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# Introduction to Lab Tests and Types of Laboratory Test: Screening vs. Diagnostics vs. Monitoring

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## LEARNING OUTCOMES

**After completing this session, students will be able to:**

- ☐ Define what laboratory tests are and explain their general role in patient care.
- ☐ Identify the purpose and appropriate use of screening, diagnostic, and monitoring tests in clinical scenarios.
- ☐ Appreciate the importance of selecting the right type of test based on clinical need.
- ☐ Differentiate between screening, diagnostic, and monitoring tests with relevant examples



## KEY CONTENTS

- ☐ Define laboratory tests and clinical importance
- ☐ Screening Tests
- ☐ Diagnostic Tests
- ☐ Monitoring Tests



## DEFINITIONS AND PURPOSE

### **Definitions:**

Procedures conducted on body fluids (e.g., blood, urine) or tissues to obtain clinical information.

### **Purpose:**

- ☐ Support clinical diagnosis
- ☐ Monitor disease progression or treatment
- ☐ Screen for asymptomatic conditions



# CLASSIFICATION OF LABORATORY TESTS

Lab tests are broadly classified based on purpose:

- ☐ Screening Tests
- ☐ Diagnostic Tests
- ☐ Monitoring Tests



# SCREENING TESTS

## **Purpose:**

Early detection of disease in asymptomatic individuals

Features:

- ☐ Applied to a large population
- ☐ High sensitivity
- ☐ Cost-effective



# SCREENING TESTS

## Examples:

- ☐ Pap smear for cervical cancer
- ☐ Fasting blood sugar for diabetes
- ☐ Mammography



# Limitations of Screening Tests

- False Positives/Negatives – May cause unnecessary stress or missed diagnoses.
- Overdiagnosis – Detecting slow-growing conditions that may never cause harm.
- Cost & Accessibility – Not all screenings are covered or available everywhere.



# DIAGNOSTIC TESTS

## Purpose:

Confirm or rule out disease in symptomatic individuals or after a positive screening result

## Features:

- ☐ High specificity
- ☐ Usually done after symptoms or positive screen



# DIAGNOSTIC TESTS

Examples:

- ☐ Biopsy for tumor confirmation
- ☐ Blood culture for infection
- ☐ PCR test for COVID-19



# Limitations of Diagnostic Tests

- Invasive procedures (e.g., biopsies) carry risks.
- False negatives can delay treatment.
- Cost & availability may limit access.



# MONITORING TESTS

## Purpose:

Track disease progression, treatment effectiveness, or recurrence

## Features:

- ☐ Repeated periodically
- ☐ Helps adjust therapy



# MONITORING TESTS

## Examples:

- ☐ HbA1c in diabetes
- ☐ International Normalised Ratio (INR) in patients on warfarin
- ☐ Liver enzymes in hepatitis treatment



## SUMMARY TABLE

| Test Type  | Purpose              | Target Group                | Example    |
|------------|----------------------|-----------------------------|------------|
| Screening  | Early detection      | Asymptomatic people         | Mammogram  |
| Diagnostic | Confirm disease      | Symptomatic/Positive screen | Biopsy     |
| Monitoring | Track/manage disease | Diagnosed patients          | HbA1c, INR |



# CLINICAL RELEVANCE OF LABORATORY TESTS

- ❑ Right test at the right time improves diagnostics and ultimately preventive or therapeutic outcomes
- ❑ Understanding test type helps in choosing the test wisely
- ❑ Essential skill for pharmacists, doctors, nurses, and lab professionals



**THANK YOU**

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