

Automation in Microbiology Laboratories: Will begun is Half Done

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Editorial

While automation has recently been introduced into the diagnostic chemistry and hematology sections of clinical laboratories, a great controversy still exists regarding automated microbiology laboratories. It is noteworthy that semi-automated microbiology systems have already been implemented several years ago in microbial identification profiles, blood culture equipment, and antimicrobial susceptibility testing procedures. However, clinical specimen handling and processing, and culture manual protocols, remain largely dependent on the microbiology lab manpower [1].

Microbiologists and researchers are aware that automation will cover microbiology laboratories, as a part of the continuous development of advanced laboratory technology. However, several issues should be clearly clarified. First, it seems difficult to introduce automation in microbiology laboratories, since no machine can entirely replace a human in the microbiology laboratory. Second, automation is costly for microbiology laboratories when considering cost-benefit analysis. Third, most microbiology laboratories, particularly in developing countries with limited resources, are too small to automate [2].

The fact that machines cannot replace the critical decision-making skills required to process microbiology specimens and to interpret lab results cannot be ignored.

Microbiologists are still responsible for a crucial role in microbiology laboratories including observation of microbial growth on culture media, selecting colonies for further workup, and choosing proper identification tests for releasing final results. While machines are programmable, humans are more flexible [1,3]. Briefly, successful automation in microbiology laboratories need a flexible design, augmenting the manpower element, and face the challenges of clinical specimens variability.

In conclusion, much efforts and well-performed studies are needed to accurately resolve the financial, technical, and clinical issues of total automation in microbiology laboratories.

References

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