

Why the Microbiome Matters in the ICU



The potentially transformative role of the microbiome in managing infectious and inflammatory diseases in critically ill patients and leading to more personalised innovative microbiome-targeted therapeutics is explored in an article in press in the *Journal of Critical Care*. “The evolving field of microbiome research is likely to transform the current culture-based paradigm of clinical practice in the ICU”, write Georgios Kitsios, MD, University of Pittsburgh School of Medicine, and colleagues, adding: “the microbiome is the current big revolution in the post-genomics era.”

In their article Kitsios and colleagues define the microbiome concepts and terminology and provide a systematic review of the evidence on the critical illness microbiome in relation to acute respiratory failure and ARDS, and sepsis, including 51 animal and human studies.

See Also: [Study: Microbiome Disruption May Have Key Role in ARDS, Sepsis](#)

“If we think of the microbiome as an internalised organ with physiologically important functions, then it becomes evident that microbiome disruptions can be harmful, similar to other “organ failures” in the ICU with damage both by the “organ” function being lost and also the aberrant physiology replacing that function,” they write.

Kitsios and colleagues also include a roadmap for future studies in the field that covers conceptual design, experimental design and conduct, analytics and information synthesis, validation and dissemination.

They conclude: “We can envision a time in the not-too distant future when the microbiome will be viewed as yet another organ system of the critically-ill patient, requiring special attention and plan of care during our daily ICU rounds.”

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