

# Reports highlight the evolving role of clinical microbiology laboratories

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With the increasing availability of sophisticated technologies to rapidly diagnose and treat infectious diseases, the duties and the role of clinical laboratory microbiologists, who traditionally perform these tests, could see significant changes in the next few years. That is one of the conclusions of a series of reports published in a special supplement to the September 2011 *Journal of Clinical Microbiology*.

"This is a very exciting and dynamic period for clinical microbiology: not only are we seeing changes in the way we practice, but we also have a very sophisticated array of tools that are increasingly at our disposal. These tools, and the changes they impart, can substantially improve the quality and delivery of service being provided for our patients," writes Duane Newton of the University of Michigan Medical School in one report on enhancing the function of clinical microbiology laboratories.

The supplement is based on a symposium held in February 2011 to consider a number of issues facing clinical [microbiologists](#) today. Laboratory directors from across the United States as well as a representative of the [Food and Drug Administration](#) and individuals from eight companies currently active in the field of clinical microbiology came together to plot a new way forward for the profession over the next five years, encourage relationships between labs and industry and develop plans to address important unanswered questions in the field.

Participants identified 19 different specific subjects within five primary

topic areas:

- Antimicrobial susceptibility testing
- The role of the clinical laboratory in the diagnosis of selected infectious processes
- Conventional versus molecular methods for pathogen detection and the role of clinical microbiology in [infection control](#)
- Clinical microbiology in the year 2015
- The business of clinical microbiology

The supplement consists of reports from each of the 19 small-group discussions, written by the group facilitators.

"It is our sincere hope that the clinical microbiology community will find the information presented herein to be insightful, informative, and, in some cases, provocative. We also hope that this information will serve as a stimulus for others to begin to think about tangible ways of moving the discipline of clinical microbiology forward," writes Gary Doern, the journal's editor-in-chief, in the supplement's introduction.

One of the reports focuses on new technology in clinical microbiology, specifically the rapid diagnosis of bloodstream infections (BSIs) and the associated condition known as sepsis. A common complication of BSIs, sepsis ranks among the top 10 causes of death in the United States, where over 600 patients die each day.

Since the risk of death from sepsis increases by over 7% each hour that passes from the onset of shock to the start of targeted therapy, rapid identification of the bacteria causing the infection is crucial to saving the patient and containing healthcare costs. Current laboratory standards rely on cultures for diagnosis, a method that can take more than 3 to 5 days to produce results, a delay that has been implicated as one reason for the

high mortality and the emergence of drug-resistant bacteria.

"Despite evidence showing that the rapid administration of an effective antibiotic saves lives, tools in clinical microbiology are primarily based on techniques that evolved 30 to 40 years ago," write the authors of the report. "Several technological advances using simple molecular methods have become available in recent years and show potential for cost benefit."

Although implementation of these technologies in the health care setting has been shown to reduce costs by \$4,000 to over \$21,000 per patient, because of their cost and complexity they may be accessible only to large reference or university-based diagnostic laboratories. The authors urge the development of platforms that could have utility for hospitals regardless of their size.

"The enhancements desired for the engaged clinical microbiology laboratory 5 years into the future will require us to be nimble, innovative and connected. While this path may not be familiar or comfortable, it will keep us professionally viable and relevant," writes Newton.

**More information:** The supplement can be accessed online at [jcm.asm.org/content/vol49/9\\_Supplement/](http://jcm.asm.org/content/vol49/9_Supplement/)

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