

# MICROBIOLOGICAL SPECIMENS

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## **Gastrointestinal tract**

Members of the family enterobacteriaceae make up a large part of the aerobic microflora of the intestinal tract of man. These include the intestinal commensals as well as the enteric pathogens, i.e., members of the genera salmonella, shigella, vibrio, aeromonas, plesiomonas, yersinia, campylobacter, clostridia, staphylococci, various yeasts, protozoa and rarely the necessity arises for attempting to isolate mycobacterium tuberculosis from faecal material. At least 100 species of virus have been isolated from the intestinal tract of man and the number is constantly increasing. All require special techniques for their recovery. Rectal swabs and faecal specimens for this purpose must be maintained in a frozen state at all times prior to attempting recovery. The patients should be asked to defecate preferably on a sheet of paper and select a small portion of the sample especially the bits of bloody mucus or epithelium and send it to the laboratory in a small preferably plastic container within two hours of passing the sample. In chronic dysentery material obtained during proctoscopic examination offers the best means of obtaining positive shigella isolations. When stool specimens are not readily obtainable in outbreaks of enteric disease, rectal swabs afford the most practical method for securing material for culture, although they should not be relied on for maximum recovery. Whenever possible, multiple stool specimens should be examined for the isolation of enteric pathogens.

## **Urine**

Bacterial infections of the urinary tract affects patients of all age groups and both sexes and they vary in severity from an unsuspected infection to a condition of severe systemic disease. The demonstration of significant bacteraemia by appropriate cultural methods is therefore the only reliable means of making a specific diagnosis and in most cases mid-stream urine sample is the best specimen for the diagnosis of urinary tract infection and proper sample collection plays a vital role. The distal portion of the human urethra and the perineum are normally colonized with bacteria, particularly in the female. These organisms will readily contaminate a normally sterile urine upon voiding, but contamination can be prevented by using the "clean catch" technique. In this the periurethral area, i.e., tip of penis, labial folds, vulva is carefully cleansed with two separate washes with plain soap and water or a mild detergent and well rinsed with warm water to remove the detergent, with the glans penis or labial folds retracted. The urethra is then flushed by passage of the first portion of the voiding, which is discarded. The subsequent urine, voided directly into a sterile container, is used for culturing and colony counting. Sample collected should be sent to the laboratory within 30 minutes of voiding.

## **Genital tract specimens**

In the female the best site to obtain a specimen is the cervix and this should be collected by an experienced professional. A sterile bivalve speculum is moistened with warm water and inserted, and the cervical mucus plug is removed with a cotton ball forceps. A sterile cotton or polyester tipped applicator is then inserted into the endocervical canal, moved from side to side, allowed to remain for a few seconds, then removed and immediately inoculated or placed in a transport medium. In the male with a purulent urethral discharge, the sample is collected on a swab and placed in a transport medium. It is advisable to cleanse round the urethral opening with sterile saline before collecting the specimen. Vaginal discharge is better be collected on a sterile cotton wool swab and transported in a transport medium.

## **Cerebrospinal fluid**

The CSF must be collected with extreme caution and care by an experienced person. It must be collected as aseptically as possible to prevent organisms being introduced into the system. The fluid is

collected with a wide bore needle by inserting it between the fourth and fifth lumbar vertebrae and the CSF is allowed to drip into a dry sterile container. A ventricular puncture is sometimes performed to collect CSF from infants.