



UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Clinical Microbiology 1

2425-4-H4101D262-H4101D038M

Aims

The course aims to provide the student with the tools necessary for the correct request of microbiological investigations and for the critical interpretation of the results, both in terms of disease probability and severity and pathophysiological, clinical and prognostic significance.

Contents

Diagnostic tests relating to infections of the respiratory system, central nervous system, gastrointestinal system, genitourinary system, medically assisted procreation. Infections during pregnancy, of the fetus, of the newborn, of childhood and adolescence; systemic, cardiac, bone, joint and skin infections, opportunistic and healthcare-related infections. Direct and indirect diagnostic methodologies and techniques in bacteriology, virology, mycology and parasitology. Evaluation of the in vitro sensitivity of microorganisms to antimicrobial drugs. Withdrawal methods. Discussion of clinical cases.

Detailed program

Role of the microbiology laboratory.

Diagnostic path.

Direct microbiological diagnosis: rapid diagnosis, microscopy, culture media, identification of isolated microorganisms - biochemistry, automatic technology, MALDI-TOF - serological, techniques in molecular biology. Sensitivity assays - agar diffusion, automatic technology, MIC determination.

Indirect microbiological diagnosis: microscopic techniques, immunological techniques, molecular biology. quality control in microbiology, accuracy of procedures. interpretation of the antibiogram and MICs, EUCAST guidelines.

Emerging and re-emerging infectious diseases

Flow cards.

Discussion of clinical cases.

Intravascular and cardiac infections

- Blood culture: sampling method, laboratory diagnosis and interpretation of results.
- Central venous catheter: sampling method, laboratory diagnosis and interpretation of results. sepsis biomarkers.

Upper respiratory tract infections: sampling methods, laboratory diagnosis and interpretation of results. sampling method for diagnosis of coronavirus infection.

Lower respiratory tract infections: sampling methods, laboratory diagnosis and interpretation of results.

Infections of the genitourinary system - sexually transmitted infections:

- Method of sampling, laboratory diagnosis and interpretation of results.
- Pre and post HIV laboratory test counseling and management of HIV patients.
- Urinary tract infection: sampling methods, laboratory diagnosis and interpretation of results.

Infections of the gastrointestinal tract: sampling methods, laboratory diagnosis and interpretation of the results.

Viral hepatitis A, C, E, B, D, and emerging: interpretation of serological tests.

Medically assisted procreation

- General information, withdrawal methods.
- Female genital system/male urogenital system
- PMA screening for women/men, PMA TORCH screening for couples/women.
Infections of the fetus, newborn, childhood and adolescence: sampling methods, laboratory diagnosis and interpretation of the results.

Infections of the central nervous system: collection methods, transport of samples, laboratory diagnosis and interpretation of results.

Pyogenic and mycotic skin and bone infections, infections of joint prostheses and osteosynthetic devices:

- Method of sampling, laboratory diagnosis and interpretation of results.
Microbiology of sterile liquids - amnionitis, pericarditis, peritonitis, pleurisy, septic arthritis, bursitis
- Method of sampling, laboratory diagnosis and interpretation of results.
Healthcare-related infections: causes, factors and risk of transmission, dangerous bacteria and fungi; WHO recommendations.
Mycobacteriosis: preanalytical and microbiological diagnosis.

Interaction between poverty, malnutrition and infections.

Isolated microorganisms rarely cause serious infections.

Parasitic anthroponoses:

- General information, arbovirosis.
- Zoonoses; tularaemia, leptospirosis, Lyme disease: sampling methods, laboratory diagnosis and interpretation of results.
- Vector-borne infections: malaria – sampling methods, laboratory diagnosis and interpretation of results.
Parasitic infections of the gastrointestinal system.
- Giardiasis: sampling methods, laboratory diagnosis and interpretation of results;
- Infections by helminth parasites: teniasis, oxyuriasis, sampling methods.
- Free-living amoeba infections: general information and laboratory diagnostics.

Arthropod infections: *Pediculus* spp., *Sarcoptes scabiei*; clinical and laboratory diagnosis.
Tick removal technique.

Prerequisites

basic science knowledge

Teaching form

All lessons are held in person in delivery mode

- 12 lessons of 2 hours carried out in presence mode

Textbook and teaching resource

McPherson RA, Pincus MR Henry's Clinical Diagnosis and Management by Laboratory Methods, 23a edizione in lingua inglese. Ed. Elsevier, 2016

Microbiologia Clinica (autori: Mims c., Dockrell HM., Goering RW., Roitt I., Wakelin D., Zuckerman M.) EMSI, 2006, III ed.

G. Antonelli, M. Clementi, G. Pozzi, G.M. Rossolini Principi di Microbiologia medica

Fabrizio Bruschi, Edoardo Pozio De Carneri Parassitologia generale e umana

Didactic material will also be distributed during the lessons

Semester

First Semester

Assessment method

See Syllabus of Laboratory Medicine

Office hours

By appointment requested by e-mail

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Sustainable Development Goals

GOOD HEALTH AND WELL-BEING | QUALITY EDUCATION | GENDER EQUALITY
