Guest Editorial

New Research Areas in Clinical Microbiology

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I would like to outline a few areas in Clinical Microbiology that have become major research disciplines over the last 10 years that may now impact Health and Allied Sciences. They encompass (1) COVID-19, (2) biofilms, (3) microbiomes, (4) nanotechnology, and (5) probiotics. As well as being direct research areas, they overlap with each other, and they are beginning to overlap in important ways with Health and Allied Sciences—hence the importance of contributing papers on these subjects to the *Journal of Health and Allied Sciences NU (JHAS-NU)*.

There have been 43 publications on COVID-19 in JHAS-NU since the journal began in 2016, but the subject of all except for 6 of these articles is direct patient care. Three[1–3] have some diagnostic care component and the subject of the other three is the laboratory diagnosis of COVID-19.[4–6] Since JHAS-NU began in 2016, there have been 2 publications on biofilms,[7,8] 3 publications on the microbiome,[9–11] 2 publications on nanotechnology,[12,13] and 1 publication on probiotics.[14]

The following are some examples of current research impacting Health and Allied Sciences in the above-mentioned areas:

- A complete volume in Methods in Microbiology has been devoted to COVID-19 on diverse clinical subjects.[15] This book includes chapters on the following:
  - Detection methods for of SARS-CoV-2 RNA (Chapter 1).
  - Chapter 2 describes a new method for analyzing the seasonal behavior of COVID-19 and Chapter 8 describes the application of this method in Australia by revealing a continental link to COVID-19 and seasonality.
  - The emerging variants of SARS-CoV-2 as revealed by current molecular diagnostics assays (Chapter 3).
  - Chapter 4 describes the therapy and diagnosis of COVID-19 using clustered regularly interspaced short palindromic repeats (CRISPR).
  - Nanotechnological strategies for COVID-19 vaccine development (Chapter 5).
  - The detection of immune responses to SARS-CoV-2 by hypersensitivity methods (Chapter 6).
  - How hesitancy to get vaccinated against COVID-19 might be overcome (Chapter 7).
  - Chapter 9 reviews the use of COVID-19 vaccines for high-risk and immunocompromised patients.
- A recent methodological review describes technology that has the potential to be translated into clinics for better prevention, detection, and personalized treatment of biofilm-related infections.[16] The book that this chapter is contained in also has many other chapters on Biofilms that are worth reading.
- The Microbiome has been implicated in many different human anatomical sites including the gut–lung axis and its potential in improving or producing vaccines against COVID-19.[17]
- Nanotechnology has now found its way into many areas of Health and Allied Sciences including new antimicrobial agents,[18] treatment of osteoarthritis,[19] cancer therapy,[20] wound healing,[21] and many other applications.[22]
- Probiotics are bacteria that are ingested for positive health outcomes that are present in many foods such as yoghurt and sour dough bread. They are now also available in medicinal capsules for ingestion. Furthermore, a recent article has reviewed the potential of probiotics as ingestible antiviral agents to manage COVID-19.[23]

Consequently, it is hoped that the readers and contributors to JHAS-NU are encouraged and inspired to contribute to one or more of the five above-mentioned areas of research.

Conflict of Interest
None declared.

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