Book review: *Medical Physics during the COVID-19 Pandemic - Global Perspectives in Clinical Practice, Education and Research, First Edition* by Kwan Hoong Ng and Magdalena S. Stoeva

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CRC recently released the first edition of a book titled “Medical Physics during the COVID-19 Pandemic; Global Perspectives in Clinical Practice, Education and Research (Focused Series in Medical Physics and Biomedical Engineering)”, which is edited by Drs Kwan Hoong Ng and Magdalena S. Stoeva. The book’s main focus is on the impact of COVID-19 on the Medical Physicists’ activities.

The book studies the COVID-19 pandemic and how it has affected the medical physics field from an educational, research, clinical point of view as well as other relevant issues. The book introduces solutions and innovative strategies that can be implemented and the procedures how the effectiveness of the approaches can be verified. The book interestingly collects the worldwide experience, exploring the interactions of many regions with the pandemic, from North and Latin America, Europe, Africa, to Asia–Pacific and Middle East. A large number of contributors from a wide range of countries (39 countries) with a vast range of experiences from high qualified scientists to early career researchers and students are included in a comprehensive survey. With all abovementioned aspects, the book can be nominated as a favoured reference either in the field of medical physics or other communities with common field of interests.

Chapter 1 as an introduction of the book outlines briefly the book structure including few comments for Medical Physicist communities such as aiming to chronicle the

experience and Medical Physics society reaction to the critical situation.

Chapter 2 reviews the Medical Physicists’ role during the COVID-19 pandemic. Providing a detailed list of Radiation Oncology Medical Physicists task list and adding comments about the importance of the considerations during pandemic and providing an appropriate and professional reflection to the pandemic is very well described.

Diagnostic Imaging Medical Physicist task during the pandemic is evaluated at Chapter 3. The experiences of Nuclear Medicine departments including Royal Marsden Hospital, UK; Karolinska University Hospital, Sweden; Royal Adelaide Hospital, Adelaide; King Chulalongkorn Memorial Hospital, Thailand; Centre Hospitalier Universitaire Ibn Rochd, Morocco; and University Hospital Galway, Ireland are briefly reported.

Chapter 4 deals with the challenging issues for Diagnostic Imaging Medical Physicists during the pandemic at hospitals and medical centres, especially when other premises like hotels are converted into medical accommodation. This section emphasises on the role of Medical Physicist as valuable assistants to establish rapid procurement, regulatory requirements, and testing new units.

Medical Physics as an academic discipline is implanted in clinical environments. Chapter 5 is dedicated to education and training during the COVID-19 pandemic. During the COVID-19 pandemic, many countries are encountered with a wide spread lockdown. Universities and other educational and research facilities, known as the main targets of educational affairs, were to be closed. There was a great motivation to investigate infrastructure as a potential solution for educational and research-based activities, long distant learning being a solution. This included providing pre-recorded educational materials and online communications, a secure

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platform for data transfer and storage, providing assessment tools, assignments and examinations and management of project plans over the internet. It sounds that the role of Information Technology (IT) and remote capabilities for educational purposes including online activities for clinical tasks should be considered.

Chapter 6 of the book deals with the role of Medical Physicist in scientific research. Due to the limited access to laboratories and clinical facilities, remote-research strategies required adaptive technologies, proficiency of staff for working with digital and virtual resources including archiving, management of databases, and online data analysis tools. The conditions brought about by the pandemic can be decently managed for developed countries. However, the research activities for low and middle-income developing countries should be greatly taken into account.

Global perspectives on the International Organization of Medical Physics (IOMP) about Medical Physicist activities during the COVID-19 pandemic is reviewed in Chapter 7. Several issues such as the mission of the IOMP, the role of MPs during the pandemic, and the influence of the COVID-19 virus on Medical Physics practice are discussed in brief. In addition, the IOMP solution and road map during COVID-19 is also evaluated as a major topic. This can be an initiative achievement to support the Medical Physics community to enhance their knowledge and skills and to improving the network through virtual communication and webinars as well as extending the collaboration with partnering organizations.

Global perspectives of Medical Physics activities and situations during the pandemic are evaluated in Chapters 8 to 13, based on the areas from Asia–Pacific (Chapter 8), Middle East (Chapter 9), Europe (Chapter 10), Africa (Chapter 11), North America (Chapter 12) and Latin America and Caribbeans (Chapter 13).

This section can be addressed as an extended and detailed documentation about the Medical Physics community's reaction to the pandemic in different professional fields including education and training, clinical activities such as diagnostic imaging, radiation safety, Nuclear Medicine, and therapeutic fields, and research and innovative based activities.

Chapter 14 focuses on the activities of several Medical Physics journals during pandemic. The opinion of six of the major Medical Physics journals including *Physica Medica*, *Physics in Medicine and Biology*, *Journal of Applied Clinical Medical Physics*, *Physical and Engineering Sciences in Medicine*, *Health and Technology* and *Medical Physics International* are selected for surveying and a questionnaire was sent to the respective Editors-in-Chief about their

actions and challenges during pandemic. Processing shows that the journals will be able to continue their professional tasks without any notable concerns due to the establishment of strong networks among audiences, authors and editors. They have also published several topics related to the pandemic and its accompanying conditions.

Worldwide benefits from the innovations made to combat the COVID-19 crisis for Medical Physicists is discussed in Chapter 15. Being a part of the larger global community, through webinars and online networking, Medical Physicists were able to share the particular experiences in their departments with each other. The role of computers and relevant supporting technologies and software should be considered as a major advantage, through more discussion and learning from others' experiences. Changing of the MPs workload, regrouping, re-allocation of clinical Medical Physicists and future directions of the tasks have been discussed comprehensively during webinars.

Chapter 16 deals with early career Medical Physics experiences during the pandemic. The Medical Physics: Leadership and Mentoring Program has provided a dedicated webpage for early career Medical Physics mentors. In addition, a video is also provided by the team to be reviewed by Medical Physicists who are faced with challenging issues during the pandemic, with the chapter covering several experiences stated by users of the website about their professional experiences.

Chapter 17 eventually deals with leadership related issues during hardships and challenging situations. The issue is discussed in different dimensions such as international, national and local scales and comments are provided to deliver comprehensive leadership during challenging times. Communication strategies for optimal leadership are consequently described.

Although the book is concentrated on the COVID-19 pandemic related issues, it provides a bigger picture for the Medical Physics community to figure out, such as how certain challenges and critical situations can be managed and how the leadership system should provide appropriate plans before the occurrence of any critical points. The study of the book is highly recommended for Medical Physicists especially for those who are involved with administrative issues.

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