

A southeast Asia perspective on medical imaging and nuclear medicine



The best treatment outcomes can be achieved for patients with cancer when they have access to medical imaging and nuclear medicine. In the *Lancet Oncology* Commission on this topic, Hedvig Hricak and colleagues used a microsimulation model to do a global assessment of medical imaging and nuclear medicine resources.¹ Their analysis provides evidence that the scale-up of imaging with or without improvements in treatment and quality of care would not only avert many millions of deaths globally from cancer between 2020 and 2030 but would also lead to many years of life gained and to improved economic outcomes, especially in low-income and middle-income countries.

Countries in southeast Asia, with the exception of Singapore, are regarded as being low or middle income, with wide income ranges and variations in health-care resources and provision. For example, Cambodia and Laos do not have any hospitals with nuclear medicine facilities. Hricak and colleagues' microsimulation model showed that most of the deaths averted under a comprehensive scale-up scenario—ie, a scale-up of imaging and treatment modalities and quality of care—would be in Asia (5.28 million), which would account for 11.9% of the projected cancer deaths in Asia between 2020 and 2030 and 133.99 million life-years saved. Even the scale-up of imaging alone would avert 1.42 million deaths, which would account for 3.2% of the projected cancer deaths in Asia, and would result in 33.47 million life-years saved.

The efforts needed to achieve the optimal outcome for cancer diagnosis and treatment will vary according to a country's specific needs or the priorities for its population, including nutrition, housing, sanitation, education, and health care. Lack of awareness and misconceptions about medical imaging and nuclear medicine could delay cancer treatment even if medical resources are available.² National cancer control programmes based on data collected by cancer registries are needed in the low-income and middle-income countries in southeast Asia to raise awareness of the benefits of imaging. The accurate data collected by registries could be used to help inform national policies.³ High-quality health care and sophisticated imaging

methods—eg, MRI, PET, or CT—might be available in regional hospitals, with easy access by public transport and availability of temporary accommodation for the patient, but not in provincial hospitals. The availability of new or existing radiopharmaceuticals is low due to the high costs, transportation difficulties, and health-care personnel shortages. Furthermore, cancer diagnosis, imaging, and treatment services should be provided at the same hospital.

In 2016, a university-based hospital in Thailand began home-based chemotherapy with portable intravenous pumps for patients with stage III colon cancer, and was found to be safe and cost-saving compared with standard inpatient treatment.⁴ Subsequently, home-based chemotherapy has been covered by all three public health insurance schemes in Thailand in 2020.⁵ Currently, only the Thai Civil Servant Medical Benefit scheme reimburses for ¹⁸F-fluorodeoxyglucose (FDG) PET with specific criteria—eg, for potentially curable non-small-cell lung cancer, CT and bone scan should be done to rule out stage 3b or 4 before ¹⁸F-FDG PET. In early 2019, the Comptroller General's Department (part of the Ministry of Finance) held meetings with a multidisciplinary team on the possible reimbursement or coverage of all available nuclear medicine procedures in Thailand. The agreed reimbursement or coverage, including ¹⁸F-FDG PET in six cancers, has been in effect since October, 2019.^{6,7} The original criteria as of 2010 covered only two cancers (lung and colon), and as of 2019 cover six main types of cancer—lung, colorectal, cervical, oesophageal, lymphoma, and differentiated thyroid carcinoma. Nuclear medicine procedures should be fully covered in both public health insurance and private health insurance schemes in the future.

Guidelines for the use of medical imaging and nuclear medicine require input from a multidisciplinary and multinational team, need to be relevant to the national or regional context, and factor in the availabilities or limitations of the resources, equipment, and health-care personnel in a country.

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