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## Collection and Transportation of clinical Specimens

### Introduction

Sample Collection, such as handling, labeling, processing, storage, and transportation, may affect the results of the analysis.

### 1- General rules for collection and transportation of specimens

- Apply strict aseptic techniques throughout the procedure.
- Wash hands before and after the collection.
- Collect the specimen at the appropriate phase of disease.
- Make certain that the specimen is representative of the infectious process (e.g. sputum is the specimen for pneumonia and not saliva).
- Collect or place the specimen aseptically in a sterile and/or appropriate container.
- Ensure that the outside of the specimen container is clean and uncontaminated.
- Close the container tightly so that its contents do not leak during transportation.
- Label and date the container appropriately and complete the requisition form.

### 2-Criteria for rejection of specimens

Criteria should be developed by a laboratory. The following are some examples:

- Specimen collected in an inappropriate container.
- Contamination suspected.

- Inappropriate transport or storage.
- Unknown time delay.
- Hemolysed blood sample.
- Death of microorganisms: deliver to lab within 30 minutes of collection.

### **3-Sample labeling**

Each sample should be clearly labeled with:

- The patient's first and last name
- The test that has been requested
- The time and date of collection

### **4- Storage of Specimens**

- Urine, viral blood specimens, catheters and swabs should be refrigerated (4°C)
- Blood and CSF should be processed as soon as possible.
- Specimens for fungus cultures can be kept at room temperature
- Respiratory and stool cultures should be processed ASAP if at all possible, but refrigerated if immediate processing is not possible
- Anaerobes, genital, ear, eye cultures can be held at room temperature

### **Example of clinical specimens**

#### **1-Urine specimen**

##### **A. Collection of urine specimen:**

- Thoroughly clean the genital area with soap and water. Dry thoroughly.

- Discard first portion of urine, collect middle portion of stream without stopping flow of urine into the sterile wide mouth container
- Discard last part of urine.

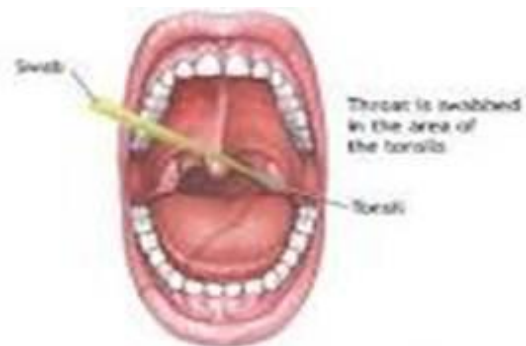
## **B-Transport of urine for culturing.**

Specimen must reach laboratory within 2 hours after collection, refrigerate at (4°C) for up to 24 hours during holding period and during transport. If refrigeration is not possible and specimen is delayed in transport, collect in transport container with preservative like boric acid.

## **2- Swab from throat infection**

A- Specimen collection of throat infection :

A plain cotton wool swab should be used to collect as much exudates as possible from tonsils, posterior pharyngeal wall and other area that is inflamed or bears exudates.



## **B-Transportation of throat specimens:**

After collection swab should be placed immediately into a sterile tube or other suitable container for transport to laboratory. Swab tip be placed in a desiccant such as silica gel to suppress survival of commensal organism

and improve the recovery of *streptococcus pyogenes*

## 4-Sputum

### A-Collection of sputum specimens:

Collecting sputum make the collection in a disposable and wide mouthed screw capped plastic container of 50 – 100 ml capacity. Collect sputum before antibiotics are given. Ideal to have when patient wakes up and with first cough.



### B-Transport of the sputum specimens:

Precautions in handling the specimens avoid spilling the material over the rim. Tightly screw on the cap of the container. Wipe off any spilled material on its outside with tissue paper Deliver the specimen quickly to laboratory.

## 5-Faeces

### A-Collection of faeces:

The specimen may be collected from stool passed into a clean container , not mixed with urine, or disinfectant or from the surface of heavily soiled toilet paper. The specimen is collected into 25 ml screw capped wide mouthed disposable container.

### B-Transport of specimens :

Transportation of specimen Collect 1-2 ml of faeces, and apply the cap

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tightly. Take care not to soil the rim or outside of the container. Transmit the container quickly to laboratory.



STOOL SAMPLE

## 6-Blood

### A-Collection of blood specimens :

Whole blood is required for bacteriological examination. Serum separated from blood is used for serological techniques. Skin antisepsis is extremely important at the time of collection of the sample. Tincture of iodine (1-2%), povidone iodine (10%) and chlorhexidine (0.5% in 70% alcohol) are ideal agents. However, some individuals may be hypersensitive to iodine present in some of these. While collecting blood for culture, the following points must be remembered:

- Collect blood during the early stages of disease since the number of bacteria in blood is higher in the acute and early stages of disease.
- In the absence of antibiotic administration, 99% culture positivity can be seen with three blood cultures.

- Small children usually have higher number of bacteria in their blood as compared to adults and hence less quantity of blood needs to be collected from them.



### **B-Transport of blood specimens.**

Blood is injected into broth culture medium within one minute of collection. This can be held at room temperature for 4 to 6 hour safely. Inoculated blood culture medium must not be refrigerated. All inoculated bottles are transported to lab in puncture proof containers.