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Cancer and Palliative Care in Covid-19 and Other Challenging Situations

Uganda Cancer Institute

PALLIATIVE CARE ASSOCIATION OF UGANDA (PCAU)

ABSTRACT

Cancer risk and burden and universal health coverage 'effective coverage index' in Uganda relative to the regional & global outlook: Data visualization

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BACKGROUND

- According to GLOBOCAN, in 2020, cancer accounted for 34,008 cases and 22,992 deaths, with 62,548 five-year prevalent cases in Uganda.
- Monitoring the patterns of the leading causes of cancer burden and their underlying risk factors and health system related attributes such as financing is imperative for resource mobilization and identifying interventions to reduce future burden.

OBJECTIVE

- This analysis aimed to provide a visual easy to understand information on the top ten causes of cancer morbidity and mortality, and their background risk factors exposure prevalence in Uganda, relative to the regional and global burden.

METHODS

- Existing cancer risk and burden related data, selected health coverage indicators and financing were explored and reviewed using data obtained from the Global Cancer Observatory 2020, the "Institute for Health Metrics and Evaluation (IHME)", the Global Health Expenditure Database", and the Global burden of disease (GBD) Collaborators publications.
- Bar chats and conditional Colour-rated tables were used for data visualization.

RESULTS

- In 2020, of the top 10 causes of cancer morbidity and death in Uganda, Uganda experienced a relatively higher cancer incidence and mortality compared to the aggregated incidence and mortality rates observed in Eastern Africa, Africa and the world, except for breast cancer (Fig.1 & Table1).
- In Uganda, the most prevalent cancer related risk factors exposures (Table 2) were household indoor air pollution from solid fuels, diet low in at least five servings of fruits per day, metabolic risk from high blood pressure, lead, occupational particulate matter and fumes which were, overall, close to the exposures observed in Africa, but different from the global exposure prevalence.
- Cancer service indicators coverage in the universal health coverage index remains low compared to other health sector indicators at all levels (Table3), with very low value of health spending compared to the worldwide level (Fig2).
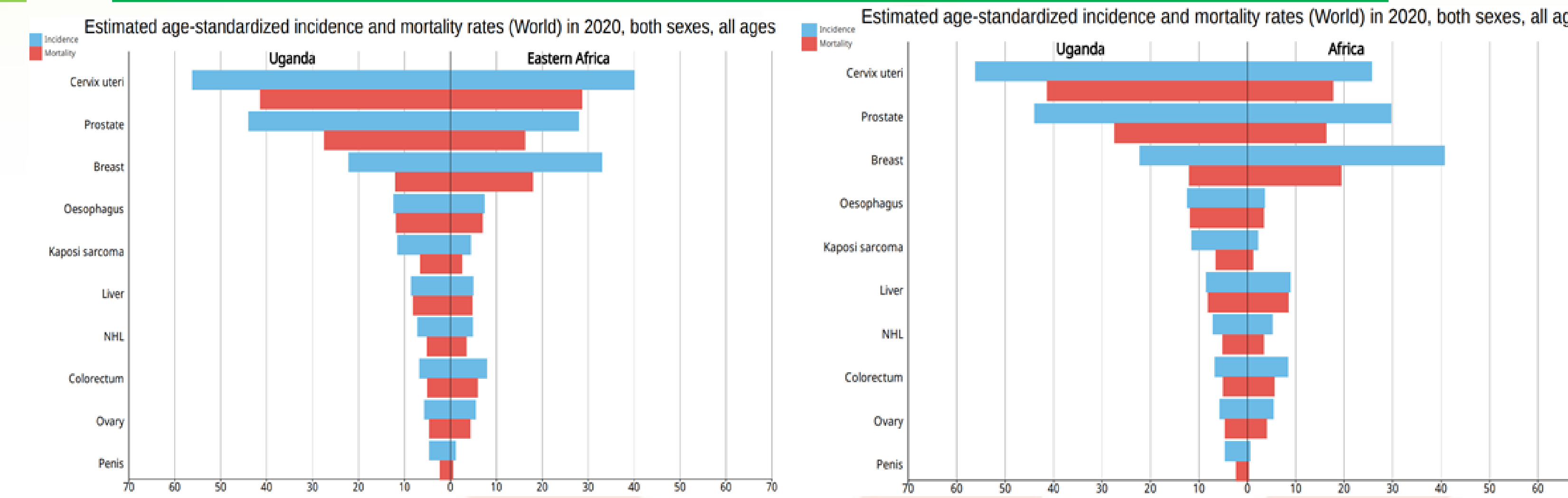
RESULTS

Figure 1: ASR(World) of cancer incidence & mortality per 100 000 population in Uganda compared with East Africa, Africa, and the World (Globocan 2020)
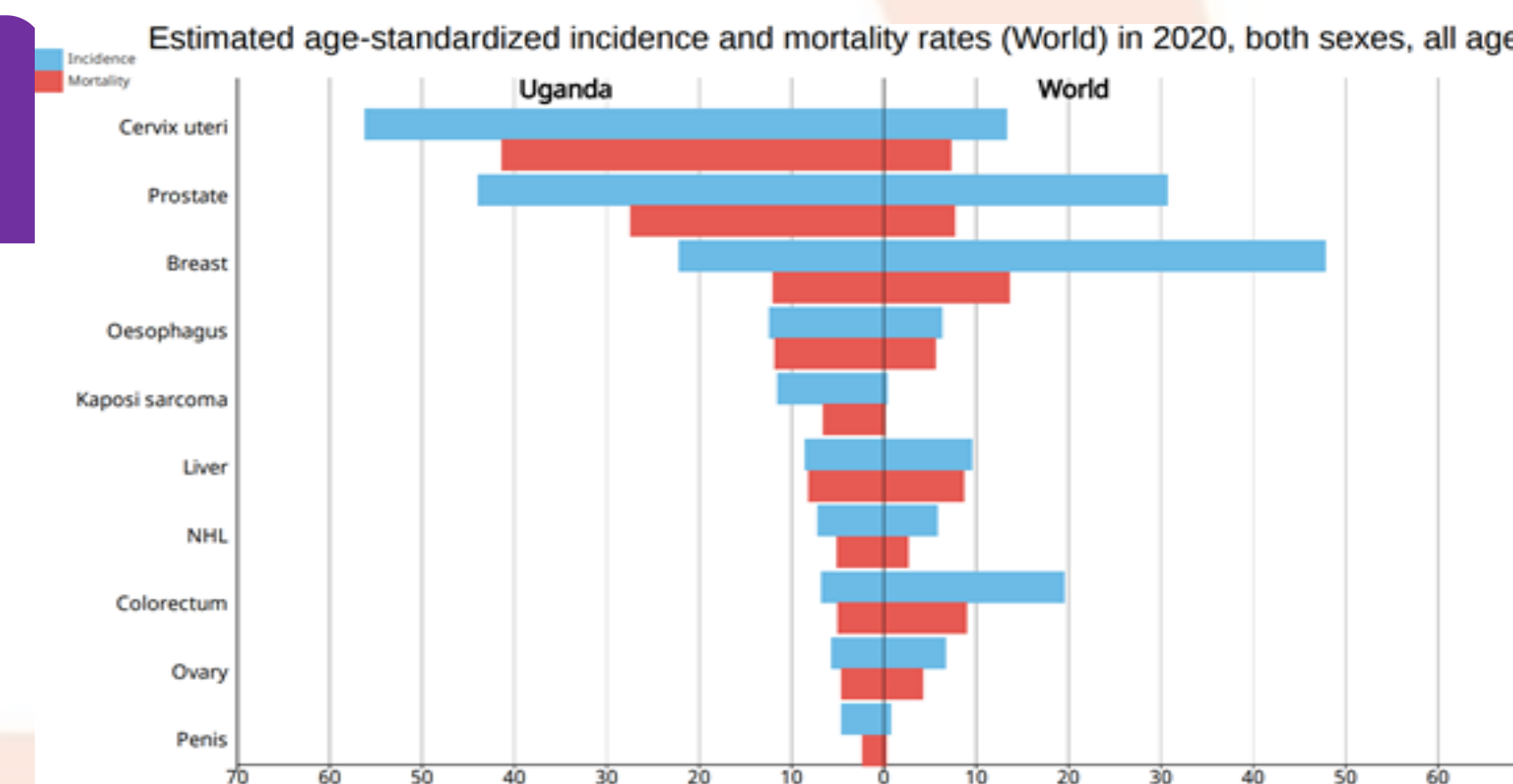
Table 1: Ranking the top 10 cancer sites in Uganda, Africa & the world (Globocan 2020)

	Cancer	Cervix uteri	Kaposi sarcoma	Breast	Prostate	NH lymphoma	Oesophagus	Liver	Leukaemia	Ovary	Colon*
Uganda Pop. 45.7m	iRank*	1	2	3	4	5	6	7	8	9	10
	I %	20.5	11.3	7.8	7	6.9	6.2	5.9	2.2	1.9	1.7
	ASIR	56.2	11.5	22.2	44	7.2	12.4	8.5	5.4	6.7	6.7
	5-YP	55.46	17.4	22.78	16.49	10.55	5.08	6.59	3.57	5.35	2.16
	mRank	1	2	6	7	5	3	4	8	10	12
	M %	20	9.3	5.9	5.8	6.6	8.7	8.1	2.4	2.1	1.8
	ASMR	41.4	6.5	12	27.5	5.1	11.8	8.1	4.1	4.6	5
Africa Pop.1.3bn	iRank	2	13	1	3	5	11	4	10	14	7
	I %	10.6	2.3	16.8	8.4	4.6	2.5	6.4	2.9	2.2	3
	ASIR	25.6	2.2	40.7	29.7	5.2	3.6	8.8	3.2	5.4	8.4
	5-YP	33.33	4.03	63.99	26.6	8.32	2.26	6.21	5.49	7.3	4.8
	mRank	2	16	1	4	6	8	3	9	13	10
	M %	10.8	1.8	12.1	6.6	4.4	3.7	9.4	3.4	2.4	3.1
	ASMR	17.7	1.2	19.4	16.3	3.5	3.4	8.5	2.6	4	5.6
World Pop.7.7bn	iRank	8	33	1	3	12	7	6	14	19	4
	I %	3.1	0.18	11.7	7.3	2.8	3.1	4.7	2.5	1.6	6
	ASIR	13.3	0.39	47.8	30.7	5.8	6.3	9.5	5.4	6.6	19.5
	5-YP	38.69	1.05	201.58	126.13	19.81	8.55	12.76	17.2	21.3	39.07
	mRank	9	32	4	8	12	6	2	11	15	5
	M %	3.4	0.15	6.9	3.8	2.6	5.5	8.3	3.1	2.1	5.8
	ASMR	7.3	0.18	13.6	7.7	2.6	5.6	8.7	3.3	4.2	9

Table 2: Age-standardized cancer related risk factors exposure values (GBD 2019 Risk Factors Collaborators)

	Uganda* 2014*	Uganda ^^ 1990	2010	2019	Africa (Sub-saharan) ^^ 1990	2010	2019	Worldwide^ 1990	2010	2019
HIV sero-prevalence*	6.2	.	.	.	.	.	.	.	.	.
Hepatitis B virus sero-prevalence**	10	.	.	.	.	.	.	.	.	.
Tobacco smoking	9.6	3.4	3.7	3.3	5.4	4.4	4.1	30.5	25.3	24
Secondhand tobacco smoke #	.	25.4	20.6	23.4	26.6	22.8	22.9	43.2	37.7	37.5
Alcohol consumption	28.5	8.5	9.8	9.9	4.9	5	5.3	6.5	6.6	6.9
Diet low in fruits (<5 servings/day)	87.8	13.7	20.9	21.3	68.5	67.6	66.4	66.7	59.1	56.8
Diet low in vegetables (<5 servings/day)	87.8	97.9	92.8	92	85.9	78.3	78.1	51.3	40.3	40.2
Diet high in red meat	.	16.5	19.3	19.9	19.9	20.7	21.1	40.5	43.1	43.9
Diet high in processed meat	.	18.8	19.5	19.8	23.4	25.9	26.5	30.9	30.6	29.8
Diet high in sugar-sweetened beverages	.	18.3	19.1	19.3	30.5	25.4	25.6	29.9	29.4	30.3
Diet low in fibe #	.	4.2	5.9	5.7	16.3	13.5	12.7	36.8	31.4	27.6
Diet high in trans fatty acids	.	32.1	30.1	29.7	31.6	29.9	29.6	50.5	45.2	44.6
Non-exclusive breastfeeding	.	13.8	12.7	11.1	22.6	20.4	18.8	21.3	19.4	18.3
Low physical activity	4.3	0.9	1	1	2.4	2.5	2.5	3.34	3.4	3.5
High body-mass index (overweight & obese)	23.7	8.9	12.5	15.6	9.3	13.8	17.3	11.1	16.5	19.5
High LDL cholesterol (Dyslipidaemia) #	6.7	10.6	11.8	12.2	20.2	21	21.3	35.7	32.7	32.4
High systolic blood pressure (Hypertensive)	24.3	33.2	31.4	29.3	26.2	32.3	34.1	27.1	26.5	27.7
High fasting plasma glucose (Diabetes)	3.3	6.6	8.8	9.3	5.8	7.7	8.4	7.8	10.4	11.7
Ambient particulate matter pollution	.	3.3	7.8	10.2	7.4	11.5	16.6	15.6	22.9	26.2
Household air pollution from solid fuels	.	74.4	54.1	44.1	59.9	41.2	38	27.1	16.3	11.7
Ambient ozone pollution	.	27.2	15.4	46.9	31.1	29.2	54.4	47.5	54.3	55.1
Residential radon	.	18.1	18.1	18.1	19.1	19.1	19	18.5	18.2	18.1
Lead exposure	.	73.1	65.7	56	68.7	61.3	53.8	68.5	59.8	51.3
Occupational chemical carcinogens ***	.	0.5	0.6	0.7	0.6	0.6	0.6	3.4	3.3	3.3
Occupational silica	.	4.5	4.2	4.4	4.3	4.1	3.8	.	.	.
Occupational diesel engine exhaust	.	2.3	2.5	2.9	2.4	2.6	2.7	.	.	.
Occupational particulate matter & fumes	.	14.1	14.1	14.7	12.1	11.8	11.5	.	.	.

Table 2 Legend: # In men. *Uganda demographic and health survey 2009. **Uganda population-based HIV impact assessment (UPHIA) 2016-2017. *** Occupational exposure to asbestos, arsenic, benzene, beryllium, cadmium, chromium, formaldehyde, nickel, polycyclic aromatic hydrocarbons, sulphuric acid, trichloroethylene, except global summary which is overall occupational exposures. ^^ Supplement to: GBD 2019 Risk Factors Collaborators. Global burden of 87 risk factors in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019. Lancet 2020; 396: 1223–49

RESULTS

Table 3: Universal health coverage (UHC) effective coverage index and 23 effective coverage indicators in Uganda, East Africa community & the world in 2019 (GBD 2019 Universal Health Coverage Collaborators)

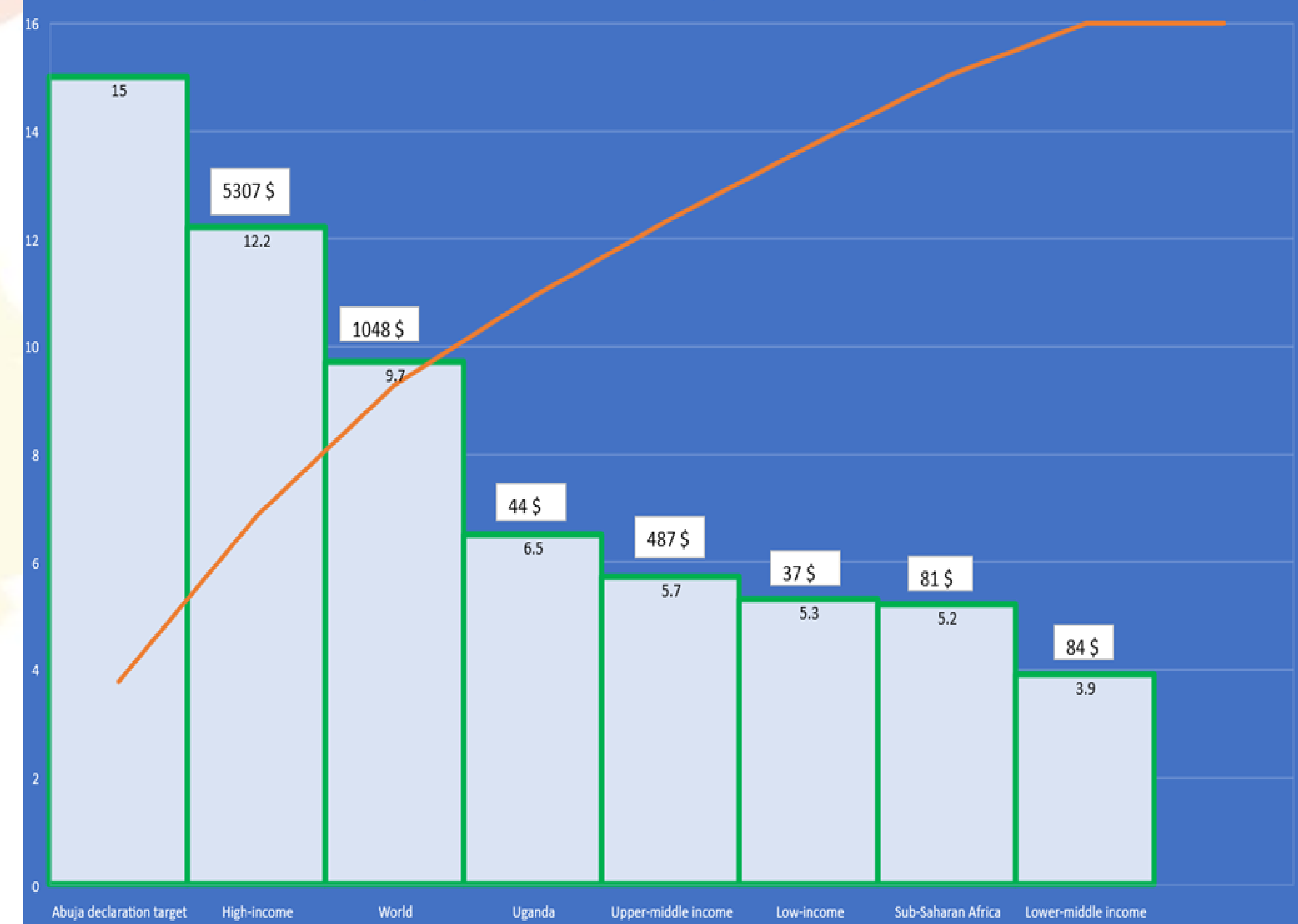|	UHC effective index	Modern contraception	Neonatal care	Maternal care	MCV1 coverage	DTP3 coverage	Diarrhea treatment	LRI treatment	ART coverage	TB treatment	Acute lymphoid leukemia	Breast cancer	Cervical cancer	Uterine cancer treatment	Colorectal cancer	IHD treatment	Stroke treatment	Diabetes treatment	Chronic Kidney Dse	COPD	Asthma	Epilepsy	Appendicitis	Ileus&intestinal obstruction
Uganda	53	52	15	25	80	79	90	78	77	45	6	23	23	24	14	57	38	24	25	45	34	53	71	63
EAC	52	45	18	16	81	85	81	61	70	51	6	19	16	19	11	57	38	19	25	42	31	49	58	48
Africa	48	50	23	19	80	78	79	62	57	55	9	29	26	31	19	46	39	27	21	48	31	49	74	57
Worldwide	61	65	42	48	87	86	93	82	81	75	35	60	54	64	51	54	52	48	39	60	54	60	86	78

Figure 2: Health spending (Global Burden of Disease Health Financing Collaborator Network 2020)

CONCLUSIONS

- Enhancing the overall health sector funding, with national cancer control program sub-component among the top priorities and targeting the most common cancer types and their leading risk factors as priorities could be an effective and efficient use of health-sector resources.
- This is anticipated to maximize the cancer related universal health coverage effective index with favorable technical, productive, and allocative efficiency.

Keywords: Cancer risk factors, Risk exposures, Cancer burden, universal health coverage index