Preface

2020: A Year for Clinical Microbiology

We had originally intended this issue to provide an update in many dynamic areas of clinical microbiology practice, including the introduction of groundbreaking technologies and major logistical challenges, such as laboratory consolidation and design. As the issue started to come together, authored primarily by active clinical microbiology lab directors, we were collectively confronted with the COVID-19 pandemic. The warnings that we have heard over the past decade about the potential for a pandemic in the highly interconnected global economy were suddenly proven to be prescient, and yet, despite all of those warnings, we were nationally unprepared for the magnitude of the event. Every aspect of our operations was impacted, and as a group, we became deeply involved in global supply chain logistics, the intricacies of the FDA regulatory process and Emergency Use Authorizations, biosafety and risk assessments, and the test validation and performance measures for the diagnosis of a completely novel pathogen on a massive scale, virtually overnight.

We would like to extend our appreciation to all of the authors in this issue for their dedication and for producing high-quality and pertinent content despite being pulled in a hundred other directions at this time. We feel a great sense of pride to be a part of the clinical microbiology professional community. Clinical laboratory science was at the forefront of the COVID-19 pandemic as part of a global discussion of diagnostic test logistics, performance measures, and result interpretation. We endeavored to incorporate many of these lab practice concerns into the topics discussed in this issue.

Several topics of enduring importance to the practice of clinical microbiology are included: updates for modern blood culture methodologies, mycobacterial diagnostics, antimicrobial susceptibility testing, and special pediatric diagnostic considerations. In recent years, technological advances have brought considerable changes to the lab in the form of syndromic panel development, diagnostic genomics, and point-of-care molecular testing, which are carefully considered in separate sections.
Clinical microbiologists are often consulted on infectious diseases topics outside of the laboratory walls within our departments of pathology, with our infectious diseases colleagues, and in our larger scientific community, which is why we have included updates on infectious diseases diagnostics in surgical pathology, antimicrobial stewardship, and genomics in One Health, respectively.

We also include an article on the design of a central laboratory, which is an increasingly common theme in modern health care systems. COVID-19 required laboratories to be nimble when it came to validating and running many platforms at once. Several testing options required the use of molecular techniques and equipment (extractors, thermocyclers, and so forth) that are normally exclusively used for laboratory-developed tests. The utility of a laboratory design that is not restricted to a single platform and an operation with the skill set, space, and equipment to develop molecular and serological tests have never been more clear than during this pandemic. Similarly, the training of future lab directors is a topic as changing as the profession itself, and this article highlights the variety of experiences that must go into their preparation. The experience of COVID-19 has put a spotlight on how a diverse training that is strong in both basic science and management is necessary to meet the challenges facing a laboratory leader. The topics of biosafety and clinical virology were dramatically impacted by the COVID-19 pandemic, and these articles reflect this new emphasis. Lastly, 2 articles were added to specifically address the unique considerations of COVID-19 in blood bank laboratory practice, and the development of serologic assays for SARS-CoV-2/COVID-19.

We hope that this issue provides useful and thought-provoking content. We are honored to bring together the work of such an accomplished group of individuals and can only expect that the field will change at such a pace that we will be looking for the next clinical microbiology updates issue in short order.

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