Direct medical costs of nasopharyngeal carcinoma in Indonesia: a healthcare payer perspective

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ABSTRACT

Objectives: Nasopharyngeal carcinoma (NPC) is a common and deadly cancer in Indonesia. This study estimates the direct medical hospital costs of NPC using the national health insurance (NHI) database in Indonesia.

Methods: Annual costs were estimated using Indonesia's NHI claims database to identify adult patients with NPC aged ≥18 years. Newly diagnosed patients, with at least two NPC-related visits and no prior cancer diagnosis in the previous year, were included. Annual costs were calculated over 365 day from the first NPC-related visit. Costs included case-based groups (CBGs) for hospitalization and specialist outpatient visits, and non-CBGs for chemotherapy, radiotherapy, diagnostic procedures, and other costs such as protheses. Results were summarized using descriptive statistics. Costs in Indonesian Rupiah (IDR) were inflated using the Consumer Price Index in 2024 and converted to United States dollars ($) (USD 1 = IDR 15,881).

Results: Among 267 million NHI members, 23,072 NPC patients were identified from 2019 to 2022. The majority (69%) were male, mean age was 50.4 years (standard deviation [SD] = 12.86). Most resided in Java (62%), received care in public hospitals (68%), and 42% had at least one comorbidity. Only 59% received treatment. Among treated patients (n = 13,696), average annual cost was $3,227 (SD = $2,597), comprising $1,194 for CBG inpatient care, $577 for CBG outpatient care, $1,189 for radiotherapy, $245 for chemotherapy, and $23 for non-cancer drugs, diagnostics and procedures. Average annual direct medical costs were: $1,834 (SD = 1,635) for chemotherapy only, $2,002 (SD = 1,873) for radiotherapy only, and $4,933 (SD = 2,528) for chemo-radiation.

Conclusions: Many patients remained untreated, and NPC poses a heavy economic burden on Indonesia's health system. Strengthening prevention, early diagnosis, and efficient resource allocation is essential. These findings can inform policies to optimize resources, expand treatment coverage, and improve cancer care under the NHI scheme.