

Chapter 30

Cancer survival in Kampala, Uganda, 1993–1997

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Abstract

The Kampala cancer registry was established in 1954 as a population-based cancer registry, and registration of cases is done by active methods. The registry contributed data on survival for 15 cancer sites or types registered in 1993–1997. For Kaposi sarcoma, only a random sample of the total incident cases was provided for survival study. Follow-up has been carried out predominantly by active methods, with median follow-up ranging from 4–26 months. The proportion with histologically verified diagnosis for various cancers ranged between 36–83%; death certificate only (DCO) cases were negligible; 58–92% of total registered cases were included for survival analysis. Complete follow-up at five years ranged between 47–87% for different cancers. Five-year age-standardized relative survival rates for selected cancers were Kaposi sarcoma (22%), cervix (19%), oesophagus (5%), non-Hodgkin lymphoma (26%), breast (36%) and prostate (46%). None survived beyond 5 years for cancers of the stomach and lung. Five-year relative survival by age group was fluctuating with no definite pattern or trend emerging and no survivors in many age intervals.

Kampala cancer registry

The Kampala cancer registry was established in 1954 as a population-based cancer registry at the department of pathology, Makerere University Medical School, to obtain information on cancer occurrence in Kyadondo county [1]. It contributed data to the quinquennial IARC publication *Cancer Incidence in Five Continents* in volumes I, VII and VIII [2] and cancer survival data for Kampala have been published [3]. Cancer is not a notifiable disease, and registration of cases is done by active methods. The principal sources of data are medical records in the hospitals in the government and non-government sectors, pathology laboratories and hospice. The registry caters to a population of about 1.1 million in 1995 with a sex ratio of 1029 females to 1000 males. The average annual age-standardized incidence rate is 162 per 100 000 among males and 171 per 100 000 among females in 1993–1997. The top-ranking cancers among males are Kaposi sarcoma, cancer of the prostate and non-Hodgkin lymphoma. Among females, the order is Kaposi sarcoma, cervix and breast.

The registry contributed data on survival from 15 cancer sites or types for the first time in this volume of the IARC publication on *Cancer Survival in Africa, Asia, the Caribbean and Central America*. For Kaposi sarcoma, only a random sample of the total incident cases (431 out of 1376 cases; 31%) was available for this survival study.

Data quality indices (Table 1)

The proportion of cases with histological confirmation of cancer diagnosis in this series is 66%, varying between 83% for cancer of the thyroid and 36% for liver. The proportion of cases registered based on a death certificate only was negligible. The exclusion of cases without any follow-up information is 21%, ranging from 5% in lung cancer to 39% in cancer of the eye. Thus, 58–92% of the total cases in different cancers registered are included in the estimation of the survival probability.

Outcome of follow-up (Table 2)

Follow-up has been carried out predominantly by active methods. Cancer mortality information obtained from accessible death certificates in health units of the county are matched with the registry database. The vital status of the unmatched incident cases are then ascertained by repeated scrutiny of hospital records, postal enquiries and house visits.

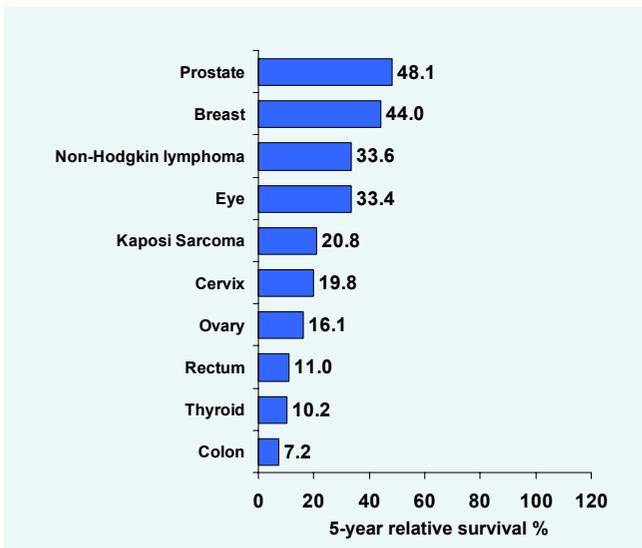
The closing date of follow-up was 31st December 1999. The median follow-up varied from 4 months in stomach cancer to 26 months for prostate cancer. Complete follow-up at five years from the incidence date ranged from 47% in cancer of the eye to 87% for liver and lung cancers. The bulk of the losses to follow-up have generally occurred in the first year of follow-up.

Survival statistics

All ages and both sexes together (Table 3)

The 5-year relative survival is the highest in cancer of the prostate (48%) followed by breast (44%) and non-Hodgkin lymphoma (34%) in the series. None survived for 5 years from incidence date among cancers of the stomach and lung.

Figure 1a. Top ten cancers (ranked by survival), Kampala, Uganda, 1993–1997



The 5-year age-standardized relative survival (ASRS) probability for all ages together is either less than or similar to the corresponding unadjusted one for a majority of cancers. The 5-year ASRS (0–74 years of age) is observed to be either higher than or similar to the corresponding ASRS (all ages) for all cancers.

Sex

Male (Table 4a)

The 5-year relative survival was the highest for cancer of the breast (n=5, 111%) followed in order by prostate (48%), eye (42%), thyroid and non-Hodgkin lymphoma (39%). None survived for 5 years from incidence date in cancers of the nasopharynx, stomach and lung. The 5-year relative survival was notably higher among males than females in cancers of the eye, thyroid and non-Hodgkin lymphoma.

Female (Table 4a)

The top-ranking cancers in terms of 5-year relative survival were breast (42%), non-Hodgkin lymphoma (26%) and Kaposi sarcoma (21%). Survival from cervix and ovarian cancers were 20% and 16%, respectively. None survived until 5 years from incidence date in cancers of the nasopharynx, stomach and thyroid.

Figure 1b. Top five cancers (ranked by survival), Male, Kampala, Uganda, 1993–1997

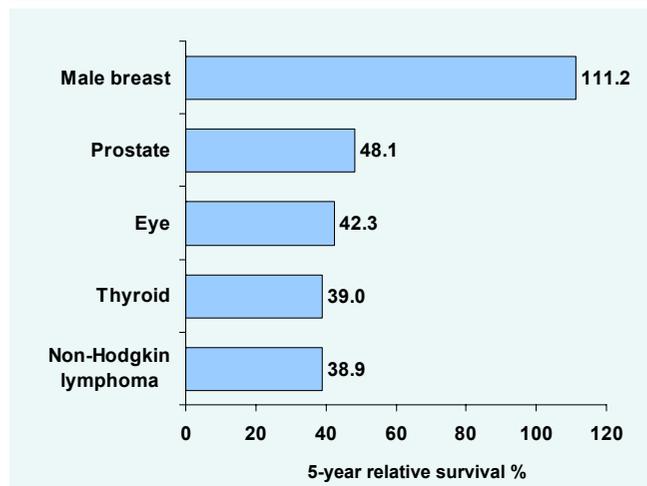
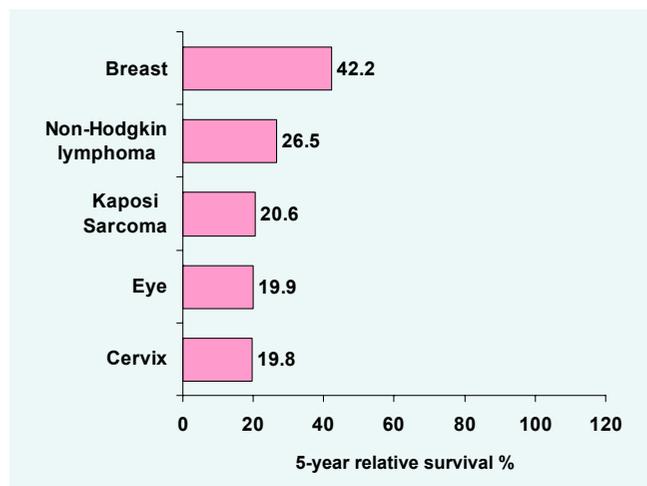


Figure 1c. Top five cancers (ranked by survival), Female, Kampala, Uganda, 1993–1997



Age group (Table 4b)

The 5-year relative survival by age group is seen to fluctuate, with no definite pattern or trend emerging and no survivors in many age intervals.

References

1. Wabinga HR, Parkin DM, Wabwire-Mangen F, Namboozee S. Trends in cancer incidence in Kyadondo County, Uganda, 1960–1997. *Br J Cancer*. 2000; 82(9): 1585–1592.
2. Parkin DM, Whelan SL, Ferlay J and Storm H. *Cancer Incidence in Five Continents, Vol I to VIII: IARC Cancerbase No. 7*. IARC Press, Lyon, 2005.
3. Gondos A, Brenner H, Wabinga H, Parkin DM. Cancer survival in Kampala, Uganda. *Br J Cancer*. 2005; 92(9):1808–1812.

Table 1. Data quality indices - Proportion of histologically verified and death certificate only cases, number and proportion of included and excluded cases by site: Kampala, Uganda, 1993–1997 cases followed-up until 1999

Site	ICD-10	Total registered	%		Excluded cases					Included cases	
			HV	DCO	DCO	Follow-up	Others	Total	%	No.	%
Nasopharynx	C11	63	77.8	0.0	0	14	0	14	22.2	49	77.8
Oesophagus	C15	196	40.3	0.0	0	14	2	16	8.2	180	91.8
Stomach	C16	104	48.1	0.0	0	11	3	14	13.5	90	86.5
Colon	C18	56	57.1	0.0	0	4	1	5	8.9	51	91.1
Rectum	C19-20	59	67.8	0.0	0	8	1	9	15.3	50	84.7
Liver	C22	133	36.1	0.8	1	8	8	17	12.8	116	87.2
Lung	C33-34	55	61.8	1.8	1	3	4	8	14.5	47	85.5
Kaposi sarcoma	C46*	431	80.5	0.0	0	60	1	61	14.2	370	85.8
Breast	C50	233	63.9	0.0	0	66	5	71	30.5	162	69.5
Cervix	C53	461	63.8	0.2	1	166	11	178	38.6	283	61.4
Ovary	C56	75	54.7	0.0	0	9	0	9	12.0	66	88.0
Prostate	C61	213	76.5	0.0	0	40	19	59	27.7	154	72.3
Eye	C69	140	66.4	0.0	0	55	4	59	42.1	81	57.9
Thyroid	C73	53	83.0	0.0	0	11	3	14	26.4	39	73.6
Non-Hodgkin lymphoma	C82-85+C96	251	79.7	0.8	2	69	2	73	29.1	178	70.9

HV: histologically verified; DCO: death certificate only; * random sample of total incident cases

Table 2. Number and proportion of cases with complete/incomplete follow-up (in years) and median follow-up (in months) by site: Kampala, Uganda, 1993–1997 cases followed-up until 1999

Site	ICD-10	No. of cases included	Complete FU		Incomplete FU: loss to FU*						% with complete FU at 5 years	Median FU (in months)
			Alive/dead at end of FU		% lost to FU: years from diagnosis							
			No.	%	No.	%	< 1	1-3	3-5	> 5		
Nasopharynx	C11	49	31	63.3	18	36.7	32.7	4.1	0.0	0.0	63.3	6.3
Oesophagus	C15	180	152	84.4	28	15.6	12.8	2.8	0.0	0.0	84.4	7.2
Stomach	C16	90	67	74.4	23	25.6	21.1	4.4	0.0	0.0	74.4	4.2
Colon	C18	51	41	80.4	10	19.6	19.6	0.0	0.0	0.0	80.4	6.6
Rectum	C19-20	50	40	80.0	10	20.0	18.0	2.0	0.0	0.0	80.0	9.4
Liver	C22	116	101	87.1	15	12.9	12.1	0.0	0.9	0.0	87.1	5.9
Lung	C33-34	47	41	87.2	6	12.8	12.8	0.0	0.0	0.0	87.2	4.8
Kaposi sarcoma	C46°	370	248	67.0	122	33.0	21.6	9.2	1.9	0.3	67.3	8.1
Breast	C50	162	96	59.3	66	40.7	27.8	9.3	1.9	1.9	61.1	10.9
Cervix	C53	283	149	52.7	134	47.3	35.0	11.3	0.7	0.4	53.0	8.3
Ovary	C56	66	48	72.7	18	27.3	15.2	7.6	3.0	1.5	74.2	5.0
Prostate	C61	154	119	77.3	35	22.7	16.2	3.9	2.6	0.0	77.3	26.2
Eye	C69	81	38	46.9	43	53.1	37.0	14.8	1.2	0.0	46.9	14.9
Thyroid	C73	39	22	56.4	17	43.6	25.6	15.4	0.0	2.6	59.0	7.5
Non-Hodgkin lymphoma	C82-85+C96	178	118	66.3	60	33.7	23.0	7.9	1.7	1.1	67.4	9.4

FU: follow-up; ° from a random sample of total cases; * non-random

Table 3. Comparison of 1-, 3- and 5-year absolute and relative survival and 5-year age-standardized relative survival by site: Kampala, Uganda, 1993–1997 cases followed-up until 1999

Site	ICD-10	Cases included	% Absolute survival			% Relative survival			% ASRS at 5-years	
			1-year	3-year	5-year	1-year	3-year	5-year	all ages	0-74 years
Nasopharynx	C11	49	58.5	27.2	0.0	59.8	29.0	0.0	0.0	0.0
Oesophagus	C15	180	36.5	10.3	2.5	38.3	12.3	3.4	4.6	3.0
Stomach	C16	90	39.1	7.5	0.0	40.9	8.5	0.0	0.0	0.0
Colon	C18	51	54.3	19.0	5.4	57.2	22.7	7.4	6.2	8.2
Rectum	C19-20	50	56.0	13.7	9.1	58.4	15.4	11.0	7.2	10.1
Liver	C22	116	33.0	8.0	2.7	34.0	8.7	3.1	1.1	1.4
Lung	C33-34	47	15.9	0.0	0.0	16.4	0.0	0.0	0.0	0.0
Kaposi sarcoma	C46*	370	58.5	33.8	18.6	59.7	36.1	20.8	21.9	35.6
Breast	C50	162	72.0	54.3	37.8	74.5	59.3	44.0	36.1	45.8
Cervix	C53	283	73.0	34.9	17.1	75.0	37.8	19.8	18.7	13.1
Ovary	C56	66	44.3	28.5	13.7	45.5	31.4	16.1	10.2	8.6
Prostate	C61	154	86.6	56.2	29.4	95.0	75.3	48.1	45.6	47.2
Eye	C69	81	92.4	55.1	30.4	94.3	58.4	33.4	35.7	35.7
Thyroid	C73	39	62.3	26.7	8.9	63.8	28.7	10.2	10.8	10.8
Non-Hodgkin lymphoma	C82-85+C96	178	61.4	40.7	31.9	62.3	42.2	33.6	26.1	25.1

ASRS: age-standardized relative survival; * random sample of total incident cases

Table 4a. Site-wise number of cases, 5-year absolute and relative survival by sex: Kampala, Uganda, 1993–1997 cases followed-up until 1999

Site	ICD-10	Cases included	Male			Female		
			% 5-year survival			% 5-year survival		
			No.	Abs	Rel	No.	Abs	Rel
Nasopharynx	C11	49	26	0.0	0.0	23	0.0	0.0
Oesophagus	C15	180	95	3.4	4.4	85	1.9	3.1
Stomach	C16	90	50	0.0	0.0	40	0.0	0.0
Colon	C18	51	25	5.6	8.8	26	5.3	6.2
Rectum	C19-20	50	27	9.7	12.3	23	9.2	10.5
Liver	C22	116	63	2.3	2.7	53	3.1	3.6
Lung	C33-34	47	28	0.0	0.0	19		
Kaposi sarcoma	C46*	370	219	18.5	20.9	151	18.7	20.6
Breast	C50	162	5	100.0	111.2	157	36.2	42.2
Cervix	C53	283				283	17.1	19.8
Ovary	C56	66				66	13.7	16.1
Prostate	C61	154	154	29.4	48.1			
Eye	C69	81	43	38.8	42.3	38	17.8	19.9
Thyroid	C73	39	3	33.3	39.0	36	0.0	0.0
Non-Hodgkin lymphoma	C82-85+C96	178	103	37.0	38.9	75	25.0	26.5

Abs: absolute survival; Rel: relative survival; * random sample of total cases; * random sample of total incident cases

Table 4b. Site-wise number of cases and relative survival by age group: Kampala, Uganda, 1993–1997 cases followed-up until 1999

Site	ICD-10	Cases included	Number of cases by age group					Relative survival by age group % 5-year survival				
			< 45	45-54	55-64	65-74	> 75	< 45	45-54	55-64	65-74	> 75
Nasopharynx	C11	49	39	5	5	0	0	0.0	0.0			
Oesophagus	C15	180	30	48	36	43	23	0.0	3.9		8.7	10.5
Stomach	C16	90	25	20	22	12	11	0.0	0.0	0.0		0.0
Colon	C18	51	10	14	8	11	8	0.0	13.1	0.0	18.7	0.0
Rectum	C19-20	50	21	8	8	9	4		40.5	0.0	0.0	0.0
Liver	C22	116	60	20	21	13	2	6.7	0.0	0.0	0.0	0.0
Lung	C33-34	47	21	8	11	6	1	0.0	0.0	0.0	0.0	0.0
Kaposi sarcoma	C46*	370	303	40	26	0	1	17.2	20.2	58.8	0.0	0.0
Breast	C50	162	77	36	22	14	13	50.8	46.9	57.4	26.8	0.0
Cervix	C53	283	151	71	31	23	7	32.3	16.6	0.0		56.2
Ovary	C56	66	39	9	9	6	3	26.2	18.6		0.0	
Prostate	C61	154	1	12	30	54	57	0.0	89.7	33.5	56.2	43.9
Eye	C69	81	74	6	1	0	0	32.1	64.1		0.0	0.0
Thyroid	C73	39	17	12	8	2	0	26.0	0.0	0.0		
Non-Hodgkin lymphoma	C82-85+C96	178	167	4	2	4	1	34.5				

* random sample of total incident cases

