

## Editorial

# Current challenges in Korean medical research and highlights from this issue of *Annals of Clinical Microbiology*

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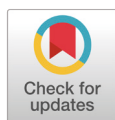
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In February 2024, the government announced a marked increase in medical school admissions by 2,000 seats, a 65.4% increase from the existing quota of 3,058, sparking a protracted conflict between the government and medical associations [1]. This conflict remains unresolved, leading to nationwide disruptions in the healthcare sector. One of the most profound consequences of this policy announcement was the nationwide mass resignation of resident physicians, a crisis that deeply disrupted the functionality of university hospitals. Their absence has severely affected not only patient care but also the continuity and quality of medical research. Consequently, research productivity in the medical field declined throughout 2024, casting a long shadow over the country's scientific landscape [2].

Despite these challenges, *Annals of Clinical Microbiology* (ACM) remains committed to its core mission. The Editorial Board of ACM has endeavored to publish high-quality, meaningful, and practically relevant research articles. This issue reflects the fruits of this commitment, offering timely and impactful studies that address the needs of both academic and clinical microbiology communities.

I am pleased to present the June 2025 issue, which features four significant and timely articles reflecting the breadth and ambition of the journal's mission. Each study exemplifies the rigorous scientific standards and clinical relevance that we strive to uphold, offering valuable insights into the current landscape of infectious disease diagnosis and management.

Among the featured articles, one comprehensive review addressed the concern of the resurgence of pertussis in Korea [3], with over 30,000 cases reported by late 2024, a remarkable increase unseen since the early 2000s. The authors delved into the epidemiological trends, clinical characteristics, and transmission dynamics of *Bordetella pertussis*, emphasizing its serious implications for vulnerable populations, particularly unvaccinated infants. Of special note is the discussion of maternal Tdap immunization, which remains insufficiently implemented despite its proven effectiveness. This article serves as a critical reminder of the importance of sustained vaccination efforts and effective diagnostic preparedness to combat reemerging infectious threats. This is the secondary publication of an article originally published in *Korean Journal of Healthcare-associated Infection Control and Prevention* [4]. The manuscript has been republished in English with the approval of the editors of both *Korean Journal of Healthcare-associated Infection Control and Prevention* and ACM. ACM is proud to support the broader dissemination of important research initially published in Korean. In the future, we will continue to identify and consider excellent Korean-language articles for secondary publication in English, in cooperation with other societies, to promote the advancement of clinical microbiology and infectious disease research.

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Another article offers a forward-looking analysis of diagnostic stewardship programs (DSP) in Korean healthcare [5]. As the authors illustrated, DSP is a pivotal framework that underpins the successful execution of antimicrobial stewardship programs, particularly in the context of increasing multidrug-resistant organisms. This article outlines the key components of DSP, including the deployment of syndromic testing, rapid diagnostic platforms, and laboratory-clinical communication mechanisms such as real-time alerts and critical value reporting. It also highlights ongoing challenges such as the overdiagnosis of *Clostridioides difficile* infection stemming from polymerase chain reaction-based assays and the necessity of two-step testing protocols to ensure appropriate clinical decision-making. This article underscores the transformative potential of DSP for improving diagnostic accuracy and antimicrobial use.

A third article presented an extensive retrospective surveillance of *Bacillus* spp. isolated from clinical specimens at a Korean tertiary hospital over a four-year period [6]. The research team employed advanced identification methods, including matrix-assisted laser desorption ionization time-of-flight mass spectrometry, to delineate the diversity and antimicrobial resistance patterns of various *Bacillus* species. Although these organisms are often considered contaminants, they show non-negligible clinical significance when isolated from sterile sites. The findings revealed substantial variability in resistance to commonly used antibiotics such as penicillin and clindamycin, depending on the species and specimen type. These results offer critical guidance for clinicians and microbiologists in interpreting *Bacillus* isolates and selecting appropriate therapies.

Finally, a robust multicenter survey led by the Blood Culture Study Group of the Korean Society of Clinical Microbiology analyzed antimicrobial resistance patterns in bloodstream infections across 16 university-affiliated hospitals in Korea, focusing on nine major gram-positive and gram-negative pathogens [7]. This study reflects the ongoing efforts of the Korean Society of Clinical Microbiology to improve the quality and clinical utility of blood culture diagnostics, which remains the gold standard for diagnosing sepsis. The data revealed persistently high rates of oxacillin-resistant *Staphylococcus epidermidis* and increased carbapenem resistance in *Klebsiella pneumoniae*. This study benchmarks its results against Korea Global Antimicrobial Resistance Surveillance System (Kor-GLASS) national surveillance data, noting both concordant trends and deviations. By expanding the evidence base for empirical treatment strategies and highlighting regional differences in antimicrobial resistance, this study enhances our understanding of pathogen dynamics in Korean healthcare settings, and reinforces the value of ongoing multicenter surveillance. This stands as a testament to society's active research engagement, and we look forward to future studies that will continue to advance the science and practice of clinical microbiology through such collaborative initiatives.

Together, these four articles offer a multifaceted and evidence-based perspective on the key issues confronting clinical microbiology. From vaccine-preventable diseases and antimicrobial resistance to diagnostic stewardship, the studies in this issue reflect ACM's dedication to publishing research that is not only scientifically sound but also impactful in clinical and public health practice.

I am proud to feature this body of work and am grateful to all the contributing authors and peer reviewers for their dedication and excellence. As ACM journals continue to evolve, I will remain firmly committed to

attracting high-quality submissions and fostering a scholarly discourse that addresses both national and global challenges in infectious diseases and laboratory medicine.

I look forward to future issues that highlight innovation, collaboration, and progress in the field of clinical microbiology. I warmly invite researchers and practitioners to submit original research, reviews, and perspectives to ACM. I welcome high-quality manuscripts that align with our mission to advance clinical microbiology and improve public health through innovative diagnostics, antimicrobial stewardship, and translational epidemiological insights. Submissions from both Korean and international contributors are strongly encouraged, and we are especially open to collaborative efforts to bridge diverse fields and regions.

## Ethics statement

This was not a human population study; therefore, approval by the institutional review board and informed consent were not required.

## Conflicts of interest

Hae-Sun Chung has been the editor-in-chief of *Annals of Clinical Microbiology* since January 2022. However, she was not involved in the review process of this article. No other potential conflict of interest relevant to this article was reported.

## Funding

None.

## Data availability

None.

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