



Collection and transport of specimen for bacteriological study.

WHY TO COLLECT....

- Diagnosis of disease
- Identifying the pathogen
- Ruling out certain clinical conditions



WHEN TO COLLECT.....

➤ Infection site :

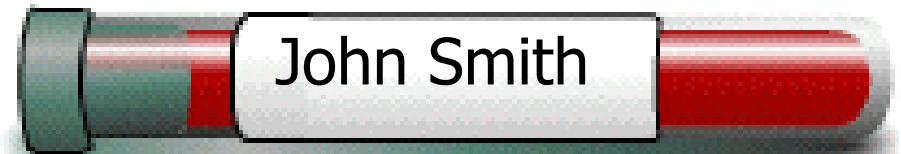
Probability of the organism being found increases if taken from the actual site.

➤ Stage of disease :

Chances of identifying the pathogen higher if sample taken in acute phase of disease.

REMEMBER....

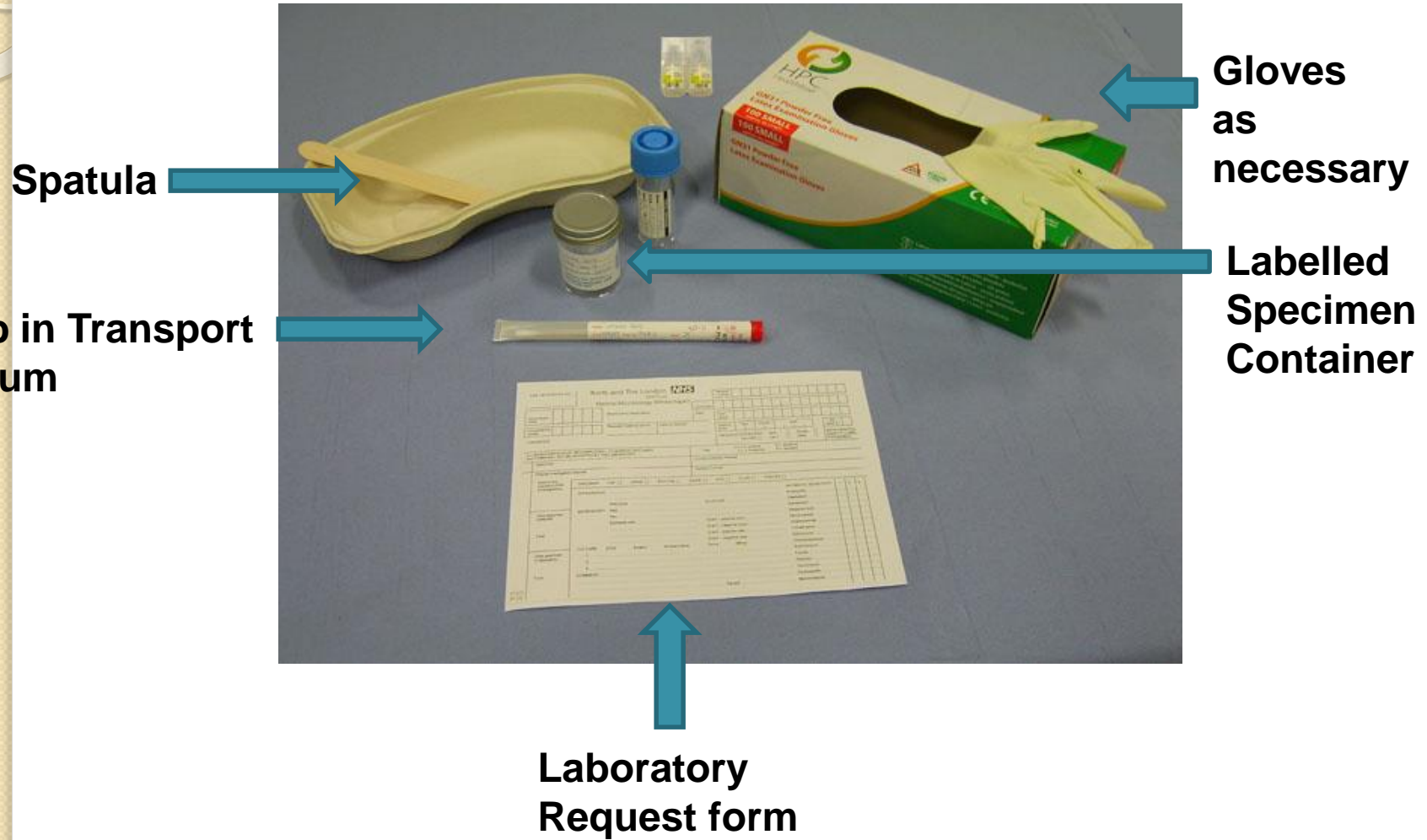
- Expertise
- Quantity of sample
- Clinical data
- Request forms



TYPES OF SPECIMEN

1. Urine
2. Stool
3. Sputum
4. Wound drainage
5. Blood
6. Swab
7. CSF

PRE-REQUISITES FOR SAMPLE COLLECTION



BLOOD CULTURE – WHY ?

- Septicemia
- Bacteremia
- Intra vascular infections
- Bacteremia of multi system infections
- Bacteremia secondary to traumatic injury and instrumentation
- Patients having fever of unknown origin (PUO)

BLOOD CULTURE – WHEN ?

- Continuous presence in early times – typhoid, brucella.
- Transiently present in the blood stream.
- Released in blood at constant rate - septicemia
- Rising temperature
- Bacterial endocarditis
- Prior to beginning of antibiotics.

PRE-REQUISITES FOR PHLEBOTOMY

Gloves

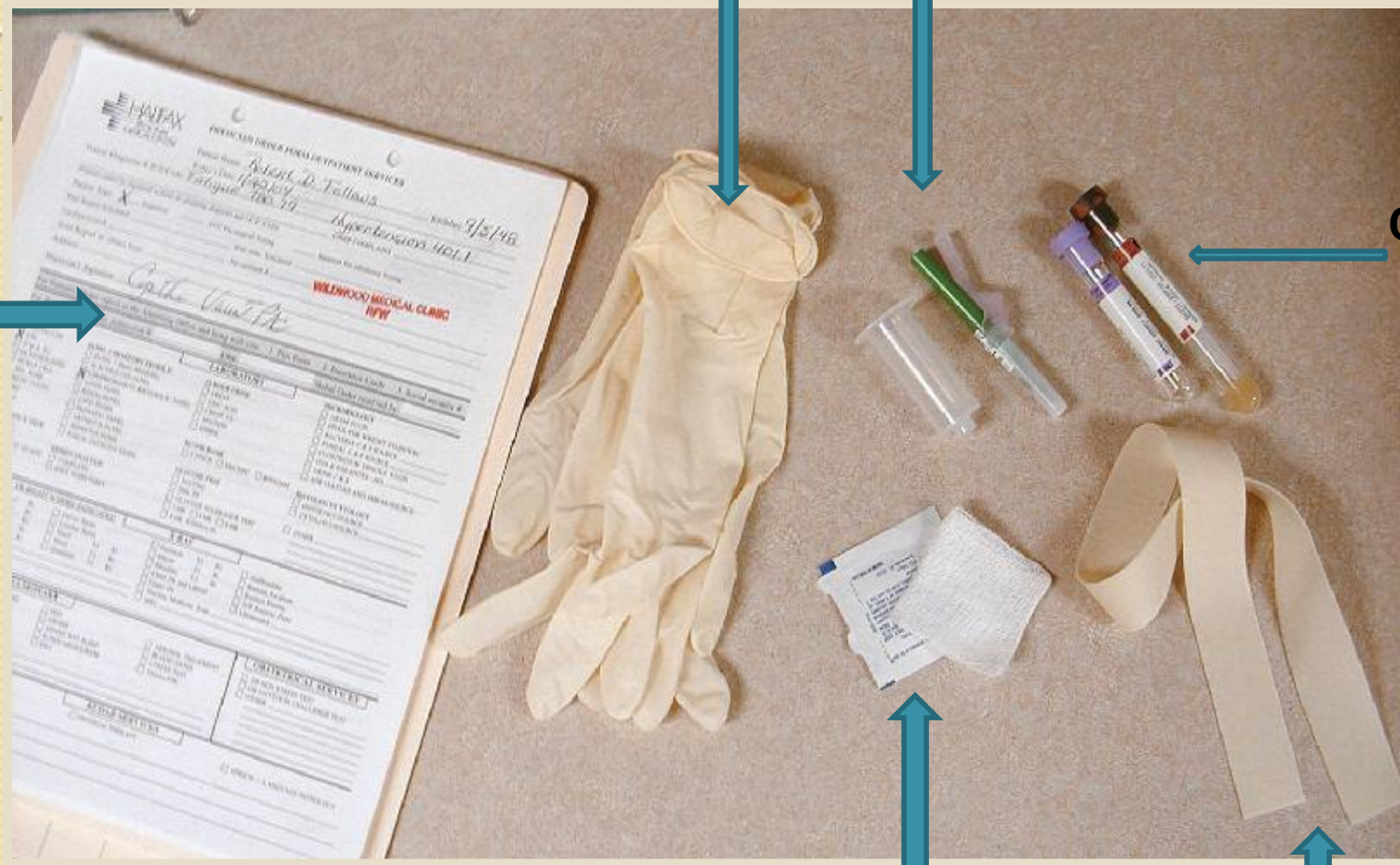
Syringe & Needle

Collection vaccutes

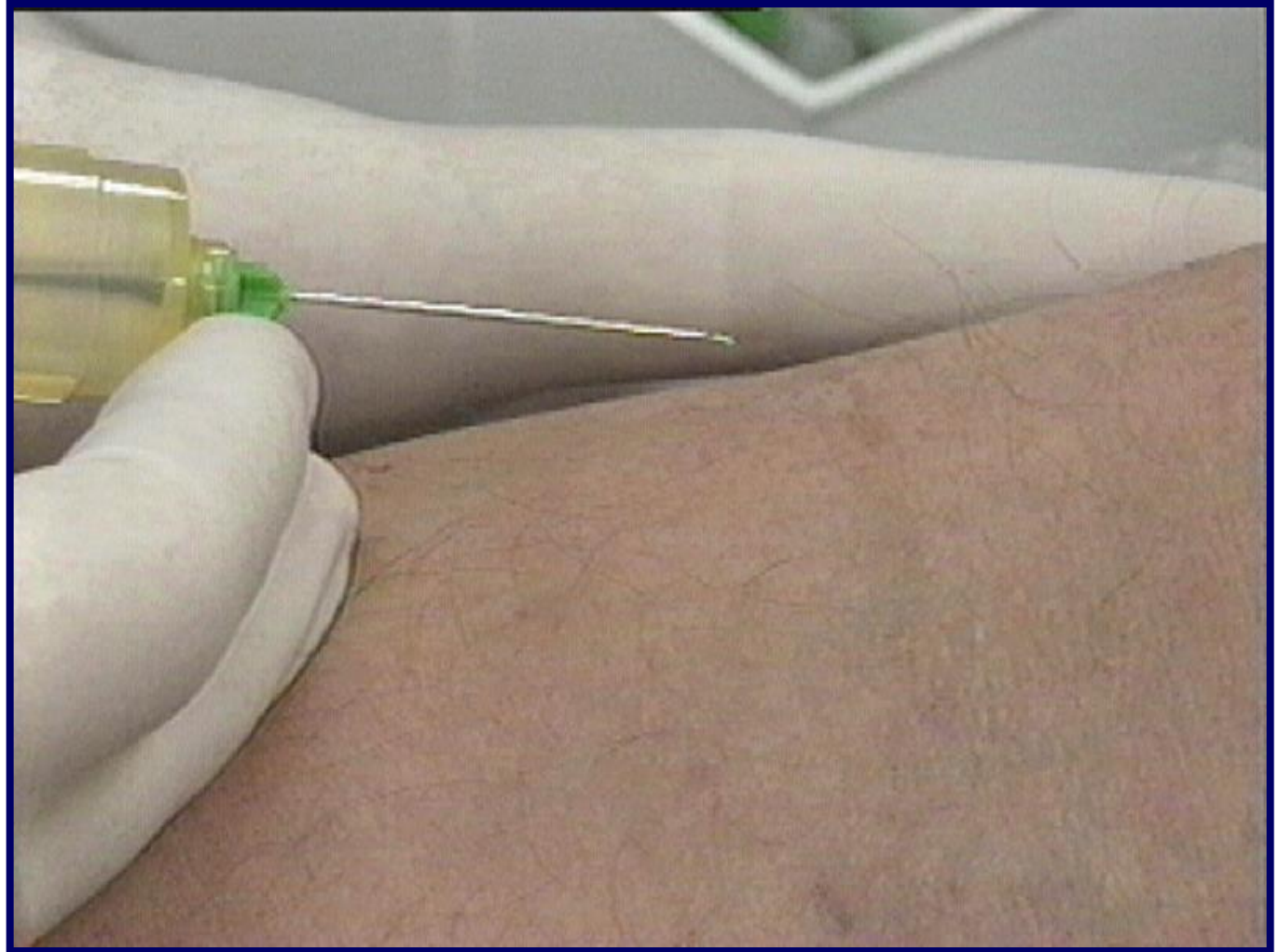
Spirit swab

Tourniquet

Lab form



VENEPUNCTURE



DO'S

1. Disinfect the site of blood collection adequately.
2. Practice proper universal precautions.

DONT'S

1. Don't collect blood from vascular shunt or catheter.
2. Don't collect blood from above the vascular line.

Aerobic/Anaerobic Blood Culture Bottles







URINE

Indications

- ? Urinary Tract Infection (UTI)
 - Frequency
 - Urgency
 - Dysuria
 - Hematuria
 - Flank pain
 - Fever
 - Cloudy, malodorous urine

How the sample should be collected?

- CCMS (Clean Catch Mid Stream urine)
 - routine
- Straight catheterized urine
- Supra pubic bladder aspiration
- Indwelling catheter
- Bladder tap

CCMS (mid stream urine)

Men –

- Collection is done after prepuce is retracted & glans penis is cleaned with wet cotton

Women –

- Anogenital toilet (careful cleaning with soap & water)
- Non irritating antiseptics (chlorhexidine) for vulval cleaning
- Urine should be passed keeping labia seperated using fingers

URINE

- Should be cultured immediately, within **one hour**.
- If delay :
 - ✓ refrigerate at 4° C
 - ✓ add boric acid
0.19mg / 10 ml of
urine



Urine from catheter

- Used for GCP/
comatose patients.
- How?????
- Avoid taking directly
from the urine bag



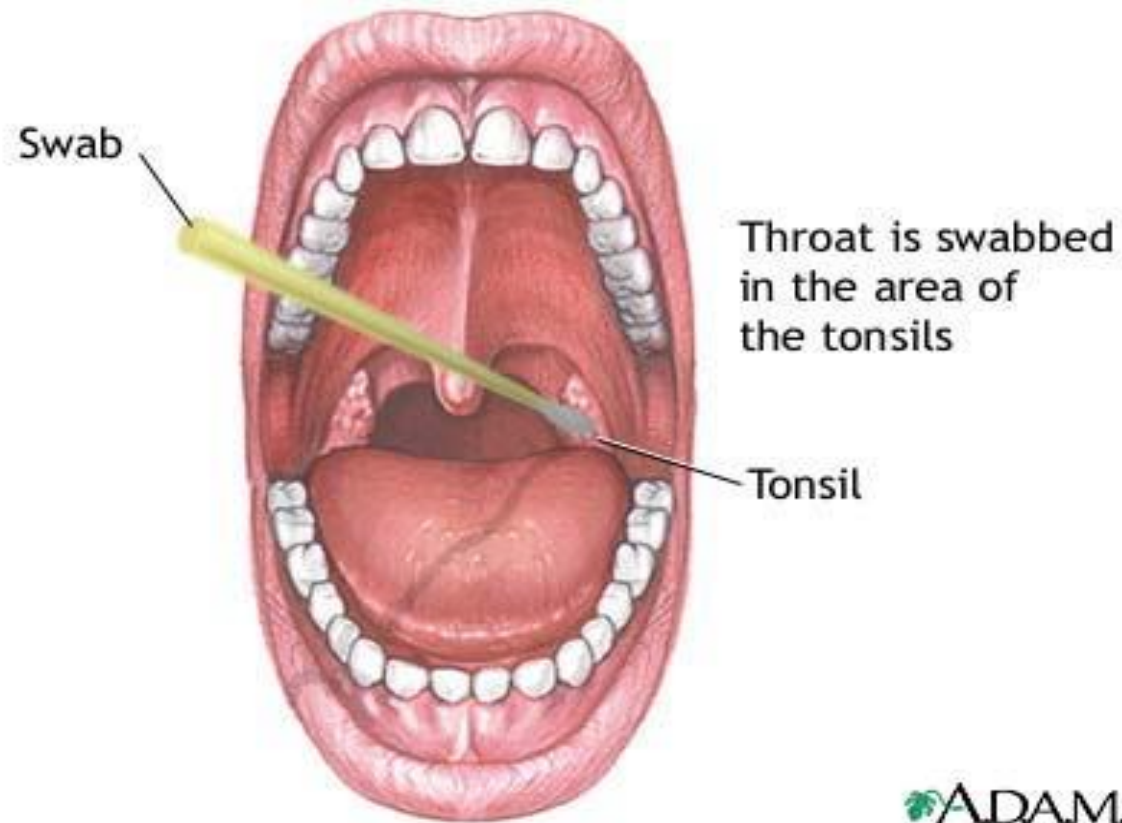
Nose, Throat Specimens

- Upper respiratory/ throat infections
- Throat swabs
 - before meal or 1 hr post meal
 - Wash hands, glove
 - Tilt head backward
 - “ah” (if pharynx not visualized, tongue depressor, anterior 1/3 of tongue)
 - Don't contaminate

Method for throat culture

- Insert swab into pharyngeal region
- Reddened areas/ exudate
- **Gag reflex** : if client sitting and leaning forward slightly

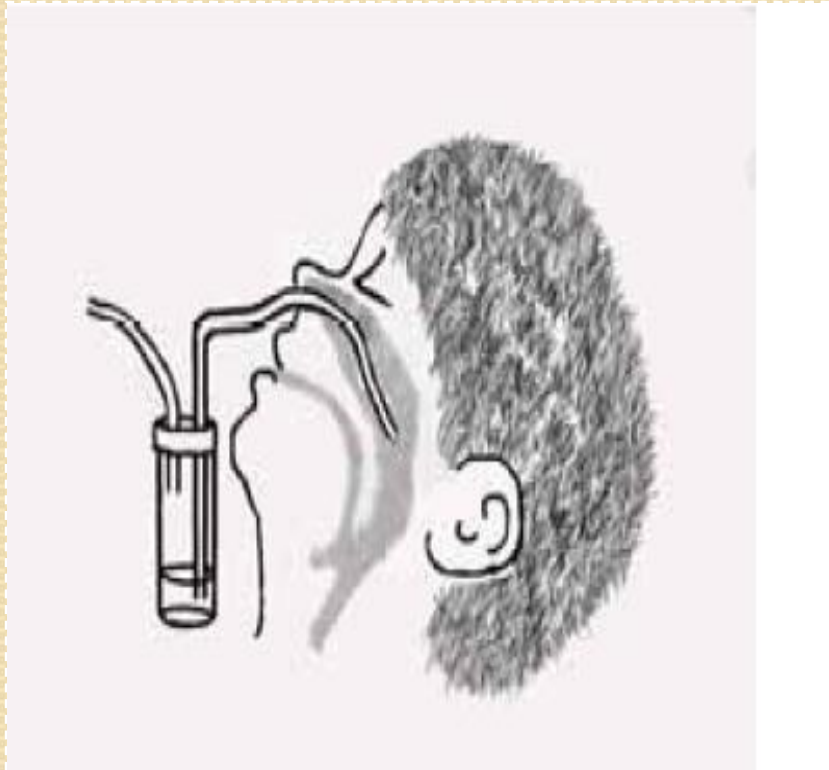
THROAT SWAB



Nose culture

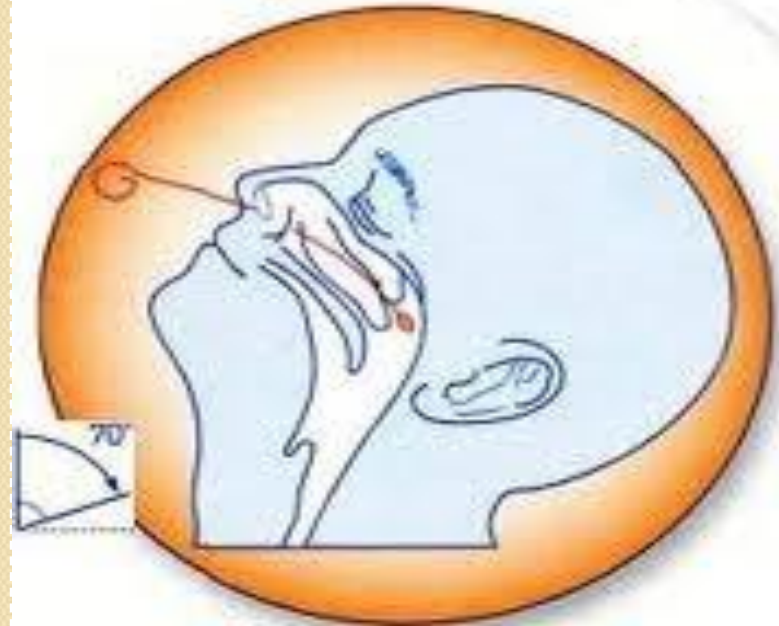
- Blow nose, check nostril patency
- Rotate Swab inflamed mucosa or exudate
- Swab must advance into nasopharynx to ensure culture properly obtained

NASOPHARYNGEAL ASPIRATE



NASOPHARYNGEAL SWAB

Nasopharyngeal Swab Method
Incline patient's head as shown



SPUTUM

- Clean, dry, wide mouth leak proof container.
- The specimen must not be saliva
- Best collected in the morning



Sputum

Expectorated:

- Food should not be ingested for at least 1-2 hours before expectoration.
- Mouth should be rinsed with saline or water.
- Specimen should be expectorated into a sterile container with deep coughing.

Induced

- Patient who is unable to produce sputum **postural drainage** and **thoracic percussion** is used to produce sputum.
- **Aerosol induced** specimens are collected by allowing the patient to breathe aerosolized droplets of solution containing 15% sodium chloride and 10% glycerin for 10 minutes or until deep cough is induced.

Collection procedures for sputum specimens

SPOT
MORNING
SPOT

New WHO policy:

- two samples (better if one is a morning sample).

SPOT
MORNING

Gastric aspirates

- *For patients who are not able to produce sputum particularly young children .*
- *Before patient wake up in the morning Nasogastric tube is inserted in to stomach and contents are withdrawn on assumption that acid fast bacilli from respiratory tract were swallowed during night and will be present in stomach.*

Endotracheal or Tracheostomy suction specimens

- *Patient with ET or T'stomy tube lower respiratory secretion can be collected by using mucus extractor.*



SWAB

- No antibiotics 8 hrs before sample
- Look for – inflammation / presence of any membrane, exudates
- Within 2 hours of collection, deliver the swab
- If delay, use transport media.



STOOL SAMPLE

- Clean, dry, disinfectant-free wide mouthed container.
- Transfer a spoonful of the specimen.
- Inserting a cotton wool swab into the rectum for about 10 seconds.
- **Caryblair** transport medium.
- **Alkaline peptone** water.
- **Sterile phosphate buffered saline** or **glycerol saline**.

Containers and Media



UROGENITAL SAMPLES

In male patients—

- Smear of urethral discharge.
- Swab of urethral discharge in Amie's medium or inoculated directly.

In female patients —

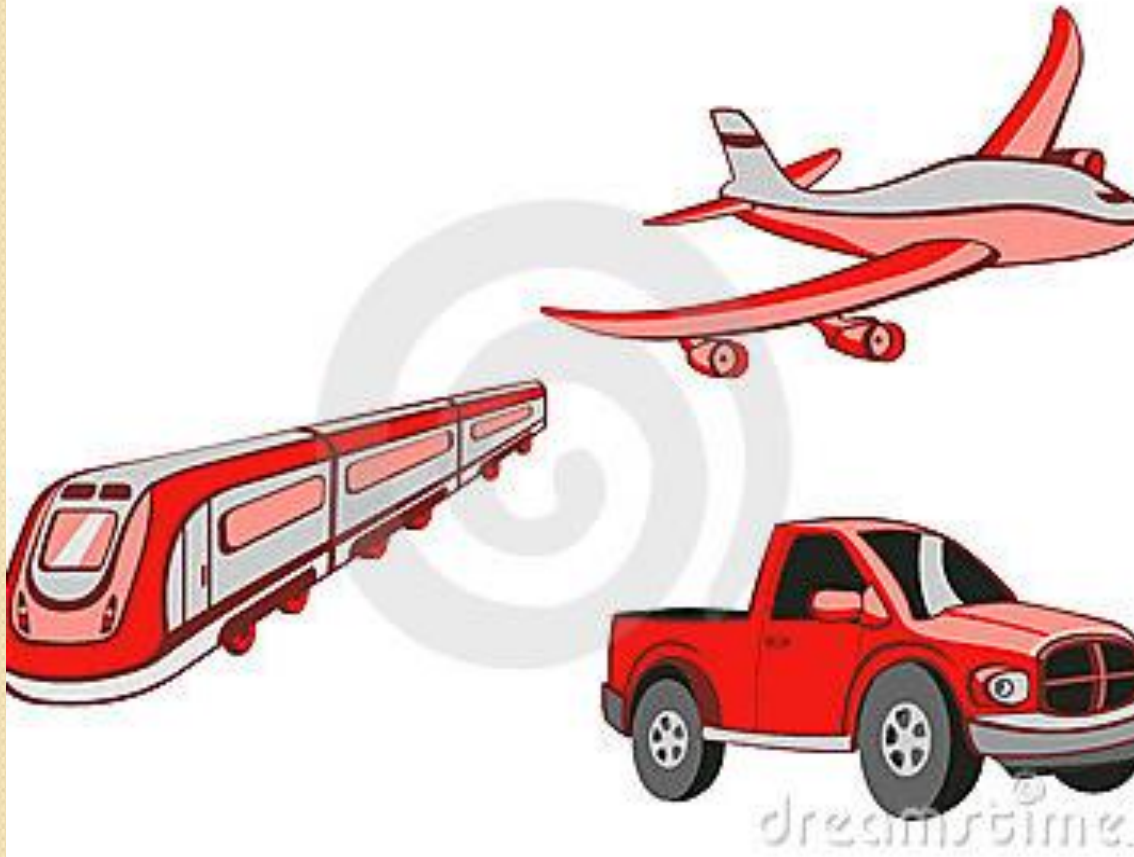
- Smears of mucopus from the cervix &/or urethra.
- Swab of mucopus from cervix in Amie's medium or inoculated directly on a selective culture medium.

CSF

- Lumbar puncture.
- Deliver immediately the samples to the laboratory.
- Do not refrigerate the sample.
- If delay, use **Sodium fluoride oxalate**



TRANSPORT OF SPECIMENS



WHEN ?..WHY?...HOW?...

TRANSPORT MEDIA

1. Viral transport medium
2. Amies transport medium
3. Stuarts transport medium
4. Cary blair transport medium
5. Glycerol saline

CARY BLAIRS MEDIUM



STUARTS MEDIUM



CONTAINERS FOR TRANSPORT



Specimen Storage

- Refrigeration ?
- Preservatives ?



Basic triple packaging system

- Three layers of protection are needed:
 - primary receptacle
 - secondary packaging
 - outer packaging

3 LAYER PACKING

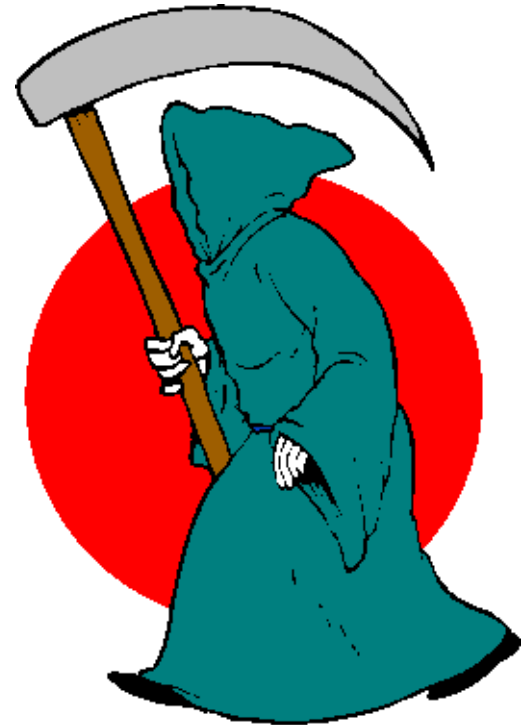


BIOHAZARD LABELS



REJECTION OF SAMPLES

- Reject :
 - Improperly collected
 - Inadequate
 - Spilled
 - Improperly labelled
 - Increased duration of collection



QUESTIONNAIRE



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I. Delayed urine transport

- Refrigeration at 4° C .
- Addition of Boric acid (0.19 mg/10 ml of urine)

2. Usefulness of transport media

- Doesn't allow either further multiplication or decline in the number of microbes.
- Maintains viability of microbes.
- Provides a balanced system to the bacteria/ viruses in terms of pH, cation and anion concentration.

3. BLOOD CULTURE :

Clinical procedure that detects pathogenic microbes present in the blood sample of the patient by growing them in culture media, thereby detecting infection either in the bloodstream or some other primary site in the body.

Phlebotomy

Wear gloves



Skin disinfection



Let the disinfectant dry



Search for vessel



Puncture with sterile syringe-needle set



Withdraw blood (5-10 ml in adults/1-2 ml in children)