



Original Research

Policy and priorities for national cancer control planning in low- and middle-income countries: Lessons from the Association of Southeast Asian Nations (ASEAN) Costs in Oncology prospective cohort study



The ACTION Study Group¹, Nirmala Bhoo-Pathy^{a,b,*}, Cheng-Har Yip^c,
Sanne A.E. Peters^{d,e}, Merel Kimman^{d,f}, Richard Sullivan^g, Stephen Jan^d,
Mark Woodward^{d,e}, Chiu-Wan Ng^a

^a Julius Centre University of Malaya, Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia

^b National Clinical Research Centre, Level 3, Dermatology Block, Kuala Lumpur Hospital, Jalan Pahang, 50586 Kuala Lumpur, Malaysia

^c Department of Surgery, Subang Jaya Medical Centre, 47500 Selangor, Malaysia

^d The George Institute for Global Health, University of Sydney, Camperdown, NSW 2050, Australia

^e The George Institute for Global Health, University of Oxford, Oxford OX1 3BD, United Kingdom

^f Department of Clinical Epidemiology and Medical Technology Assessment, Maastricht University Medical Centre, 6202 AZ Maastricht, The Netherlands

^g Institute of Cancer Policy, King's Health Partners Guy's Hospital Campus, Section of Research Oncology, 3rd Floor Bermondsey Wing, London SE1 9RT, United Kingdom

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Economic hardship;
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Abstract Background: Evidence to guide policymakers in developing affordable and equitable cancer control plans are scarce in low- and middle-income countries (LMIC).

Methods: The 2012–2014 ASEAN Costs in Oncology Study prospectively followed-up 9513 newly diagnosed cancer patients from eight LMIC in Southeast Asia for 12 months. Overall and country-specific incidence of financial catastrophe (out-of-pocket health costs \geq 30% of annual household income), economic hardship (inability to make necessary household payments), poverty (living below national poverty line), and all-cause mortality were determined. Stepwise multinomial regression was used to estimate the extent to which health insurance, cancer stage and treatment explained these outcomes.

* Corresponding author: Julius Centre University of Malaya, Department of Social and Preventive Medicine, Faculty of Medicine, University of Malaya, 50603 Lembah Pantai, Kuala Lumpur, Malaysia. Fax: +60 3 7967 4975.

E-mail addresses: ovenjjay@gmail.com, nirmala.bhoopathy@ummc.edu.my (N. Bhoo-Pathy).

¹ Refer to contributors section.

Results: The one-year incidence of mortality (12% in Malaysia to 45% in Myanmar) and financial catastrophe (24% in Thailand to 68% in Vietnam) were high. Economic hardship was reported by a third of families, including inability to pay for medicines (45%), mortgages (18%) and utilities (12%), with 28% taking personal loans, and 20% selling assets (not mutually exclusive). Out of households that initially reported incomes above the national poverty levels, 4.9% were pushed into poverty at one year. The adverse economic outcomes in this study were mainly attributed to medical costs for inpatient/outpatient care, and purchase of drugs and medical supplies. In all the countries, cancer stage largely explained the risk of adverse outcomes. Stage-stratified analysis however showed that low-income patients remained vulnerable to adverse outcomes even when diagnosed with earlier cancer stages.

Conclusion: The LMIC need to realign their focus on early detection of cancer and provision of affordable cancer care, while ensuring adequate financial risk protection, particularly for the poor.

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1. Introduction

Cancer is set to become a major cause of morbidity and mortality in all countries around the world [1]. The economic impact of cancer is substantial whether due to direct medical or non-medical costs, or lost productivity due to illness, disability and premature mortality. However, most economic studies on cancer have focused on high-income Western settings [2,3] or have modelled global data [4–7]. Macroeconomic and microeconomic evidence to guide policymakers in developing affordable and equitable cancer control plans, as part of their commitments to achieve progressive universalism (universal health coverage) [8] and the Sustainable Development Goals [9], remain scarce in low- and middle-income countries (LMIC) [10,11].

The Association of Southeast Asian Nations (ASEAN), which comprises high- (Singapore, Brunei), middle- (Malaysia, Thailand, Indonesia, Philippines, Vietnam, Lao PDR) and low- (Cambodia, Myanmar) income economies, was established in 1967 to promote socio-economic growth of its member nations. Through the ASEAN Costs in Oncology (ACTION) study [12], we recently showed that a cancer diagnosis in the LMIC in ASEAN region is potentially disastrous, with over 75% of patients experiencing death or catastrophic health expenditures within one year [13]. In the present study, we determined the overall and country-specific incidence of financial catastrophe, economic hardship, poverty and death within the ACTION cohort. We also evaluated the respective contribution of health insurance, cancer stage and treatment in explaining the risk of these adverse outcomes in participating countries. Such analyses provide the essential intelligence for national policy-makers and official development assistance donors to construct economically sound national cancer control plans and strengthen the level of financial protection for cancer patients and their families. Notably, our findings may enable valid inferences to be made for other LMIC outside the region.

2. Methodology

2.1. Study design and study population

The ACTION study is a prospective longitudinal study of 9513 newly-diagnosed adult cancer patients, recruited from 47 public and private hospitals in Cambodia ($n = 206$), Indonesia ($n = 2335$), Lao PDR ($n = 101$), Malaysia ($n = 1662$), Myanmar ($n = 1178$), the Philippines ($n = 909$), Thailand ($n = 1206$) and Vietnam ($n = 1916$), between March 2012 and September 2013. Further details of the study have been described previously [12,13].

The cohort comprised patients with breast cancer ($n = 2445$), gastrointestinal cancers ($n = 1511$), female reproductive cancers ($n = 1424$), mouth and oropharyngeal cancers ($n = 1063$), haematological cancers ($n = 825$), respiratory cancers ($n = 623$) and other malignancies [13].

The study received ethical approval from the relevant institutional review boards [13]. All participants provided written informed consent.

2.2. Data collection and follow-up

All questionnaires were translated into local languages [12]. At baseline, face-to-face interviews were conducted to collect data on age, sex, marital status, country of residence, highest attained education, employment status, annual household income, health insurance status and experience of economic hardship during the preceding year. Data on cancer site, T/N/M stage and treatment (surgery, chemotherapy, radiotherapy, hormone therapy), were obtained from medical records at the 3rd and 12th month. As staging investigations such as computed tomography scan and bone scan are expensive and were not routinely conducted in many settings, information from clinical staging \pm chest X-ray \pm liver ultrasound were used whenever possible.

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