

A Comparison between the Indonesian Case Base Groups (INA-CBGs) Tariffs and The Actual Cost of Breast Cancer Radiotherapy in Indonesia: A Hospital-based Retrospective Study

EE365

Fithria Dyah Ayu Suryanegara^{1,2}, Deni Iskandar^{1,3}, Ericko Ekaputra^{4,5}, Eko Kuntjoro⁶, Didik Setiawan⁷, Maarten Jacobus Postma^{1,8,9,10}, Lisa Aniek de Jong¹

¹Department of Health Sciences, University of Groningen, University Medical Center Groningen, Groningen, The Netherlands, ²Department of Pharmacy, Universitas Islam Indonesia, Yogyakarta, Indonesia, ³Faculty of Pharmacy, Bhakti Kencana University, Bandung, Indonesia, ⁴Department of Radiology, Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada, Yogyakarta, Indonesia, ⁵Sardjito Hospital, Yogyakarta, Indonesia, ⁶Ken Saras Hospital, Semarang, Indonesia, ⁷Faculty of Pharmacy, Universitas Muhammadiyah Purwokerto, Purwokerto, Indonesia, ⁸Centre of Excellence in Higher Education for Pharmaceutical Care Innovation, Universitas Padjadjaran, Bandung, Indonesia, ⁹Department of Economics, Econometrics & Finance, University of Groningen, Groningen, The Netherlands, ¹⁰Department of Pharmacology and Therapy, Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia

Background

- Radiotherapy is an essential pillar in multimodal treatment for breast cancer, however, its budget is still limited from the total healthcare budget¹.
- In Indonesia, radiotherapy procedures are paid for by prospective reimbursement per patient visit by BPJS Kesehatan².
- The Indonesian Case-Based Groups (INA-CBGs) reimbursement tariffs for radiotherapy in breast cancer patients have not changed since 2016^{3,4}.

Objective

- This study aimed to compare the INA-CBGs tariffs with the actual costs of radiotherapy in outpatient.

Methods

Study design

- We conducted a retrospective cohort study in a national referral hospital and a private hospital.

Database

- We collected breast cancer outpatient data claims who underwent at least one course of radiotherapy during 2017-2022 from Public Hospital BPJS Kesehatan insurance unit and the Department of Finance of Private Hospital with INA-CBGs code C-3-10-0.

Inclusion criteria

- Member of BPJS Kesehatan with primary or secondary diagnoses of breast cancer (C50.9; malignant neoplasm of breast unspecified) or radiotherapy (Z51.0; radiotherapy sessions).
- Linked with INA-CBGs C-3-10-0 (outpatient radiotherapy procedures).

Measures

- We estimated the total actual cost and actual cost per patient and per visit.
- All of the costs were expressed in 2022 US\$ to later compare with the INA-CBGs tariffs, which for consistency was also expressed in 2022 US\$.

Statistical analysis

- Differences between the actual cost and INA-CBGs tariffs were analyzed using an independent t-test.

Results

Patient Characteristics

- A total of 3,890 breast cancer patients were included in the study, of which 74.4% were from Public Hospital.
- Most of the patients had health insurance covered by the third insurance class of BPJS Kesehatan (93.70%), and the median age was 51.90 years (SD 10.15).

Correspondence author: f.d.a.suryanegara@rug.nl
Acknowledgements: This work was presented at the International Society for Pharmacoeconomics and Outcomes Research's Europe 2023 conference.



Results

Cost Discrepancy

- The total actual cost for radiotherapy in breast cancer outpatients was US\$6,490,920, with a cost per patient of US\$1,950±939 in Public Hospital.
- Meanwhile, in Private Hospital, the total cost was US\$1,787,200, with a cost per patient of US\$1,670±1,280.
- The cost discrepancy value of US\$ (853,339) for Public Hospital in the review period 2017-2022 and US\$ (727,370) for Private Hospital in the review period 2019-2022 (p<0.05).
- In both hospitals, the actual cost was significantly higher than the INA-CBGs tariffs (p<0.05), covering only about 80% of the total actual cost in both hospitals

Table 1. Comparison of average actual cost versus the INA-CBGs tariffs per visit and per patient for Public Hospital and Private Hospital from 2017-2022 (between brackets indicates higher costs than tariffs)

	Public Hospital		Private Hospital		p-value	Overall	
	per visit	per patient	per visit	per patient		per visit	per patient
	(N = 69,774)	(N = 3,330)	(N = 19,670)	(N = 1,073)		(N = 89,444)	(N = 4,403)
INA-CBGs tariffs (GDP adjusted, US\$)							
Mean±SD	80.80±2.58	1,690±796	53.88±1.62	988±753	<.05*	74.88±11.41	1,520±842
Total actual costs (GDP adjusted, US\$)							
Mean±SD	93.03±33.83	1,950±939	90.86±23.70	1,670±1,280	<.05*	92.55±31.89	1,880±1,040
Costs difference (GDP adjusted, US\$)							
Mean±SD	(12.23) ±33.75	(260) ± 285	(36.98) ± 24.38	(682) ±584	<.05*	(17.67) ± 33.53	(360) ±421
Cost-tariffs ratio (GDP adjusted, US\$)							
Mean±SD	0.90±0.42	0.88±0.16	0.63±0.22	0.61±0.13	<.05*	0.84±0.40	0.82±0.19

Cost Components

- The majority of total actual costs in the two hospitals was for radiotherapy itself (92.1-100%).
- Total spending for radiotherapy procedure only was US\$ 5,994,510 (92.1-93.7%) in Public Hospital and US\$ 1,744,048 (98.0-100%) in Private Hospital from 2017-2022.
- The second rank of expenditure was for medical consumable (2.2%) in Public Hospital and laboratory costs (0.5%) in Private Hospital.

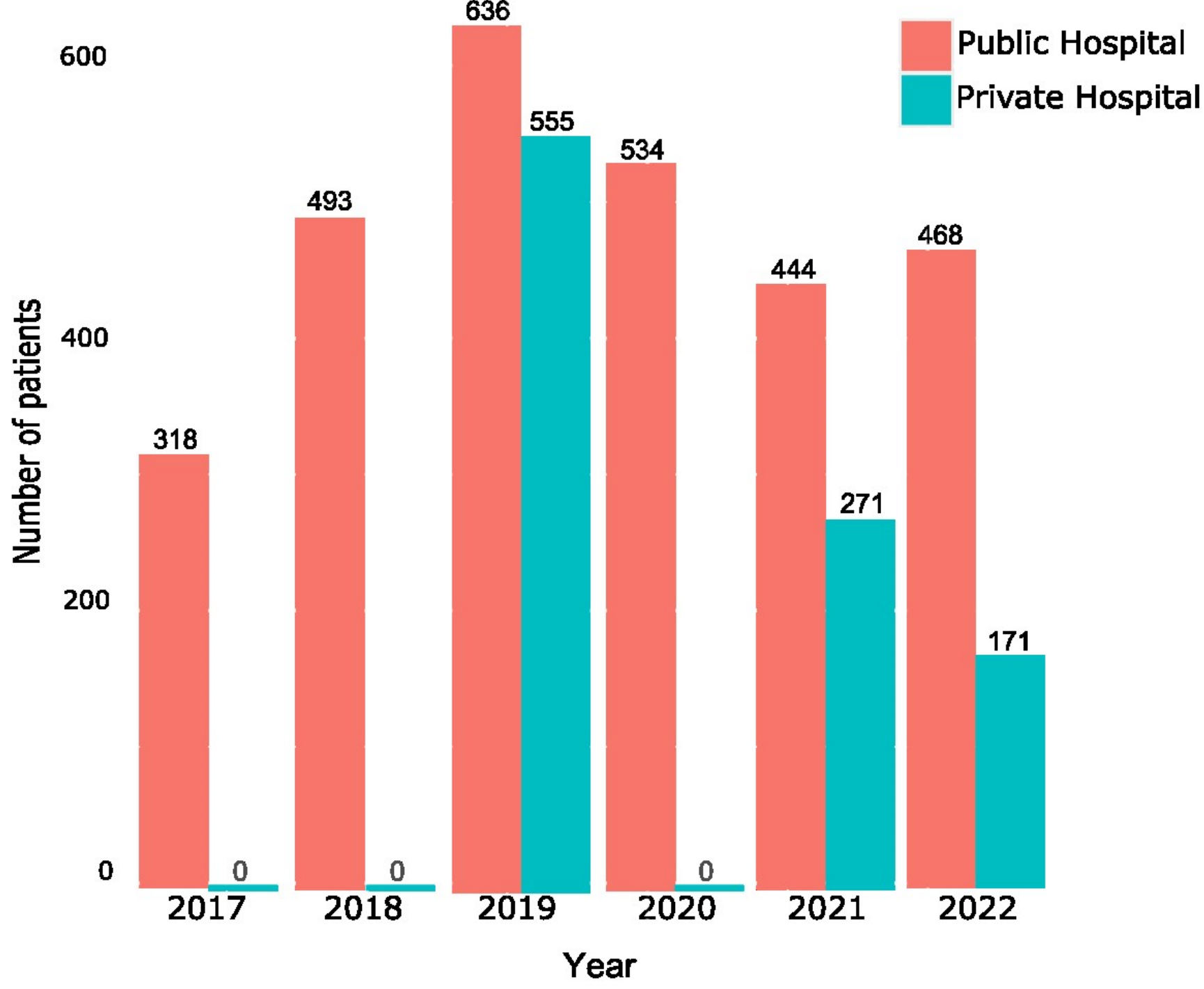


Figure 1. The number of samples who visited the radiotherapy department at Public Hospital and Private Hospital in the period 2017-2022.

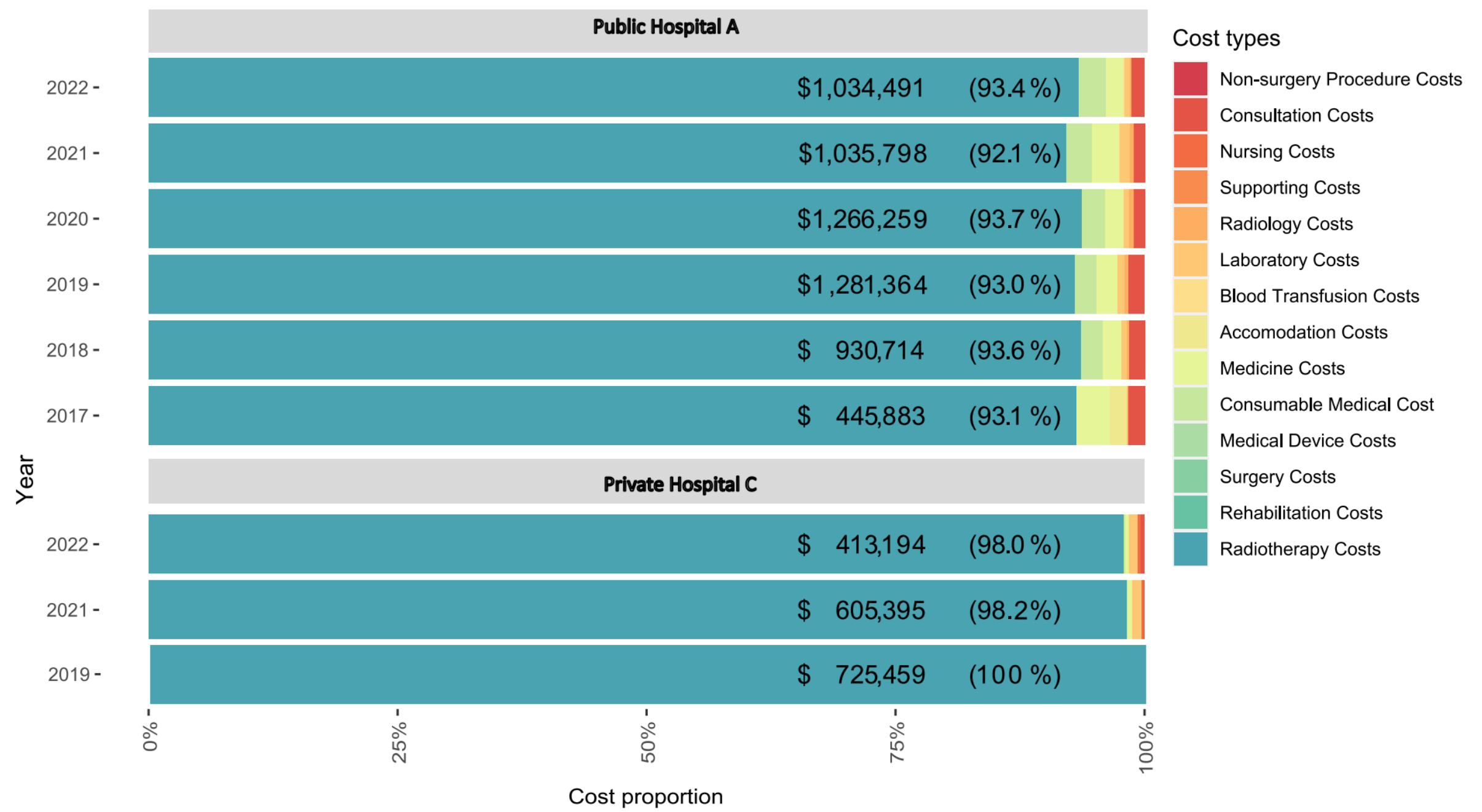


Figure 2. Cost components of actual costs for radiotherapy in breast cancer outpatients at Public Hospital and Private Hospital from 2017-2022.

Discussion

- To our knowledge, this is the first publication using real-world reimbursement data to evaluate the discrepancy between the INA-CBGs tariffs and the actual cost of radiotherapy for breast cancer patients in Indonesia.
- The use of claims data from Public Hospital and Private Hospital enriched the description of actual costs across different hospital types and classes. Real-world data describe the real conditions of cost reimbursement, which allows for a more accurate assessment of the actual costs of a particular disease or condition and can inform policy decisions to improve access and affordability of healthcare services.
- Ideally, we would have included a substantial number of hospitals to represent Indonesia, but because of time and resource constrain, we only included two hospitals. However, the choice of hospitals was based on the provinces with the high prevalence of breast cancer in Indonesia: Yogyakarta Special Province and Central Java Province.

Conclusion

- There is a need to increase the INA-CBGs tariffs to cover the actual cost in Indonesian hospitals to assure the accessibility and availability of radiotherapy for breast cancer patients.

References

1. Lievens Y, Defourny N, Corral J, Gasparotto C, Grau C, Borrás M. How public health services pay for radiotherapy in Europe: an ESTRO-HERO analysis of reimbursement [Internet]. Policy Review Lancet Oncol. 2020.
2. Agustina R, Dartanto T, Sitompul R, Susiloretni KA, Suparmi, Achadi EL, et al. Universal health coverage in Indonesia: concept, progress, and challenges. The Lancet. Lancet Publishing Group; 2019. p. 75–102.
3. Ministry of Health Republic of Indonesia. Peraturan Menteri Kesehatan Republik Indonesia Nomor 52 Tahun 2016 tentang Standar Tarif Pelayanan Kesehatan dalam Penyelenggaraan Program Jaminan Kesehatan. 2016.
4. Ministry of Health Republic of Indonesia. Peraturan Menteri Kesehatan Republik Indonesia Nomor 3 Tahun 2023 tentang Standar Tarif Pelayanan Kesehatan dalam Penyelenggaraan Jaminan Kesehatan. 2023.