



Diagnostic Microbiology

320 MIC

Lecture: 7

Sample Processing



Safety hoods are used to avoid splashing and inhaling possible pathogens



A monitored refrigeration unit is essential for accurate results in microbiology.

Blood cultures are incubated and monitored electronically for bacterial and fungus growth



Reagents, such as those used in this strep screen, aid in diagnosis of disease.



Standard Precautions

• Fundamentals to safe handling of Specimens

- Applies to all patients irrespectively of known or presumed disease status
- Applies to blood, bloody fluids and body tissue

• Hand washing or hand hygiene

- Antibacterial soaps for invasive procedures
- Waterless alcohol gels or rubs

• Personal Protective Equipment

- Disposable gloves
- Disposable aprons
- Gowns
- Facial protection- masks, eye goggles

• Safe handling of sharps.



Standard Precautions

- **Manifestations of Infection:** Signs and symptoms vary according to the site and severity of infection. Diagnosis requires a composite of information, including history, physical examination, radiographic findings, and laboratory data.
- **Microbial Causes of Infection:** Infections may be caused by bacteria, viruses, fungi, and parasites. The pathogen may be **exogenous** (acquired from environmental or animal sources or from other persons) or **endogenous** (from the normal flora)

Major Factors in the Development of an Infection

- **True pathogens**—capable of causing disease in healthy persons with normal immune defenses
- **Opportunistic pathogens**—cause disease when the host's defenses are compromised or when they grow in part of the body that is not natural to them
- Severity of the disease depends on the **virulence of the pathogen**; characteristic or structure that contributes to the ability of a microbe to cause disease is a virulence factor.

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Microorganisms Identification

- The **successful identification** of the microbe depending on:
 - Using the proper aseptic techniques.
 - Correctly obtaining the specimen.
 - Correctly handling the specimen.
 - Quickly transporting the specimen to the laboratory.
 - Once the specimen reaches the lab., It should be cultured & identified.
 - Use care and tact to avoid patient harm.
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- The specimen is the beginning. All diagnostic information from the laboratory depends upon the knowledge by which specimens are chosen & the care with which they are collected & transported.

Sampling process

- Specimen collection.
- Transport to laboratory (Specimen recipient).
- Specimen processing.
- testing (inoculation of media- culture & isolation).
- Interpretation.
- Reporting.

- **Specimen Selection, Collection, and Processing**
- The quantity material must be adequate
- Specimens are selected on the basis of signs and symptoms, should be representative of the disease process
- Contamination of the specimen must be avoided by using only sterile equipment and aseptic precautions
- The specimen must be taken to the laboratory and examined promptly. Special transport media may be helpful.
- Meaningful specimens to diagnose bacterial infections must be secured before antimicrobial drugs are administered.

Appropriate Specimen

- From relevant body site
- Adequate amount
- Quality
- **Specimens & Infection Control**
- Please be considerate to lab staff
- Label hazardous specimens
- Don't send specimens to the lab without proper packing
- Leaking or blood-stained specimens are not acceptable!!!