

## STATUS OF MEDICAL PHYSICS AND ACTIVITIES TO BOOST THE PROFESSIONAL DEVELOPMENT IN THE ALFIM REGION

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**Abstract** — The paper is part of the IOMP-IUPAP Workshop “MEDICAL PHYSICS PARTNERING WITH THE DEVELOPING WORLD” at the World Congress in Prague WC2018. The paper presents the status in the IOMP Regional Organization ALFIM (Latin American Medical Physics Association).

**Keywords**— Medical Physics Professional Development, Medical Physics Education and Training.

During the last decade, Latin America has witnessed an accelerate development in the available radiation medicine technologies, both for diagnosis and therapeutic purposes. In several countries of the region, governments have promoted investment in high-end technologies for increasing the coverage of Radiotherapy and Nuclear Medicine public services. So currently, although large inequities in distribution and accessibility still prevail, the access to advanced diagnosis and treatment radiation facilities is continuously growing. In parallel, the private health sector is also introducing very sophisticated radiation technologies, even in low-income countries. While in 1990 there were about 400 MV units (25% linacs, 75% Cobalt machines) and 260 medical physicists (MPs) in Latin America (0.65 MPs/MV machine), 25 years later the numbers grew to 1000 machines (75% linacs and 25% Cobalt) and 650 MPs. Therefore, although the proportion MPs/MV did not changed, the significant increase in complexity of technology and sophistication of procedures means that the gap in demand of MPs has broaden.

This boom has pushed forward the demand of highly qualified medical physicists in the region, stimulating universities to establish academic training programs; in 2017 there were 19 master programs in medical physics, and even 16 programs at bachelor level (which is not the approach supported by ALFIM). Most of the academic programs do not have enough hours of supervised clinical practice to be able to meet the minimum training requirements required for the clinically qualified MP. Recognition of the MP as a health professional is still an issue in most of the countries; this could be partly the cause of the shortage of residency type, clinical training programs. In general, clinical institutions, even university hospitals or national cancer institutes are not prone to hire medical physics residents. Consequently, there is not balance between the number of graduates from academic programs and the availability of positions for clinical training. Recently, some universities have started an intermediate solution, the so-called professional master, which combined

the academic and the clinical training in the same program. Regarding certification, in many countries this process has been fulfilled by the national nuclear regulatory bodies, which requires a minimum education and training for providing the corresponding license for working in radiation medicine practices. Recently, for the first time in the region, the International Medical Physics Certification Board (IMPCB) performed Part I and Part II examinations in Mexico City, where six medical physicists passed successfully both exams and are pending to perform Part III. Implementation of such examination board in the region should contribute to establishing a regional medical physics certification board.

The Latin American Association of Medical Physics (ALFIM) is working jointly with the Latin American Association of Therapeutic Radiation Oncology (ALATRO) and the Latin American Association of Societies of Biology and Nuclear Medicine (ALASBIMN), in order to gain support from our medical counterparts, for the recognition of the MP as a health professional, as well as understanding the role of MP resident in corresponding departments.

ALFIM is promoting a network of educational programs in medical physics in the region, using as starting point the existing Latin American Network for Education of Nuclear Technologies (LANENT) and the Latin American Network for Radiation Protection in Medicine (LAPRAM). ALFIM which to promote, in coordination with IOMP and the IMPCB, the accreditation of a regional certification body and its recognition by national regulatory and health authorities.

Finally, ALFIM is closely working with the IOMP and the Chilean Society of Medical Physics (SOFIMECH) in the organization of the 24th International Conference on Medical Physics (ICMP) shall be held in Santiago, Chile, 8-11 September 2019, which will take place in conjunction with the 8th Latin American Congress of Medical Physics and the 2nd Chilean Congress of Medical Physics.

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