



Editorial

Latest Updates and Challenges in infections in intensive care medicine

Jordi Rello^{1,2}¹ Global Health eCore, Vall d'Hebron University Hospital Campus, 08035 Barcelona, Spain² Medicine Department, Universitat Internacional de Catalunya, Sant Cugat del Valles, Spain

In a rapidly changing world, the role of intensive care has become increasingly relevant. Critical care medicine was born during the polio pandemic nearly 50 years ago and the COVID-19 pandemic has stringed its visibility. In this issue, a distinguished selection of the world's leading experts will address some of the most intriguing issues, sharing their insights and experience in a collection of original articles, narrative reviews, and systematic reviews focusing on hot topics in intensive care units (ICU).

Developing and tropical countries have particularities that need to be addressed. Malaria, dengue, and causes of unknown origin fever in this setting are detailed in three articles in the current issue. They focus on both diagnosis and management issues. This is of outstanding interest with respect to the consequences of climate change.

Management of severe infection has specific characteristics and requires a distinctive approach, as developed in the specific measures and strategies to be implemented by antimicrobial stewardship programs.^[1] First time, a personalized approach and optimization of the dosage is required to achieve better outcomes. This is addressed by four articles in the current issue.

Bloodstream infections and respiratory infections have an evolving pattern. Pancreatitis has unique challenges and the role of source control requires a multidisciplinary approach. Specific articles addressed the issues at these infection sites. The emergence of multidrug-resistant strains, and particularly the increase in carbapenem-resistant strains among Gram-negative bacilli is associated with newer antibiotics trying to overcome the difficulties to achieve adequate antimicrobial levels. Two articles illustrate this problem. The implementation of rapid diagnostic tests^[2] is changing the traditional paradigm.

Immunocompromising conditions due to acquired and inherited immunodeficiencies, organ transplants, hematologic conditions, cancer, cytotoxic therapies, and biological therapies are increasing. Many of these patients present severe infections requiring ICU admission. The heterogeneity and degree of immune

impairment require a specific approach. This is the basis of the concept of precision medicine.

A growing interest in sustainability, diversity, and newer technologies modified priorities with recent manuscripts addressing the impact of air pollution,^[3] biological sex impact on organ transplant outcomes, and machine learning. To cover the gap, an article updates the main progress and challenges in artificial intelligence in sepsis.

Infection control and prevention is the cornerstone of reducing complications in the ICU and ongoing reports are needed to optimize strategies in important subsets, such as patients with artificial life support.^[4] However, the implementation in the form of bundles and the best interventions to be part of bundles of care are controversial. A meta-analysis provides additional insights among patients who underwent invasive mechanical ventilation.

The increase in older adults, the focus on immune phenotypes, and the extended use of artificial life support techniques^[5-8] are important challenges in critical care. Like 50 years ago, the critical care population remains an underserved and vulnerable population whose care will benefit from further investigations and research. This issue provides an additional piece of the puzzle.

Conflict of Interest

The author declares that there are no conflicts of interest related to this editorial.

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E-mail address: jrello@crips.es

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