

# INTRODUCTION OF KOREAN SOCIETY OF MEDICAL PHYSICS

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**Abstract—** The paper introduces the Korean society of medical Physics (KSMP) from the formation to the status. It has been formed in 1990 and currently 600+ members are participating. KSMP established its own journal, education/training guidelines and certification, and board certification as well. KSMP is actively participating international activities including IOMP, AFOMP.

**Keywords—** Medical Physics, Education and Training, Board Certification, Qualified Medical Physicist

## I. INTRODUCTION

Diagnostic X-ray machines has been introduced in Korea since 1913, just 18 years later after its discovery.

In 1960s, Radium therapy and orthovoltage radiotherapy was introduced in Korea. In 1965 Co-60 teletherapy was firstly introduced. Since then a few physicist in research institutes began to consult about radiation physics and dosimetry and the need to medical physicist was recognized. In 1970 Megavoltage linear accelerator was firstly introduced and the first medical physicist began to work for radiotherapy and medical physicist was recognized as a profession in healthcare.

Medical physicists work mainly in hospitals, but also in Universities, Research Institutions, Regulatory bodies, Industry, etc. Due to this reason it is not possible to establish the exact number of medical physicists in Korea. However, the data from various medical physics societies, collected by the Korean Society of Medical Physics (KSMP), presents a good estimate of this number. The KSMP archive data on Fig.1 shows the growth of the profession in the past 50+ years.

## II. ESTABLISHMENT PERIOD 1990-2000

KSMP has been formed On September 22, 1990 by 22 medical physicists, majority of them was working for radiation treatment in hospitals. On September 22, 1990. The first President of KSMP was Prof. Sung Sil Chu at Yonsei University and the first Secretary General of KSMP was Prof. Wee-Saing Kang at Seoul National University.

Around the time of KSMP formation there had been about 30 medical physicists in Korea. During the first decade of the Organization (1990-2000) the number of medical physicists in Korea increased to about 100.

As soon as the formation KSMP started the Korean

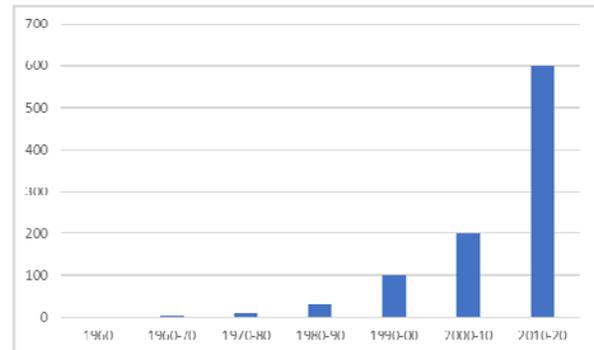


Fig.1 Growth of medical physicists of Korea in the period 1960-2020 – per decade (KSMP data)

Board of Medical Physics which is a certification for qualified medical physicist. It also began to publish the official journal of KSMP, the Korean Journal of Medical Physics. At the same time KSMP expanded international collaborations. KSMP joined the International Organization on Medical Physics in 1991 and the Asia-Oceania Federation of Organizations on Medical Physics (AFOMP) in 2000. In 1996 KSMP started a triannual joint meeting with Japan Society of Medical Physics (JSMP) to build human networks and share the knowledges. With the need to cultivate human resources the first postgraduate program focused on medical physics was established at Kyonggi University in 1996, and 50+ medical physicist graduated at this program. In 1997 Catholic University also established the MSc and PhD programs, and 100+ medical physicists graduated the program.

## III. EXPANSION PERIOD 2000-2010

In the next decade 2000-2010 the number of medical physicists in Korea increased to about 200. In this period KSMP strived for recognition and legalization of medical physicist as a health profession in Korea. For this purpose in 2005 KSMP established guidelines for clinical training program which meets International Standards and certified two institutes. In 2006 KSMP hosted World Congress on Medical Physics and Biomedical Engineering. In 2005 Korean Journal of Medical Physics was indexed in Korean Citation Index and further indexed in KoreaMed [1].

## IV. MATURITY PERIOD 2010-2020

In the period 2010-2020 the number of medical physicists in Korea reached about 600. This period also continued development of medical physics education and training. In 2013 KSMP established guidelines for postgraduate education program and certified 5 Universities for their MSc and PhD Medical Physics courses. In 2015 as an independent board certification organization Korean Medical Physics Certification Board (KMPCB) was established for efforts to acquire more objectiveness and transparency in board certification with the help of other organizations including Korean Society of Radiation Oncology and Korean Society of Nuclear Medicine. KMPCB acquired accreditation from International Medical Physics Certification Board (IMPCB) [2]. There are 22+ certified members and 80+ equivalent board members.

As an effort to transfer the official journal from domestic journal into international, Korean Journal of Medical Physics was renamed as Progress in Medical Physics in 2012 and actively working for PubMed Central indexing.[3]

## V. CURRENT STATUS

The population and GDP of Korea is currently about 52 million and 1.6 trillion dollars. There are 260+ radiotherapy machines, 90,000 X-ray imaging devices, 1,000 MRIs, 30,000+ Ultrasounds for diagnostic imaging, and 500+ SPECT, 300+ PET systems for nuclear medicine. Around 300+ medical physicists are working actively. Among them 80% works in radiotherapy, 10% works for diagnostic imaging, and 10% for nuclear medicine. 70% of them are men and the other 30% are women. Except RT most MPs in diagnostic imaging and nuclear medicine works in Universities and research institutes. Therefore, most of QA in diagnostic imaging and nuclear medicine is done by radiation technologies. Increasing MP workforce working in diagnostic imaging and nuclear medicine is needed in Korea.

At the same time, there are 260+ radiotherapy machines, but only ~200 medical physicists and ~100 qualified medical physicist are only available which is less than 50% of recommend workforce.

In 2013 postgraduate program, following IAEA TC56 [4] and CAMPEP program [5], has established to be certified by KSMP, and 5 Universities are certified. There are 3 Universities also certified from IOMP postgraduate program. Around 8-10 students are graduated from these courses each year.

In 2005 KSMP started the certification of clinical training program and certified 2 institutes. MP training is not mandatory but recommended for working as a clinical medical physicist.

KSMP is organizing two scientific meetings every year and continuing education courses for certified board members two times a year also.

There are several issues that KSMP must deal with. Firstly, legalization of medical physicist as a health profession is still long way to go. It needs more recognition of medical physicists from relevant societies including physicians, nurses, radiological technologists, and public as well. It must also overcome the opposition of radiation technologists who are thinking MP maybe limits their job opportunities. For this purpose, well-organized education/training program and board certification are also very critical. As for journal and research, the recognition and quality improvement of the official journal is also urgent issue. The huge challenge for KSMP, shown in the previous paragraph, will need special attention and actions necessary a lot of energy and endless concentrations.

## VI. CONCLUSION

Currently, the field of medical physics is undergoing a major turning point. Advances in computing technologies such as artificial intelligence is changing the landscape of global healthcare. It is also forcing the change of conventional role of medical physicist. However, there will be a chance to contribute more to the development of global healthcare as medical physicists.

At such a big turning point, medical physicists constantly learn emerging technologies and play the role of steppingstones for application in the clinical field.

In this purpose, global collaboration and harmonization is necessary and KSMP is willing to take a role in developing global healthcare.

## VII. REFERENCES

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