

Diagnostic Tests of Medical Microbiology

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Editorial Note

Diagnostic tests

Identifying an infectious agent for a minor disease can be as simple as a clinical presentation; such as gastrointestinal diseases and skin infections. To make an informed assessment of which microbe could cause the disease, epidemiological factors must be considered; such as the probability of exposure of the patient to the suspected organism and the presence and prevalence of a microbial strain in a community. Diagnosis of an infectious disease almost always begins with the patient's medical history and a physical exam. More detailed identification techniques include microbial culture, microscopy, biochemical testing and genotyping. Other less common techniques, such as X-rays, CT scans, PET scans, or MRI scans, are used to create images of internal abnormalities that result from the growth of an infectious agent.

Microbial culture

Microbiological culture is the main method of isolating infectious diseases for study in the laboratory. Tissue or fluid samples are analyzed for the presence of a specific pathogen, which is determined by growth on a selective or differential medium.

The three main types of media used for testing are:

Solid culture: A solid surface is created with a mixture of nutrients, salts, and agar. A single microbe on an agar plate can then grow into colonies (clones with identical cells) containing thousands of cells. These are mainly used to grow bacteria and fungi.

Liquid culture: