RWD91

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

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Background

- **Context:** Nasopharyngeal carcinoma (NPC) represents a significant public health and economic burden, characterized by high mortality in Indonesia. A study conducted in Yogyakarta, Indonesia, reported a 35% overall survival rate at five years.[1] However, the specific costs it imposes on the healthcare system remain unclear.
- **Study objective:** To estimate the direct medical costs of NPC from a public payer's perspective in Indonesia, using the national health insurance (JKN) database

Methods

- **Study design:** Retrospective database study using information from the JKN database between January 1, 2018 and December 31, 2023
- **About the database**: It covers 267 million Indonesians (~96% of the population) in 2023. It contains longitudinal data for demographics, diagnoses, treatment, healthcare resource utilization and costs. Disease diagnoses (primary and secondary diagnoses) are coded using the ICD-10, while treatment procedures are coded using the ICD-9-CM.
- **About the healthcare payment mechanism:** This study captured two forms of hospital healthcare payment mechanisms, known as INA-CBGs (case-based groups; similar to diagnosis-related groups) and unbundling costs known as Non-CBGs tariffs.

Bundling costs (CBGs)
- Inpatient
- Outpatient specialist

These may include procedures, 7-day chemotherapy and non-cancer drugs, radiotherapy and surgery.

Unbundling costs (non-CBGs)
- Chemotherapy drugs beyond 7-days prescription
- Diagnostic and procedure
- Non-cancer drug
- Radiotherapy costs with special procedure

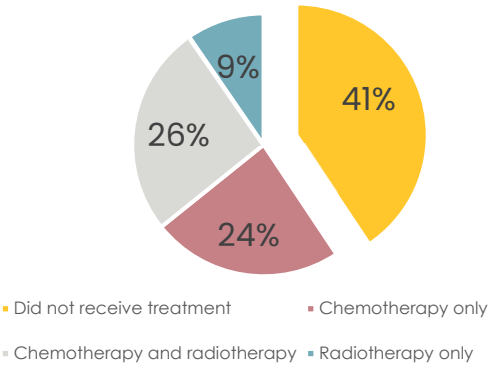
	Hospital-based	Primary Care
Bundling costs (CBGs)	Based on diagnosis group (CBGs)	Capitation based on catchment populations
Unbundling costs (non-CBGs)	Unbundling drugs and treatment/procedure (Non-CBGs)	Non-Capitation (fee-for-service)

CBGs, Case based groups

- **Cohort:** NPC adult patients aged ≥18 years old with at least 2 medical visits related to NPC were identified from the JKN database between 2019 and 2022
  - Index date was defined as the first visit associated with NPC, as coded by ICD-10 'C11'
  - Baseline characteristics were assessed over a 12-month period before the index date
  - Patients were classified as treated for NPC if they received chemotherapy, radiotherapy, or surgery
- **Analysis:** Results were summarized using descriptive statistics. Total costs represent sum of INA-CBGs and non-CBGs within 365 days after the index date. Costs in Indonesian Rupiah (IDR) were inflated using the Consumer Price Index in 2024 and converted to US dollars (US$) (US$ 1=IDR 15,881)

Results - Identified study population

- **Incidence:** Among the 267 million patients with records in JKN, 23,072 patients were newly diagnosed with NPC between 2019 and 2022.
- **Patients who received NPC-related treatment within 1 year after diagnosis:** 13,696 (59%)



Results

- **Demographic characteristics**

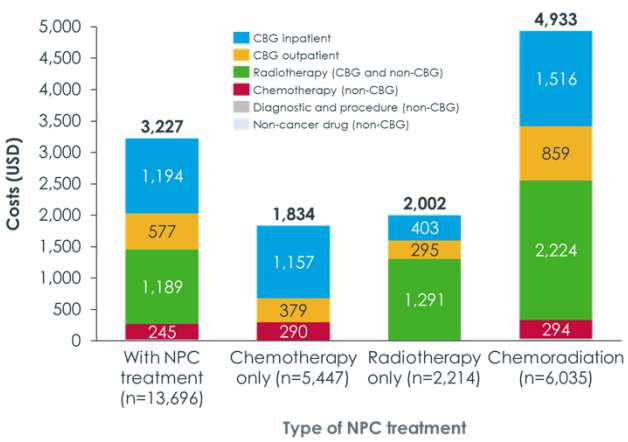
Characteristic	Received NPC-related treatment (n=13,696)	Did not receive NPC-related treatment (n=9,376)	Total (N=23,072)
Male, n(%)	9,515 (69)	6,123 (65)	15,638 (68)
Age, mean (SD)	49.8 (12.2)	51.5 (13.7)	50.5 (12.9)
Residing in Java, n(%)	8,092 (59)	6,192 (66)	14,284 (62)
CCI*≥5, n(%)	2,695 (20)	1,013 (11)	3,708 (16)
Subsidized, n(%)	4,987 (36)	4,048 (43)	9,035 (39)

*Charlson Comorbidity Index

- **Direct medical cost (in USD) for the cohort**

Direct medical cost	Received NPC-related treatment (n=13,696)	Did not receive NPC-related treatment (n=9,376)	Total (N=23,072)
Mean (SD)	3,227 (2,597)	499 (910)	2,118 (2,477)
Median (IQR)	2,874 (3,308)	230 (482)	1,107 (3,198)

- **Direct medical cost (in USD) by treatment modality**



Conclusion

- This is the **first nationwide study** to estimate the direct medical cost of NPC based upon the public payer to help inform decision-makers
- The total cost in 2022 was estimated at US$ 14.8 million, or **5% of the JKN cancer expenditure**
- Despite the significant spending on managing this disease, mortality rates remain high, highlighting a **critical gap in the effectiveness of current treatment options**. In particular, radiotherapy utilization rate was low suggesting late diagnosis and poor access to curative treatment

Reference

1. Hutajulu SH et al. PLoS One. 2021;16(2):e0246638
2. BPJS Kesehatan, Program Management Report & Financial Report 2022

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