

COLLEGE NAME & CODE : Periyar Arts College, Cuddalore-01 & 105
COURSE NAME & CODE : III B.Sc., Microbiology & U26
SEMESTER : V
SUBJECT TITLE & CODE : **MEDICAL BACTERIOLOGY & BMB52**

UNIT-II

- Specimen (Blood, Urine, CSF, Sputum, other body fluids)
 - Collection, Transport and Storage;
- Specimen processing

COLLECTION, TRANSPORT, STORAGE AND PROCESSING OF CLINICAL SPECIMENS

- Sample Collection, such as handling, labeling, processing, aliquoting, storage, and transportation, may affect the results of the study

GENERAL INSTRUCTIONS AND BIOSAFETY PRECAUTIONS FOR SAMPLES TO BE COLLECTED FOR CULTURE

- All samples should be considered potentially infectious and necessary precautions should be taken.
- Apply strict aseptic techniques for collection .
- Wash hands before and after the collection
- Appropriately label and date the container and complete the requisition form.
- All specimens must be properly labeled with the
 - **patient's name,**
 - **medical record number,**
 - **location** and
 - the **time and date the specimen** was collected.
- Arrange for immediate transportation to the laboratory, (within 2 hrs) if a delay is expected take precautions as mentioned with each sample type
- For labeling the Samples, Barcode systems are widely followed internationally

BLOOD SAMPLE COLLECTION

- When a large amount of blood sample needed, an evacuated tube system with interchangeable glass tubes can be used to avoid multiple venepunctures.
- Evacuated tubes are commercially prepared with or without additives and with sufficient vacuum to draw a predetermined blood volume per tube.

EDTA

- EDTA is a anticoagulant. It works by calcium chelation and is used clinically in heamatology studies. It is well suited to DNA-based assays, but has problems for cytogenetic analysis.

Heparin

- Heparin is an anticoagulant. There are some reports of occasional problems with heparin in PCR assays, studies generally find that there are no major difference in the use of EDTA or heparin

Citrate

- Citrate also works by calcium chelation and is used in coagulation studies and blood banking. It is optimal for assays conducted on lymphocytes and DNA.

URINE COLLECTION

- Urine is an ultrafiltrate of the plasma. It can be used to evaluate and monitor body metabolic disease process, exposure to xenobiotic agents, mutagenicity, exfoliated cells, DNA adducts, etc.
- The type of urine selected and the collection procedure used to depend on the tests to be performed.
 - a. **Morning Urine:** To collect a first morning specimen, the subject voids before going to sleep and immediately upon rising, collects a urine specimen.
The specimen must be preserved if not delivered within 2 hours of collection
 - b. **Random Urine** can be collected at any time. These specimens are usually satisfactory for routine screening and for cytology studies.
If a large amount of urine is needed, subject will be asked to drink a lot of water 2 hour before collection
- Clean and dry plastic or glass containers (50-3000 ml capacity)
- A preservative may be needed depending on the proposed assay
- Total volume must be recorded
- The specimen well mixed to ensure homogeneity
- Aliquots for specific assays

CEREBROSPINAL FLUID (CSF)

- Cerebrospinal fluid is collected into sterile, screw-cap tubes or containers.
- A minimum of 2 mL is required.
- must reach laboratory within 4 hours of collection

Container, Specification/Materials required:

- Sterile tube/blood culture bottle
- Labels & hard ball point pen/marker

Method of collection:

- Locate the L4 L5 Area and clean the skin once with spirit using circular swabbing in increasing circles from within outwards.
- Keep the labelled sterile tube handy.
- Wash your hands with soap and water and wear sterile gloves.
- Cover the area with a sterile drape.

- Clean intended skin site with povidone iodine, followed by methylated spirit / 70% alcohol again.
- Allow to dry.
- Collect the sample directly into the sterile tube first.

Transport:

- The sterile tube should be transported to the laboratory as early possible.
- If a delay is expected keep at room temperature. DO NOT refrigerate.

SPUTUM COLLECTION

- Specimens are collected in a sterile, screw-cap container. A minimum of 2 mL must be collected. Recommended volume is between 5 and 10 ml.
- Throat swab is collected for Group A Strep antigen detection

SALIVA

- It is an efficient, painless and relatively inexpensive source of biological materials for certain assays
- It provides a useful tool for measuring endogenous and xenobiotic compounds

OTHER BODY FLUIDS

- Body Fluids include;
 - abdominal fluid (ascites fluid/peritoneal),
 - amniotic fluid,
 - pericardial fluid,
 - pleural fluid, and
 - synovial fluid.