

Overcoming Physical Medicine and Rehabilitation Challenges in the Future

Tirza Z. Tamin

*Department of Physical Medicine and Rehabilitation, Dr. Cipto Mangunkusumo General Hospital,
Faculty of Medicine, University of Indonesia, Jakarta, Indonesia*

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Abstract: Medical sciences development was growing continually and fast, including in Physical Medicine and Rehabilitation (PM&R). Besides the development in medical science, the health care system also faces changes in conceptual and administration models which rise challenges to PM&R better services in the future. several indicators can be used to assessed PM&R service improvement, these indicators include ease of access for PM&R care, the ratio between population and PM&R specialist, also the availability of PM&R facilities following hospital standardization. Proper strategies and steps of anticipation must be prepared to tackle this rising challenge.

Medical sciences development was growing continually and fast, including in Physical Medicine and Rehabilitation (PM&R). Currently, and also in the future, findings in biomedicine and technology of assistive devices for disabled people are one of the best inventions in PM&R. this advancement results in the improvement of care and the disabled's quality of life, however, it can also raise challenges for a physiatrist to develop their skills and explore the latest science following the advancement of science and technology to provide the best care for patients.

In general, several indicators can be used to assessed PM&R service improvement, these indicators include ease of access for PM&R care, the ratio between population and PM&R specialist, also the availability of PM&R facilities following hospital standardization. Proper strategies and steps of anticipation must be prepared to tackle this rising challenge

Currently, the health care system faces challenges that require conceptual changes and organization administration model to ease access to health care service, maintain a high quality of care, and maintain financial viability simultaneously. As a part of the health care system, PM&R service faces equivocal challenges so improvements are required to provide better service in the future.

Demographic change in society was one of the changes occur in our health care system. Increased in the geriatric population were seen in many developing countries. This results in two consequences: (1) high prevalence of functional impairment caused by a normal degenerative process which results in health deterioration, and (2) pressure in society and health care system to provide care for this age group. The direction of organizational development and medical rehabilitation service will be affected by these consequences.

Currently, a shift in disease patterns was occurring. An acute disease which previously common was now predominated by chronic disease. Many hospitals cares still set their focus on acute disease therapy, while the majority of the case is shifting towards the need for long term care. This discrepancy between patients' needs and the care given by health care providers will rises challenges for both sides (Faria, 2010).

The social model of functional impairment, as a new rehabilitation paradigm, stresses the awareness that environmental barriers on participation are the main cause of disability and dependency. This contrasts with the old paradigm, in which the functional problem was seen as a consequence of disability. The resolve for this issue requires, not only disabled people and their families, but also an

intervention involving the whole society, which is created from clinical, social, and economic interaction.

A higher functional impairment rate will result in an increased dependency on daily activities. This situation gives rise to the need for trained nurses and a financial burden to pay for the provided care. Otherwise, the family becomes the primary caregiver in rehabilitation. Not uncommon, families experience burnout in taking care of disabled patients, thus requiring adaptation regarding attitude, behavior, or even family roles modification. Besides the social challenges, economic challenges also rise and manifested as the need for financial aids as a result of the disabled's loss job. Regarding these problems, chances of exhaustion within the family must be realized by the PM&R care team, thus the team must be equipped with skills and ability to educate matters related to disabled care to the families. The primary purpose of this is to discuss the solutions to their difficulties together, whilst preparing independence in disabled patients or those at risk of disability (European Journal of Physical and Rehabilitation Medicine, 2018).

Ethical and necessity challenges rise for PM&R physicians as patients currently have the right to choose their preferred care service. This perspective holds responsibility for PM&R physician to give relevant information to help the disabled patients make proper decisions regarding their rehabilitation service according to their respective condition (Gans, 2010).

The need for rehabilitation intervention had also been affected by advances in the medical and biotechnological industry. An example, the development of new minimally invasive surgery technique will result in faster recovery and minimize the need for additional rehabilitation during in-hospital stay, whilst the application of telemedicine, robotic stereotactic navigation, and fluorescent techniques in brain tumor surgery while increasing life expectancy, also comes with increased long term and intensive rehabilitation intervention needs. Neuroplasticity based rehabilitation management was one of the world-level advancements in PM&R science, however, the implementation of this advancement in Indonesia still faces difficulties as long term stay in the hospital was not allowed by the current administration. Nevertheless, these approaches are expected to be developed consistently and gain more attention as there was a high prevalence of central nervous system injury and the advancement of medical technology in Indonesia.

These challenges presented above requires that in the future, rehabilitation program must be oriented towards new priorities and therefore, a shift in organization administration is needed. Clinical experience from the last decade has confirmed that, as the number of neurologic patients was arising, neurorehabilitation-based science involving high-level technological devices such as rehabilitation robots, virtual reality rehabilitation, and telerehabilitation will progress rapidly in the future (Kwakkel et al, 2008). Rehabilitation clinics will then become modern technological institutions and subspecialized experts from rehabilitation disciplines can deliver intensive, comprehensive, and appropriate rehabilitation programs for each individual.

The cost of health care becomes another challenge. The meeting point of economical and humanistic perspective thus becomes an important matter to be carefully considered. The pressure was held on PM&R physicians to fulfill their roles, and on the other hand, face the conflict between patients and administration.

As a consequence of these changes and challenges, PM&R teams will need certain modifications to be able to provide the health care service in demand. Medical rehabilitation teams should be exposed to technological advancement and opened to contributions from other professions, including informatics and engineering fields, to help them adapt to the changes. Other professionals may become new members of the medical rehabilitation team, and not only limited to those currently known as parts of the PM&R team, as PM&R science advances. PM&R team must also increase the awareness of financing effectivity by hospital administration and management division. Thus, researches measuring outputs showing the values and benefits of rehabilitation programs are needed. Evidence-Based Medicine (EBM) has its importance in the development of PM&R. Experiments of high quality, such as Randomized Controlled Trial (RCT) were rarely done in the past, trials on high-level science, especially in PM&R faced many challenges and controversies which resulted in execution difficulties and gave rise to large obstacles. Issues related to ethics, technology, economy, and public health becomes a future challenge on PM&R research as it is affecting research and health care fees.

The lack of recognition towards PM&R specialists has been a worldwide issue (Chin et al, 2006). Researches and studies have been conducted and unfortunately show that this issue also exists in

Indonesia. This emphasizes the need to take this aspect into further consideration. Other challenges for PM&R specialist in Indonesia is the unequal distribution of PM&R care and specialist across the country. This condition was also experienced by the American PM&R physician. The number of PM&R specialist was still lacking to reach out to the whole of Indonesia's population and some provinces do not even have any PM&R specialists yet. Across 13 branches of PERDOSRI in Indonesia, the recorded number of PM&R specialists in Indonesia was 685 physicians, up to May 2018. Further PM&R organization development and better organizational administration with strong leadership are needed to tackle this challenge.

Some strategies must be prepared by PM&R in Indonesia to overcome these future challenges, these include:

1. Improving PM&R human resources quality.
This can be achieved by:
 - Establishing more PM&R specialist (Sp-1) academic institutions.
 - Establishing subspecialist (Sp-2) education for PM&R
 - Distributing equal PM&R service across Indonesia
 - Establishing the competence of general practitioners to provide PM&R care in primary care facilities
 - Improving and developing education and/or training for non-PM&R physician workers such as nurses, physical therapists, speech therapists, orthotic-prosthetics, and medical technicians.
 - Creating special education module for rehabilitation nurses
 - Educating and conducting training to increase the community's participation in Community Resourced Rehabilitation activity.
2. Collaborate with academic institutions and medical rehabilitation centers to provide education and service of better quality.
3. Building a stronger relationship and systematic hierarchy between PM&R physicians and colleagues from many different scientific disciplines
4. Develop networking between PM&R and community organization related to functional impairments (non-governmental organizations, or non-profit organizations in the fields of functional impairments, sports and art, post-disaster, matra health, research organizations, and so on)
5. Increasing PM&R relationship intensity with mass media.
6. Improving collaboration with policy-making organizations related to functional impairments (with ISRPM to WHO as an analogy)
7. Improving early rehabilitation service by developing PM&R in-patient care.
8. Increasing PM&R participation in making medical decisions on multidisciplinary cases since the beginning to attain the best optimal function
9. Enabling PM&R participation in analysis technology engineering and functional treatment (mechanomyography (MMG) and EMG), engineering (robotics), virtual technology, and diagnostic tool utilization related to function.
10. Enabling PM&R participation in the latest biotechnology advancement (such as stem cell therapy, rich plasma platelet injection, and so on)
11. Enabling PM&R participation in the making of medical rehabilitation policies of health care service system in the health care facility, service system, either domestically or overseas and also financing system in Indonesia
12. Developing a standardized system or medical rehabilitation specific accreditation both nationally and internationally
13. Developing disabled people registry in Indonesia
14. Developing electronic health record specific for medical rehabilitation teams
15. Increasing scientific publications in accredited journals with large impact factor.

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