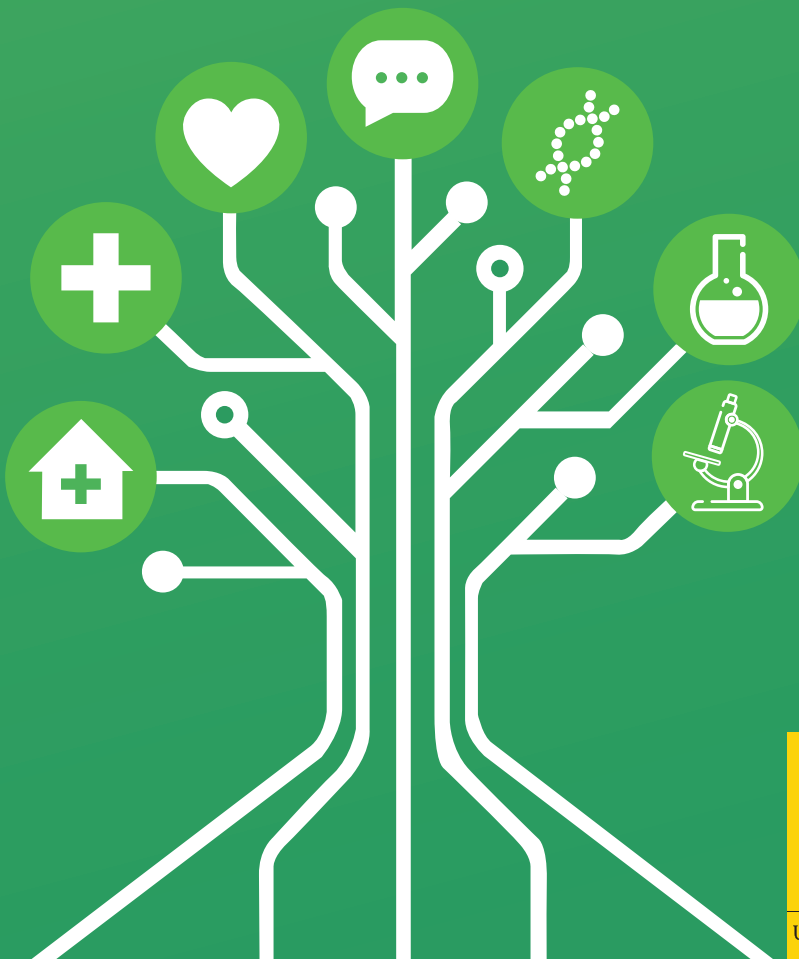


CLINICAL ENGINEERING AND ITS ESSENTIAL ROLES IN THE HEALTHCARE SYSTEM

Editors:

Kholis Abdurachim Audah
Jason Darmadi
Eva Suarthana



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Jason Darmadi received Bachelor's Engineering degrees in biomedical engineering from both the Swiss German University, Indonesia and the Fachhochschule Südwestfalen, Germany in 2019. After extensively studying biomedical instrumentation and the healthcare industry throughout Indonesia, he worked alongside some colleagues from SGU to develop a wearable diagnostic device for measuring proprioception signals. He also obtained his Master's degree in Life Science from Sunway University in 2024, specializing in drug delivery and cancer studies. As a biomedical scientist, his main research topic revolves around targeted therapy for multi-drug-resistant cancer cells using nanoparticles as therapeutic nanocarriers. Currently, he is working in an Indonesian distribution company that supports laboratory equipment and consumables related to multiomics and bioprocessing. Throughout his career, he has also joined The Audah Research Group as a research assistant, where he remains today to help push biomedical research and innovation forward.



Eva Suarthana is a Planning, Programming and Research Officer at the Health Technology Assessment Unit (TAU) of the McGill University Health Centre (MUHC). After graduating from the Faculty of Medicine at the University of Indonesia in Jakarta, she completed her master's studies in Clinical Epidemiology at the Netherlands Institute for Health Sciences in Rotterdam, and her PhD at the Institute for Risk Assessment Sciences, University of Utrecht, in the Netherlands. She did her post-doc as an Epidemic Intelligence Service Officer at the Centers for Disease Control and Prevention (CDC) in the USA. Since moving to Canada, she has been working as a medical epidemiologist. Joining the TAU, she aims to support the evidence-based healthcare service and decision-making process for adopting new health technologies at the MUHC.

Preface

Although the implementation of Clinical Engineering has been around as long as healthcare services existed, it is considered as a relatively new field of study worldwide, especially in developing countries. Considering the importance of understanding different aspects of clinical engineering, it is necessary, especially for students majoring in Biomedical Engineering to take Clinical Engineering as a subject. Clinical engineering subject covers a wide range of topics related to healthcare services.

This book entitled “Clinical Engineering and Its Essential Roles in the Healthcare System” aims to provide students, clinical engineers, and other healthcare professionals with a reference to fully understand the basic principles and practices of clinical engineering in a hospital setting as well as infrastructure and supporting elements surrounding the healthcare ecosystem.

In most cases, clinical engineering is closely related to a hospital setting such as medical technology assessment and management, hospital infrastructure, and integrated systems. Interconnection and ecosystem among different departments in a hospital setting are of important aspects that need to be fully mastered by students and prospects of clinical engineering professionals. To give students a clear perspective and prospects as a Clinical Engineer, the subject must also discuss their prospective tasks and career paths. In addition to career paths, which are within a hospital organization, clinical engineering principles need to be implemented and communicated throughout the entire healthcare system. Therefore, career paths of clinical engineers are not limited to a hospital setting but also include, among others, research and development, vendors, calibration, maintenance and standardization as well as regulatory agencies.

Chief Editor

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German University, Tangerang, Indonesia

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