are intact, but old labels must be removed.

4.3.2. Managing sample transport

Assure that all regulations and requirements are met when transporting samples; be aware of any national requirements that apply to samples transported by hospital or laboratory vehicles.

All personnel who package or who drive transport vehicles should be trained in the proper procedures, both for safety and for good maintenance of samples. If ICAO regulations must be met, staff must have specific training in packaging of dangerous goods.

When transporting locally, whether by ambulance, or by clinic or laboratory staff, it is important to maintain sample integrity. Assure that temperatures are controlled, using ice boxes or air conditioning, set an acceptable transport time, and monitor compliance.

There is specific packaging for samples requiring shipment on dry-ice

3. Being alert to any special needs are identified on documents accompanying the Samples/ items

Information sheet-4	Apply the requirements of sample transport

4.4.1. Why Is Safety Important?

- Coming in contact with human blood or blood products is potentially hazardous.
- Safety involves taking precautions to protect you and the client against infection.
- Other people who may come in contact with testing by-products
- Protect integrity of test products
- Protect environment from hazardous material

NB**:-**Every specimen should be treated as though it is infectious

4.4.2. Apply Safety Practices throughout the Testing Process

- Before Testing (Pre-analytical)
  - Specimen collection
  - Specimen preparation
  - Specimen transport
- Testing (Analytical)
  - Testing
- After Testing (Post-analytical)
  - Disposal

4.4.3. Develop Personal Safe Work Habits

- Wash hands before and after testing each patient
- Wear a fresh pair of gloves with each patient

- Wear lab coat or apron
- Dispose of contaminated sharps and waste immediately after testing
- Pipetting by mouth is *strictly forbidden*
- Never eat, drink or smoke at the test site
- Keep food out of the laboratory/testing site refrigerator
- Keep work areas uncluttered and clean
- Disinfect work surfaces daily
- Restrict or limit access when working
- Keep supplies locked in a safe and secure area
- Keep emergency eye wash units in working order and within expiry date

Self-Check-4	Written Test

Answer the Following Questions (2point each)

1. Why safety is important in potentially hazardous material packaging?
   A. Protect integrity of test products
   B. Protect environment from hazardous material
   C. Other people who may come in contact with testing by-products
   D. All
2. Which of the following good Personal Safe Work Habits?
   A. Wash hands before and after testing each patient
   B. Wear a fresh pair of gloves with each patient
   C. Wear lab coat or apron

Note: Satisfactory rating -4points unsatisfactory below-4 points

You can ask you teacher for the copy of the correct answers

Answer Sheet

Score _____
Rating _____

Name: _____ Date: _____

Short Answer Question

1. _____
2. _____

Information sheet-5	Complete required documentation at handling point

4.5. Complete required documentation at handling point

4.5.1. Sample collection requirements

Sample collection and preservation will vary, depending on the test and the type of sample to be collected. The laboratory must carefully define a sample collection process for all tests it performs. The following should be considered when preparing instructions:

- Patient preparation—some tests require that the patient be fasting. There may also be special timing issues for tests such as blood glucose, drug levels, and hormone tests.
- Patient identification—the person collecting the sample must accurately identify the patient. This might be done by questioning the patient, by questioning an accompanying family member, or by the use of an identifying wrist band or other device.
- Type of sample required—Blood tests might require serum, plasma, or whole blood. Other tests might require urine or saliva. Microbiology testing deals with a variety of sample types, so specific information as to what is required for the test is needed.
- Type of container—the container for the sample is often very important, as it will affect volume and any needed additives such as anti-coagulants and preservatives. If the container does not control volume, for example as with Vacutainer tubes, this will need to be clearly specified. Some microbiology samples will require specific transport media to preserve microorganisms.
- Sample labeling—all requirements for labeling of the sample at the time of collection will need to be explained in detail in the instructions for collection.
- Special handling—some samples may require special handling, such as immediate refrigeration, protection from light or prompt delivery to the laboratory. Any important safety precautions should be explained.

Patient samples are sometimes collected by the patient themselves, for example, faecal parasitology samples. It is important that the laboratories have set protocols to ensure that appropriate collection kits with instructions for collection, safety precautions, and labeling are available for their patients. It is suggested that instructions for the patients be in the languages for the community the laboratory is serving or presented as simple easy-to-understand graphics.

Self-Check-5	Written Test

Answer the Following Questions (2point each)

1. What is the condition to be fulfilled before sample collection?

A. Patient preparation
B. Patient identification
C. Identification of types of sample
D. All

2. It is suggested that instructions of specimen collection for the patients should be in the languages for the community the laboratory is serving(True/False)

Note: Satisfactory rating -4points unsatisfactory below-4 points

You can ask you teacher for the copy of the correct answers

Answer Sheet

Score _____
Rating _____

Name: _____ Date: _____

Short Answer Question

1. _____
2. _____

Information sheet-6	Pack the samples in the specified transport containers and under the required conditions

4.6. Pack the samples in the specified transport containers and under the required conditions.

4.6.1. Need for transport

Frequently, samples are collected outside the laboratory and must be transported for subsequent processing and testing. Transport may be for a short distance, but sometimes a distant clinic or collection site requires the use of vehicles or aeroplanes. In addition, it may be necessary for the laboratory to ship samples to referral laboratories. In all cases, transport must be managed carefully in order to maintain integrity of the sample, giving attention to temperature, preservation needs, special transport containers and time limitations. It is also important to ensure the safety of those handling the material before, during and after transport.

4.6.2. Safety requirements

Laboratories that mail or transport samples by air, sea, rail or road between local, regional and reference laboratories, or between laboratories in other countries, must adhere to a number of regulations. These regulations are designed to deal with transportation accidents and spills, reduce biohazards and keep samples intact for testing.

4.6.3. Regulations

Regulations for transporting samples come from several sources, including:

- national transport regulations;
- International Civil Aviation Organization (ICAO), as conveyed by the International Air Transport Association;
- rail and road traffic agencies;
- Postal services.

Private courier companies may have their own requirements.

Compliance with industry standards and regulations is mandatory. Heavy fines may be imposed on personnel who violate these regulations. At risk is the safety of courier, carrier and laboratory personnel, as well as passengers.

The United Nations committee of experts, consisting of voting representatives from over 30 countries and nonvoting advisers from various organizations, makes recommendations for the transport of dangerous goods. Many countries adopt the United Nations regulations in their entirety to stand as their national

dangerous goods regulations. Some countries apply variations. National authorities should provide details of their own national requirements.

4.6.4. Classification

Sample transport requirements are based on the category of samples being transported.

Infectious substances are classified as Category A or Category B. There is no direct relationship between Risk Groups and Categories A and B.

- Category A: Infectious substances capable of causing permanent disability or life-threatening or fatal disease to humans or animals.

These are assigned the following proper shipping name and UN number:

- ✓ Infectious substance affecting humans, UN 2814.
- ✓ Infectious substance affecting animals only, UN 2900.

- Category B: Infectious substances that do not meet the criteria for inclusion in Category A. They are assigned the proper shipping name Biological substance, Category B, and UN number UN 3373.

Medical or clinical wastes that contain infectious substances also need to be classified as Category A or B, depending on the infectious material and whether it is present in the culture.

- Exemptions: The United Nations Model Regulations for the Transport of Infectious Substances includes a list of exemptions, which are samples that have a minimal likelihood that pathogens are present. They do not have the same requirements for packaging and shipping as Categories A and B.

4.6.5. Packaging requirements

All three categories of samples have specific packaging instructions and labeling requirements depending on their Classification. All potentially hazardous material requires triple packaging.

- The primary container is a tube or vial containing the sample; it is made of glass, metal or plastic. It must have a leak-proof seal; if necessary it can be wrapped with waterproof tape. The tube or vial must be labeled with a permanent marker.
- The secondary container is a watertight polyethylene box intended to protect the primary container. It is supplied with cardboard or bubble-wrap, or a vial holder in which several primary containers can be placed in order to protect them. Absorbent material (gauze, absorbent paper) must be added in a sufficient quantity to absorb the fluid completely in case of breakage.
- The outer container is a strengthened cardboard box used to protect the secondary container. Both the secondary and outer containers are reusable as long as they are intact, but old labels must be removed.

Ensure that all regulations and requirements are met when transporting samples; be aware of any national requirements that apply to samples transported by hospital or laboratory vehicles.

4.6.6. Managing sample transport

All personnel who package samples or who drive transport vehicles should be trained in the proper procedures for safety and good maintenance of samples. If ICAO regulations must be met, staff must have specific training in packaging of dangerous goods.

When transporting locally, whether by ambulance, or by clinic or laboratory staff, it is important to maintain sample integrity. Ensure that temperatures are controlled, using ice boxes or air-conditioning, set an acceptable transport time and monitor compliance.

Self-Check-5	Written Test

Answer the Following Questions (2point each**)**

1. Infectious substances category capable of causing permanent disability or life-threatening or fatal disease to humans or animals.
   A. Category B
   B. Category A
   C. Category c
   D. None
2. According to United Nations Model Regulations for the Transport of Infectious Substances affecting humans sample should be coded with:-
   A. UN 2814.
   B. UN 2900
   C. Both And B
   D. None

Note: Satisfactory rating -4points unsatisfactory below-4 points

You can ask you teacher for the copy of the correct answers

Answer Sheet

Score _____

Rating _____

Name: _____ Date: _____

Short Answer Question

1. _____
2. _____

Information sheet-7	Maintain Sample integrity at all time

4. Maintain Sample integrity at all time

4.7.1. General Specimen rejection criteria

Specimen rejection is deciding not to accept specimen if the integrity of specimen is not maintained and if the information about the specific client identifiers missed on labeling .In order to maintain specimen integrity you should first identify specimen rejection criteria. Accordingly the specimen rejection criteria include:

- Unlabelled Specimens
  - ✓ Common specimen like blood, urine, swabs, sputum, stool, can be easily recollected.
  - ✓ Less common specimens like CSF, fluids, tissues, etc. are more difficult to recollect.
  - ✓ Call the person who collected it for the identification of the specimen.
  - ✓ If he/he is unable to identify the specimen, the ordering physician will be notified.
- Incorrectly labeled (mislabeled) specimens
- Use same criteria as for Unlabeled Specimens.
  - ✓ Incorrect container or Preservative
- Specimens received in an incorrect container, or without appropriate preservative, will require recollection.
- So the patient will be contacted to arrange for recollection of the specimen.
- Insufficient specimen for procedure
  - ✓ If insufficient, recollect (urine, stool, sputum, blood, etc.)
  - ✓ If the specimen is not re-collectable (CSF, fluids, etc.), the physician will be contacted to establish a priority order of tests.

Unsuitable Specimen for Procedures

- ✓ Specimens which are unsuitable for the procedure requested saliva for sputum test or specimen too long for a valid result.
- ✓ Finally, when an inappropriate specimen or unclear test request has been submitted and no option to overcome the problem it must be rejected and recorded on specimen rejection record.

4.7.2. Sample integrity

It is the specific specimen requirements. Which should include information such as?

- ✓ Specimen volume
- ✓ Collection containers

- ✓ Transport containers
- ✓ Transport temperature

If additional information is needed for the interpretation of the test results or there are specific instructions for patient preparation, they are listed along with specimen requirements. It is critical that an adequate specimen volume is submitted for analysis. The volume requested in one order should be enough for initial analysis as well as for any confirmatory tests that must be performed. If an inadequate specimen is submitted, we may not be able to perform the initial test or required confirmatory procedures. If repeat or confirmatory tests cannot be performed, the report will indicate that the specimen quantity submitted was "QNS" (Quantity Not Sufficient) for additional testing. When serum or plasma is to be submitted for analysis, it is good practice to collect a volume of blood that is 2 to2.5 times the volume of serum or plasma needed for the test. As an example, if 4 ml of serum or plasma is needed for a test, collect 8 to 10 ml of blood. If you have confirmed that the specimen collected has no feature of specimen rejection criteria and believed that integrity of the specimen is maintained correctly, it will be recorded on specimen accession list record format. (Observe the table below)

4.7.3. Specimen accession list

Accession list is a record of all the specimens received by the laboratory for analysis and is prepared by the laboratory at the time of specimen receipt. It is records of the patient's identity including name, age, sex, location in the hospital/ medical facility, name of referring physician, investigations requested, date and time of receipt of specimen and condition of the specimen at receipt. The laboratory assigns a unique laboratory number to register each specimen received, which can be used to trace the specimen in the laboratory. The test results and remarks if any are also entered in the accession list. In laboratories handling a very large number of specimens, the accession list may be computer generated and the condition of specimen at receipt may not be recorded unless it has been rejected.

Self-Check-7	Written Test

Answer the Following Questions (2point each)

1. Which of the following is specimen is not rejection criteria?

   A. Specimens received in an incorrect container
   B. Specimen without appropriate preservative
   C. If insufficient Volume
   D. If color of specimen changed

2. Records of the patient's identity accession list including

   _____
   _____
   _____
   _____
   _____

Note: Satisfactory rating -4points unsatisfactory below-4 points

You can ask you teacher for the copy of the correct answers

Answer Sheet

Score _____
Rating _____

Name: _____ Date: _____

Short Answer Question

1. _____
2. _____

Information sheet-8	Deliver Samples to reception point

4.8. Deliver Samples to reception point

Samples are collected regularly in collection point by the Laboratory courier service and taken to the Sample processing/ Analytical Reception.

Routine samples should be delivered to the reception at all times.

NB: Urgent hospital samples including on-call requests must be sent to emergency Reception via taxi or blood bike. This is arranged by Leazes Reception staff. For out of hour's samples, these must be taken to these referral points as soon as possible after contacting the on-call Laboratory personnel.

- Specimens from external Trusts and other organizations

Samples from external service users can be delivered in person sent by Royal Mail or courier service.

- High Risk Samples

The Laboratory must be made aware when a specimen is high risk by labeling both the request form, where submitted, and sample container with a biohazard label.

It is not necessary for safety reasons to identify the patient's condition on the request form, although it will aid diagnosis, except in the case of known or suspected Transmissible.

Note that infectious specimens are safe to be transported by Hopper, courier or taxi when correctly packed in the UN approved triple packaging, as for other diagnostic specimens, but in this instance the outer pack must display a UN2814 'Infectious Substance' biohazard label (often pre-printed on the outer box).

All samples must be transported in compliance with the National Road Transport policy for the 'Transport of clinical specimens.

Acceptance and Rejection of specimens

The complete Sample Acceptance and Rejection Policy of medical laboratory Trust can be viewed here

Samples must be labeled promptly in close vicinity to the patient e.g. bedside or out-patient phlebotomy room.

- Essential information for the sample label:

✓ Patient's Full Name

- ✓ Date of birth
- ✓ Hospital Number or NHS number or other agreed unique identifier
- ✓ If known biohazard, a biohazard sticker or other alert must be attached to both request and sample.

- A single unique identifier is permitted only for specific agreed services where prior arrangements have been made with and agreed by the laboratory, such as for:

- ✓ Sexual health
- ✓ Health Surveys
- ✓ Clinical Research and Trials
- ✓ Unknown Patients that are emergency admissions – a specifically generated number is allowed for unknown unidentified patients seen in emergency departments. The label and request details should state 'Unknown male' or 'unknown female' together with the unique and specific emergency number.

- Essential information for the request – electronic or paper:

- ✓ Patient's Full Name
- ✓ Date of birth
- ✓ Hospital Number or other agreed unique identifier.
- ✓ Sex of patient
- ✓ Date of sample
- ✓ Patient's location
- ✓ Responsible Consultant
- ✓ Name of requesting Medical Officer/practitioner
- ✓ Relevant clinical details
- ✓ Investigations required
- ✓ If known biohazard, a biohazard sticker or other alert must be attached to both request and sample.

- Rejection Criteria

- ✓ Minimum essential information missing from sample or request
- ✓ Sample / request mismatch
- ✓ Unlabelled sample
- ✓ Leaking sample
- ✓ Inappropriate container

- ✓ No test requested
- ✓ Not routinely cultured (for further information check Test Directory)

    - NB: When samples are rejected due to insufficient information, a report will be issued through the laboratory information system, stating that the sample has not been processed and giving details.

Samples will be stored in the laboratory for up to one week to allow the requesting practitioner time to get in touch. In such cases, a senior member of the laboratory staff will be responsible for deciding if the analysis is justified. The requesting medical officer/practitioner will be contacted to determine the necessary details. Where the missing information includes the Patient's Consultant and/or the GP Patient's location and destination for report, a printed report may be delayed or unavailable. In this case, the report may be issued to a default source (Unknown Consultant/Unknown Location) on the laboratory information system. Samples that have been rejected and not processed may be stored in the laboratory for up to one week to allow the requesting practitioner time to get in touch. This storage will be at the discretion of individual departments.

For unrepeatable samples e.g. CSF, blood culture, biopsies, aspirates, these will be processed at the discretion of a sample member of the laboratory staff. Responsibility for precious samples lacking relevant information lies with the sender. The report will include a clear disclaimer detailing the shortcomings of the sample and/or request.

Self-Check-8	Written Test

Answer the Following Questions (2point each)

Say true or false for the following questions.

1. If known biohazard, a biohazard sticker or other alert must be attached to request only but not on sample.
2. Urgent hospital samples requests must be sent to Routine reception.

Note: Satisfactory rating -4points unsatisfactory below-4 points

You can ask you teacher for the copy of the correct answers

Answer Sheet

Score _____
Rating _____

Name: _____ Date: _____

1. _____
2. _____

Information sheet-9	Maintain Vehicle

4.9. Maintain Vehicle

Ensure that all regulations and requirements are met when transporting samples; be aware of any national requirements that apply to samples transported by hospital or laboratory vehicles. All personnel who package samples or who drive transport vehicles should be trained in the proper procedures for safety and good maintenance of samples. If ICAO regulations must be met, staff must have specific training in packaging of dangerous goods. When transporting locally, whether by ambulance, or by clinic or laboratory staff, it is important to maintain sample integrity. Ensure that temperatures are controlled, using ice boxes or air-conditioning, set an acceptable transport time and monitor compliance.

Self-Check-8	Written Test

Answer the Following Questions (2point each)

Say true or false for the following questions.

1. Transporting of sample can be by ambulance, or by clinic or laboratory staff from collection to Diagnostic Laboratory.
2. personnel who samples drive transport vehicles should no need of training in the proper procedures for safety and good maintenance of samples

Note: Satisfactory rating -4points unsatisfactory below-4 points

You can ask you teacher for the copy of the correct answers

Answer Sheet

Score _____

Rating _____

Name: _____ Date: _____

Short Answer Question

1. _____
2. _____

4.10. Maintain Confidentiality

What is the source of health care giver duty to maintain patient confidentiality?
What is its nature and extent?

Today health care giver duty of confidentiality is outlined by the GMC. With regard to confidentiality they say 'Patients have a right to expect that information about them be held in confidence by their doctors. Confidentiality is central to trust between doctors and patients. The principles of confidentiality in modern medical practice are ethical. In order to maintain trust in the health care giver patient relationship confidentiality should be maintained unless disclosure can be justified by an interest which outweighs the patient's interest in confidentiality being maintained. Confidentiality is at the heart of the code of ethics for medicine. The GMC is predominantly concerned with a doctor's ethical duty of confidentiality but deals with breaches of confidentiality and determines whether they amount to serious professional misconduct.

From an individual point of view it is extremely important to maintain confidentiality. If confidentiality is not maintained the individual may be subjected to discrimination due to certain details of their past medical history, for example by insurers or employers. Aside from this confidentiality is at the heart of medical ethics and is essential in maintaining trust in the health professional-patient relationship. If patients are able to trust their health care giver they are more likely to seek medical help when they need it.

- Keep all client/patient information private and confidential
- Secure all records(electronic and paper records)/log books
- Restrict access to testing rooms
- When issuing the results to the clients, they should be put in a closed envelope addressed to requesting client
- Reports to the referring Lab should also be enclosed in an envelope.
- If need arises for results to be released directly to the patients, the case will be handled by the deprt heads or Designee.
- Critical results can only be communicated through the telephone to the authorized clients.

Self-Check-10	Written Test

Answer the Following Questions (2point each)

Say true or false for the following questions.

3. If confidentiality is maintained the individual may be subjected to discrimination
4. With regard to confidentiality they say Patients have a right to expect that information about them be held in confidence by their health care giver.

Note: Satisfactory rating -4points unsatisfactory below-4 points

You can ask you teacher for the copy of the correct answers

Answer Sheet

Score _____
Rating _____

Name: _____ Date: _____

Short Answer Question

1. _____
2. _____

Information sheet-11	Maintain State of transport containers

4.11. Maintain State of transport containers

- Specimen Storage

The laboratory specimens should store at appropriate condition before, during and after transportation.

- ✓ Urine can be stored at freezer or refrigerator at +4c^{o}.
- ✓ Blood samples should be kept at +4 c^{o}.
- ✓ Serum & plasma can be stored either frozen or at +4c^{o}

Self-Check-10	Written Test

Answer the Following Questions (2point each)

Say true or false for the following questions.

1. All specimens can be stored in room temperature.
2. Serum & plasma can be stored either frozen or at +14c^{o}

Note: Satisfactory rating -4points unsatisfactory below-4 points

You can ask you teacher for the copy of the correct answers

Answer Sheet

Score _____
Rating _____

Name: _____ Date: _____

Short Answer Question

1. _____
2. _____

4.12. Request Stocks of consumable materials

4.12.1. How can a laboratory determine how much of any particular item to order?

- Quantification is a very important process that can help calculate how much is required of any particular item for a given period of time, and it is an essential part of a successful inventory management programme.
- Accurate quantification will:
  - ✓ ensure essential supplies will be available when needed
  - ✓ Prevent overstocking, which can lead to wastage of expensive materials.
- Quantification provides information for:
  - ✓ estimating annual budget requirements;
  - ✓ allowing for better planning;
  - ✓ Making decisions and monitoring performance of the inventory management system.
- Quantification is performed when making annual plans for the laboratory and this planning will take into account the usual usage of supplies and reagents.

There are times when it is important to consider how new demands on the laboratory will create a need for greater testing volume. This often occurs when new health programmes are being implemented, and in preparation for epidemics, either identified or potential.

- ✓ Consumption-based quantification

Laboratories most frequently use the consumption-based method, drawing on their experience over time. This method is based on actual consumption, so there are a number of factors to consider. For example, to determine the actual usage, it is important to also estimate how much wastage has occurred and how many expired or spoiled reagents and supplies have been discarded.

For planning, it is a good idea to consider whether any supplies or reagents have been out of stock for more than 15 days during any time of the year. This may mean that supplies are not ordered in sufficient quantities, or that the wastage or expiry is higher than predicted.

- ✓ Morbidity-based quantification

In using the morbidity-based quantification method (shown below), the laboratory must take into account the actual number of episodes, illnesses and health problems that require laboratory testing. In other words, the laboratory needs to estimate an expected frequency of the disease in question—how many cases will occur per unit of population (per 1000, per 10 000, etc.) Then, considering how many people the laboratory serves, it can estimate the total number of cases the community might reasonably expect to observe. Using standard guidelines for diagnosis and treatment, and considering how well health care providers adhere to these guidelines can help to estimate how many laboratory tests will be performed.

A good morbidity-based quantification method is more accurate than the quantification by consumption method, but it depends on accurate

4.12.2. Replenish Stocks of collecting equipment at collection centers

- Equipment and Supplies

Laboratory procedures and sampling plans should have all equipment (sampling devices) necessary to take a consistent representative sample. The lab must also have procedures on cleaning the equipment or dedicated sampling disposal devices. The cleaning procedures must effectively eliminate carryover by removing any analyte of interest regardless of concentration of the analyte. This cleaning procedure must be validated initially and validated at any time the procedure, materials, or analyte of interest change, or there is evidence of contamination in samples.

Sampling equipment such as spoons, spatulas, forceps, syringe or transfer pipettes, or other matrix specific tools:

• Gloves (powder-free, nitrile, sterile)
• Sodium Hypochlorite (bleach) – for surface cleaning sampling tools for microbiology
• 70% Isopropyl alcohol – for surface cleaning sampling tools.
• Amber Glass containers
•Balance
• Calibrated Verification Weights appropriate to verify balance Chain of

- ✓ Sample Labels
- ✓ Sample Cooler/Ice (if thermal preservation required)
- ✓ Permanent Ink Pen
- ✓ Equipment Logbook

4.12.3. Follow the procedures for the cleaning/decontamination of equipment and vehicles

- Safety and decontamination procedures

Safety and decontamination measures protect the specimen collector and colleagues, laboratory personnel, and the patient from risks associated with specimen collection. They also reduce the risk of contaminating the samples. Universal safety precautions require that workers should handle all clinical specimens as if they were infectious. Protective equipment (gloves, eye protection, mask) should be worn and safe work practices followed to reduce exposure to potentially infective material. Proper packaging methods also ensure the safety of personnel from collection site to laboratory, even if damage occurs during transit. A first aid kit is essential, and should be readily accessible at the site of specimen collection.

Protective clothing, work premises, equipment, and materials may all become contaminated in the laboratory. Disinfection of work areas and decontamination of spills of blood or infectious body fluids is generally achieved by chemical disinfection with chlorine based solutions. As incompletely 'sterilized' material may expose both the participants in the investigation and the general public to a real risk of infection, the re-use of contaminated equipment or materials such as gloves or clothing is not recommended. Incineration or burning is the preferred method for disposing of contaminated material. Prior to disposal highly infectious equipment and materials must be disinfected. Combustible materials should be completely burned to render sterile ash, which is then buried in a deep pit.

Self-Check-10	Written Test

Choose the correct answer (2point each)

1. In requesting Stocks of consumable materials accurate quantification is important for:-
   A. Ensure essential supplies will be available when needed
   B. Prevent overstocking, which can lead to wastage of expensive materials.
   C. Allowing for better planning;
   D. All
2. A good quantification method is more accurate method if an accurate data is available
   A. morbidity-based
   B. Consumption-based
   C. Both are equal
   D. None
3. Who is protected if Safety and decontamination measures take place from risks associated with specimen collection..
   A. The specimen collector
   B. Laboratory personnel
   C. The patient
   D. All

Note: Satisfactory rating -6 points unsatisfactory below-6 points

You can ask you teacher for the copy of the correct answers

Answer Sheet

Score _____

Rating _____

Name: _____ Date: _____

Short Answer Question

1. _____
2. _____
3. _____

Note: Satisfactory rating -4points unsatisfactory below-4 points

You can ask you teacher for the copy of the correct answers

Answer Sheet

Score _____
Rating _____

Name: _____ Date: _____

Short Answer Question

1. _____
2. _____

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