FORECAST OF HEALTHCARE FACILITIES AND HEALTHCARE WORKFORCE IN ONCOLOGY FIELD IN INDONESIA

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BACKGROUND AND OBJECTIVE

Indonesia, while implementing the universal health coverage (UHC), is concurrently facing the growing burden of cancer. The Basic Health Research shows the increasing cancer prevalence up to 28% in the 5-year period from 2013 to 2018. Unfortunately, more than 70% cancer patients are diagnosed at latter stage, resulting in higher financial burden and low survival rates. A sufficient number of healthcare facilities and healthcare workforce is needed to deliver a comprehensive cancer service to achieve a successful UHC and to support cancer control planning in addressing these issues. However, the shortage of healthcare workforce and facilities in oncology field still become a major threat in Indonesia. The available facilities and HRH still do not meet the population need and the international benchmark.

Moreover, to date, there is no formal guideline available regarding the forecasting of facilities and workforce-related oncology. We, therefore, tried a new method-Markov model to model the healthcare facilities needed and translated it into year-by-year health workforce in requirements for cancer service to ensure an effective cancer control planning in Indonesia.

METHODS

A Markov model was carried out to predict the number of healthcare facilities needed for cancer service in Indonesia, then translated into oncology workforce requirements using the national standard norm. The one-year cycle length with a 11 year-time horizon were used in the model. The cost (salaries) implications of the projected staff requirements were also calculated.

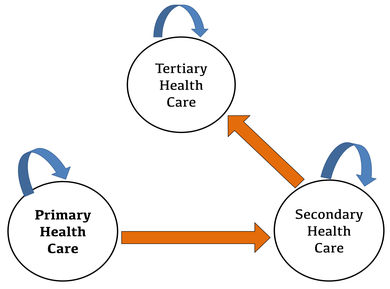

Figure 1.
Model Structure of Healthcare Facilities for Cancer Service

RESULTS

- The model indicates the need to increase the number and/or capacity of health facilities to enable comprehensive cancer services for effective cancer control in Indonesia. **The oncology workforce shortage is estimated to be about 61% of the need and is even more severe among oncologists. The government will need to increase nearly 50% of current wage spending to meet this gap**.
- However, although this model shows that Markov model can contribute to a new area in health workforce planning or forecasting, the forecast should **continuously be improved** and **can be updated** if and when more accurate data are available.
- **Given all the assumptions used, data and time constraints, and model limitations, we must be careful when using or interpreting these forecasts that these forecasts are not always be the representative of overall picture for Indonesia's oncology services and health system**

CONCLUSIONS

Indonesia needs to expand the number of healthcare facilities and takes into account the serious shortage of oncology workforce. Addressing these issues may require a substantial increase in government spending on health workforce salaries. While long-term commitment to comprehensively address these challenges is pursued, the immediate steps such as educating and recruiting staff, improving health workforce productivity and ensuring the equitable distribution of the existing workforce might need to be taken.

Figure 2. The Forecast of Health workforce requirements 2019 – 2030 based on the Markov model

STAFF TYPE	AGGREGATE HRH REQUIREMENT FOR THE YEAR											
	2019[1]	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
General Practitioner	33,855	39,362	45,047	50,901	56,916	63,083	69,396	75,850	82,439	89,160	96,007	102,978
Nurse	301,257	353,246	408,891	468,153	530,893	596,998	666,372	738,934	814,609	893,329	975,033	1,059,660
Paediatrician	5,880	7,121	8,470	9,919	11,462	13,092	14,806	16,599	18,467	20,409	22,420	24,498
Obstetrician and Gynaecologist	5,880	7,121	8,470	9,919	11,462	13,092	14,806	16,599	18,467	20,409	22,420	24,498
Internist	5,880	7,121	8,470	9,919	11,462	13,092	14,806	16,599	18,467	20,409	22,420	24,498
General Surgeon	5,880	7,121	8,470	9,919	11,462	13,092	14,806	16,599	18,467	20,409	22,420	24,498
Anesthesiologist	3,991	4,802	5,656	6,559	7,510	8,510	9,556	10,649	11,787	12,971	14,199	15,471
Radiologist	3,434	4,180	4,964	5,787	6,650	7,549	8,485	9,455	10,459	11,496	12,565	13,664
Clinical pathologist	3,434	4,180	4,964	5,787	6,650	7,549	8,485	9,455	10,459	11,496	12,565	13,664
Anatomical pathologist	2,938	3,623	4,338	5,085	5,860	6,662	7,489	8,339	9,211	10,103	11,015	11,944
Surgical Oncologist	557	622	692	771	860	960	1,071	1,193	1,328	1,475	1,635	1,807
Medical Oncologist	496	557	625	703	790	888	996	1,117	1,249	1,393	1,550	1,719
Paediatric Medical Oncologist	496	557	625	703	790	888	996	1,117	1,249	1,393	1,550	1,719
Gynecologic Oncologist	557	622	692	771	860	960	1,071	1,193	1,328	1,475	1,635	1,807
ENT Oncologist	496	557	625	703	790	888	996	1,117	1,249	1,393	1,550	1,719
Urologic Oncologist	496	557	625	703	790	888	996	1,117	1,249	1,393	1,550	1,719
Pulmonary Oncologist	496	557	625	703	790	888	996	1,117	1,249	1,393	1,550	1,719
Radiation Oncologist	496	557	625	703	790	888	996	1,117	1,249	1,393	1,550	1,719
Medical Physicist	496	557	625	703	790	888	996	1,117	1,249	1,393	1,550	1,719
Radiation Therapy Technologist	496	557	625	703	790	888	996	1,117	1,249	1,393	1,550	1,719
TOTAL	377,512	443,574	514,126	589,114	668,366	751,741	839,119	930,397	1,025,481	1,124,286	1,226,732	1,332,745

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