

THE ROLE OF THE MICROBIOLOGICAL LABORATORY IN DIAGNOSING THE RESISTANCE OF MICROORGANISMS TO ANTIMICROBIALS: LITERATURE REVIEW

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Keywords: *antimicrobial resistance, microbiological diagnosis, antimicrobial stewardship.*

Introduction. The microbiology laboratory plays a fundamental role in the proper management of patients with infectious diseases. Strengthening the capacity of microbiological diagnosis is justified by its essential role in the diagnosis of specific infectious diseases and the establishment of targeted antimicrobial therapy.

The aim. A literature analysis on the role of the microbiological laboratory in the diagnosis of antimicrobial resistance (AMR).

Material and methods. To conduct the study, PubMed, WHO, and ECDC were researched using keywords such as AMR, microbiological diagnosis, and antimicrobial stewardship. We identified and analysed 89 relevant publications from a pool of 235 studied sources.

Results. To enhance the microbiological diagnostic capacity for antimicrobial resistance, a series of actions are necessary. Firstly, the legislative framework governing the organization and operation of laboratories needs elaboration. Currently, a national level working group is being established to formulate these regulations. This document will be tailored to the requirements of the health system and technological advancements, emphasizing swift diagnostic methods for guiding antimicrobial therapy. An essential intervention involves encouraging microbiologists to actively participate in managing infections in hospitalized patients as part of multidisciplinary teams, with a pivotal role in deciding antimicrobial therapy. International evidence highlights the significance of equipping laboratories with modern technology and updating guidelines and protocols to align with European standards. These actions have a direct impact on patient care and outcomes, influencing therapeutic decisions, controlling healthcare-associated infections, reducing hospital stays, and minimizing overall hospital costs. This, in turn, directly affects judicious antimicrobial prescribing efforts. Programs for the correct use of antimicrobial treatments should encompass activities ensuring the precise selection of an antibiotic regimen, daily dose, route of administration, interval between doses, and the duration of therapy. The goal is to achieve maximum clinical benefit in preventing or treating infections while minimizing adverse effects, toxicity, and the risk of selecting and promoting antibiotic resistance.

Conclusions. Microbiology laboratories play a crucial role in detecting the etiological agent, standing at the forefront of identifying events with infectious origins. Testing should be conducted in laboratories equipped with state-of-the-art facilities and staffed by qualified personnel.

Note: This paper has been written within the framework of the project: 20.80009.8007.09 "Studying the mechanisms of antimicrobial resistance in gram-negative bacilli in order to strengthen the national surveillance system"