Medical Laboratory Scientists

Providing the Evidence upon which the Practice of Medicine is Based

Clinical Chemistry

Clinical Chemistry involves the use of chemical processes in a clinical setting to evaluate patient health.

What they do:
Medical Laboratory Scientists perform, research and develop laboratory procedures that help physicians make earlier, more precise diagnoses and tailor therapy for patients .

Diagnostic techniques include:
- Chromatography
- Electrophoresis
- Enzyme immunoassay
- Immunofluorescence
- Immunoturbidimetric

Microbiology

Microbiology is the specialized area concerned with the identification, characterization, and culture, etc. of microorganisms such as bacteria, viruses, fungi, and parasites.

What they do:
Medical Laboratory Scientists isolate and identify microorganisms, infectious agents, or diseases. In addition, they can also advise on proper treatment of patients' infections and on limiting the spread of infectious agents.

Specimens include:
- Blood
- Urine
- Sputum
- Stool
- Cerebrospinal fluid
- Other body fluids
- Environmental cultures

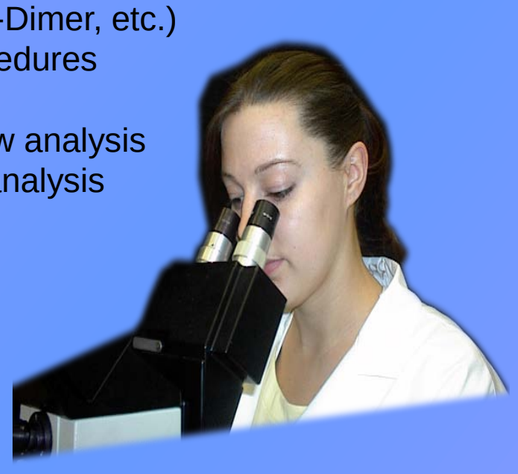
Diagnostic techniques:
- Gram stain
- Acid fast stain
- Biochemical tests
- Rapid test kits
- Antibiotic Sensitivity
- Different media cultures

Hematology

Hematology concerns itself with the blood, and the generation of blood elements in the bone marrow. In addition, hematology also includes evaluation of primary and secondary hemostasis.

What they do:
Medical Laboratory Scientists study the blood cells, their quality, relative proportions and the diseases that are caused by imbalances between them, notably leukemia and anemia. They also evaluate the coagulation system to aid in the appropriate diagnosis of bleeding and clotting disorders.

Diagnostic techniques include:
- Complete blood count (CBC)
- Coagulation testing (PT, PTT, D-Dimer, etc.)
- Special Procedures such as
- Bone Marrow analysis
- Body Fluid analysis



Immunology

Immunology is the study of the immune system including the study of the innate and adaptive immune systems as well as cytokines, antibodies, and mediators of inflammation, etc.

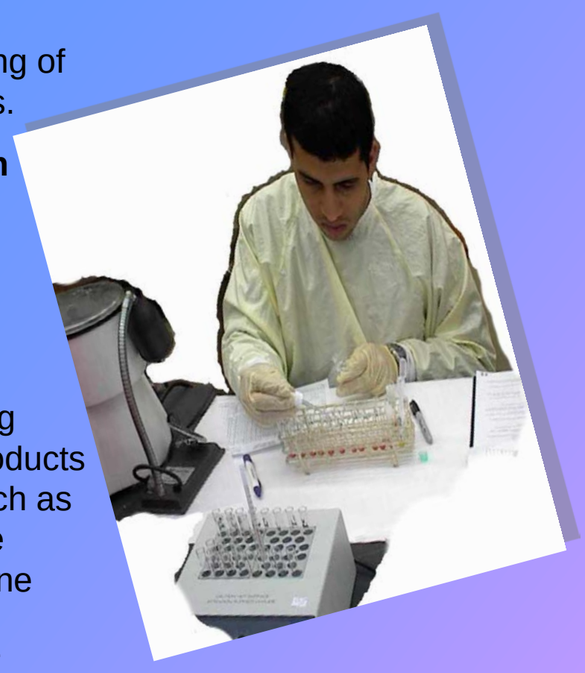
What they do:
Medical Laboratory Scientists perform a variety of testing procedures in order to help diagnosis, monitor, and treat diseases with manifestations of immunodeficiency, autoimmunity, hypersensitivity, and graft/transplant reactions among others.

Diagnostic techniques:
Latex agglutination
- Cytokine/chemokine testing
- Enzyme-linked immunosorbant assay (ELISA)
- Direct immunofluorescent assay
- Flow-cell cytometry
- Hemagglutination inhibition
- Immunofixation electrophoresis (IFE)

Transfusion Service (Blood Bank)

Transfusion services, also known as immunohematology or the blood bank, provides quality blood products for individuals in need of whole blood, platelets, plasma, and Rhogam.

What they do:
Medical Laboratory Scientists are responsible for the immunohematological testing of patients and blood products.



Procedures in transfusion service include:
- Crossmatching blood to determine compatibility
- Antibody screening and identification
- Fetal-maternal screening
- Preparation of blood products
- Testing for disorders such as hemolytic disease of the newborn and autoimmune hemolytic diseases
- Assisting with cell-saver procedures in the operating suite.
- Tissue typing (bone banking)
- HLA typing

Molecular Diagnostics

Molecular diagnostics adapts the latest procedures in molecular biology to arrive at more accurate medical diagnoses. Molecular diagnostic techniques can be performed as part of the repertoire of lab tests in each section of the laboratory. Molecular diagnostics may also be housed in their own section within the clinical laboratory.

What they do:
Medical Laboratory Scientists perform molecular diagnostic testing in the clinical setting as well as for the world's largest health care companies and government agencies such as Abbott, Baxter, Argonne Nat. Lab, and Fermilab

Diagnostic techniques include:
- Chromosome studies
- Cytogenetics
- CALI
- FISH
- Flow Cytometry
- PCR
- Viral Loads

For more information visit :

www.ascls.org
www.ascp.org
www.asm.org
www.aabb.org
www.aacc.org
www.labsarevital.org