

## MEDICAL PHYSICS ACTIVITY IN LAO PDR

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Lao People's Democratic Republic (Lao PDR) is a member of South East Asian Federation of Organizations for Medical Physics (SEAFOMP) in 2018. Lao PDR is located in Southeast Asian Region sharing borders with Cambodia (541 km to the south), People's Republic of China (423 km to the northwest), Myanmar (235 km), Thailand (1,754 km to the west) and Viet Nam (2,130 km to the east). Its total area is 236,800 km<sup>2</sup> (land: 230,800 km<sup>2</sup> and water: 6,000 km<sup>2</sup>). The current population of the Lao PDR is about 7 million and majority is young, with 50% of the total population under the age of 20. Lao PDR is one of Least Developed Country (LDC) and aim to be graduate from LDC status by 2025. At present, National Law on Radiation and Nuclear was drafted and submitted recently to the National Assembly of the Lao PDR for consideration and approval. The Infrastructure in Lao PDR, in Diagnostic Radiology number of X-ray machine, Fluoroscopy, CT scanner, Mammography are 78, 3, 10, 2 systems respectively. Radiation Oncology was established in 2016 which Linear Accelerator and CT simulator were installed and operated at Radiotherapy Center, Mittaphab Hospital. For Human Resource, there were only 2 medical physicists who graduated Master of Science in Medical Physics/Medical imaging at Chulalongkorn University under IAEA fellowship (2015-2017). One medical physicist is attending a clinical training in radiation oncology medical physics (ROMP) for 2 years (2018-2020), IAEA curriculum (AMPLE) supported by VAMED Company. She obtained a remote clinical supervisor from King Chulalongkorn Memorial Hospital in Bangkok, Thailand.

radiologist, student and resident of radiology. They are facing many obstacles due to the lack of medical physicist in the country such as workload, opportunities, lack of experience in clinical practice and limitation of QA/QC equipment. The most difficult parts of medical physicist is working without clinical supervision.

We received the supports from regional and international organizations such as Thailand, Vietnam, IAEA, PMSF, SEACOMP, AFOMP, and ACPSEM. Hopefully, Lao PDR could obtain enough the education and clinical training so that the number of medical physicists would be increasing to meet the standards in radiology and radiation oncology in Lao PDR in the near future.

Medical physicist responsibilities in radiation oncology are to perform Quality Assurance both in mechanical and dosimetry including daily, weekly, monthly and annually. For 3D TPS, they are performing treatment planning of patient, export, calendar, patient QA before deliver radiation dose to patients and also take role as Administrator in Radiotherapy Center. In Diagnostic Radiology, they are performing Quality Control of X-rays DR/CR systems, image quality of CT scanner, Mammography, Ultrasound, Optimization and Control of Radiation Dose of Patients in CT. For Radiation Protection and Safety in hospital, they are evaluating personal dosimeter, report occupational dose for staff, share knowledges to their college and other hospitals and survey radiation dose in radiology. Aside of working as medical physics, they are cooperate with regional and international organizations, give lectures on Radiation Physics including fundamentals of ionizing radiation, radiation interaction with matter, application of ionizing radiation in medical field, dosimetry principle, quantities and units used in radiation dosimetry, radiation protection against external exposure, biological effect of ionized radiation, principle of QA/QC and practice QC and image quality of X-ray machine, CT scanner and Ultrasound to radiographer,