

Chapter 9

Cancer survival in Costa Rica, 1995–2000

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Abstract

The Costa Rica national tumour registry was founded in 1976 and nationwide data collection commenced in 1980. Cancer registration is predominantly done by passive methods. The registry contributed data on survival for invasive cancers of breast and cervix and *in situ* cancer of the cervix registered during 1995–2000. Follow-up has been carried out predominantly by passive methods, with median follow-up ranging from 31–47 months. The proportion of cases with histological confirmation of cancer diagnosis was 92% for invasive cancers and almost 100% for in-situ cancer of the cervix; death certificates only (DCOs) comprised 3%, and 78–86% of total cases registered were included for survival analysis. The one-, three- and five-year relative survival were 93%, 77% and 68%, respectively for breast cancer; the corresponding figures for invasive cervix cancer were 83%, 61% and 54%, respectively. The five-year relative survival for in-situ cervix cancer was 99%. A decreasing survival with increasing age group at diagnosis was noted for in-situ cancer of the cervix, while it fluctuated for invasive breast and cervix cancers. A decreasing survival with increasing clinical extent of disease was noted for invasive breast and cervix cancers.

National tumour registry

The population-based cancer registry in Costa Rica, known as the Costa Rica national tumour registry, was founded in 1976 to collect data on cancer incidence and prevalence in the entire country. It is based at the statistics department of the Ministry of Health, which funds the registry, and started nationwide data collection in 1980. It has contributed data to the quinquennial IARC publication *Cancer Incidence in Five Continents* since volume V [1]. An executive decree makes it compulsory to report cancer cases diagnosed in the country. Cancer registration is predominantly done by passive methods. The principal sources of data are notification sheets in addition to the pathology, clinical laboratory and the hospital discharge reports. The registry covers an area of 51 100 km² and caters to a population of about 3.8 million in 2000 with a sex ratio of 1003 females to 1000 males. The average annual age-standardized incidence rate is 204 per 100 000 among males and 191 per 100 000 among females in 1995–1996. The top-ranking cancers among males are stomach, non-melanoma skin, prostate and lung. Among females, the order is non-melanoma skin, breast, stomach and cervix.

The registry contributed data on survival for invasive cancers of breast and cervix and *in situ* cancer of the cervix registered during 1995–2000 for the first time in this volume of the IARC publication on *Cancer Survival in Africa, Asia, the Caribbean and Central America*.

Data quality indices (Table 1)

The proportion of cases with histological confirmation of cancer diagnosis in this series is 92% for invasive cancers and almost 100% for *in situ* cancer of the cervix. The proportion of invasive cancer cases registered based on a death certificate only (DCO) is 3%. The exclusion rate of cases without any follow-up information is 12% for invasive cancers and 22% for *in situ* cervix cancer. Thus, 78–86% of the total cases registered are included in the estimation of the survival probability.

Outcome of follow-up (Table 2)

Follow-up has been carried out predominantly by passive methods. Death certificates mentioning cancer are obtained from the National Institute of Statistics and Census. These are matched with the cancer registry database by record linkage techniques using personal identification numbers. The vital status of each unmatched incident cases is then ascertained by matching with the Civil Registry database and reviewing clinical histories.

The closing date of follow-up was 31st December 2003. The median follow-up varied between 31 and 45 months for invasive cervix and breast cancers, respectively; it was 47 months for *in situ* cervix cancer. Complete follow-up at five years from the incidence date ranged between 74–83%. The losses to follow-up have generally occurred evenly in the

different time intervals from incidence date; from <1 year to more than 5 years.

Survival statistics

All ages and both sexes together (Table 3)

The one-, three- and five-year relative survival estimates are 93%, 77% and 68%, respectively in invasive breast cancer; the corresponding figures for invasive cervix cancer are 83%, 61% and 54%, respectively. The five-year relative survival for *in situ* cervix cancer is 99%.

The 5-year age-standardized relative survival (ASRS) probability for all ages together is less than the corresponding unadjusted one for invasive breast and cervix cancers. Both the estimates were similar in *in situ* cervix cancer. The 5-year ASRS (0–74 years of age) is higher than the corresponding ASRS (all ages) for invasive cancers but lower for *in situ* cervix cancer.

Sex

Male (Table 4a)

The 5-year relative survival of breast cancer patients is higher among males than females.

Female (Table 4a)

The 5-year relative survival from invasive breast cancer (68%) is higher than for cervix cancer (54%). *In situ* cervix cancer has the highest survival (99%).

Age group (Table 4b)

The 5-year relative survival by age group is seen to fluctuate, with no definite pattern or trend emerging for invasive cancers of breast and cervix. However, a decreasing survival with increasing age group at diagnosis is forthcoming for *in situ* cancer of the cervix.

Extent of disease (Table 5; Figure 1)

The majority of invasive breast (34%) and cervix cancer (40%) cases are classified as having regional spread of disease at the time of diagnosis.

Localized cancers comprised 31% of breast and 22% of cervix cancer cases. The extent of disease was unknown in 14% of breast and 33% of cervix cancers. The 5-year absolute survival by extent of disease followed the expected pattern: highest for localized

cases, followed by regional and distant metastasis cases among known categories of extent of disease.

Figure 1a. Absolute survival (%) by extent of disease, Costa Rica, 1995–2000, cancer of the breast

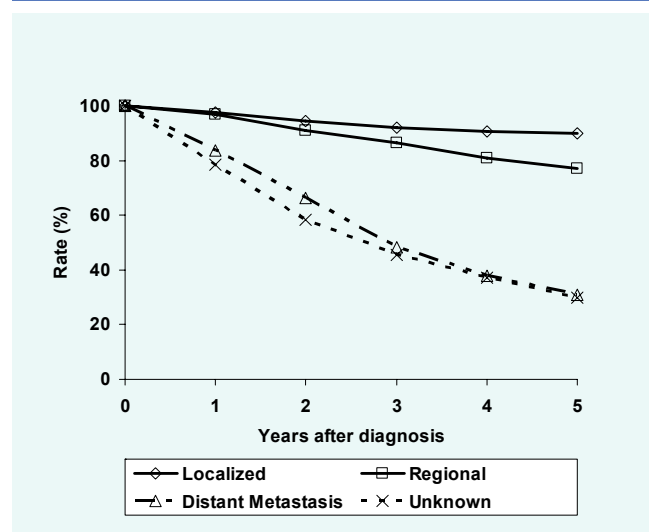
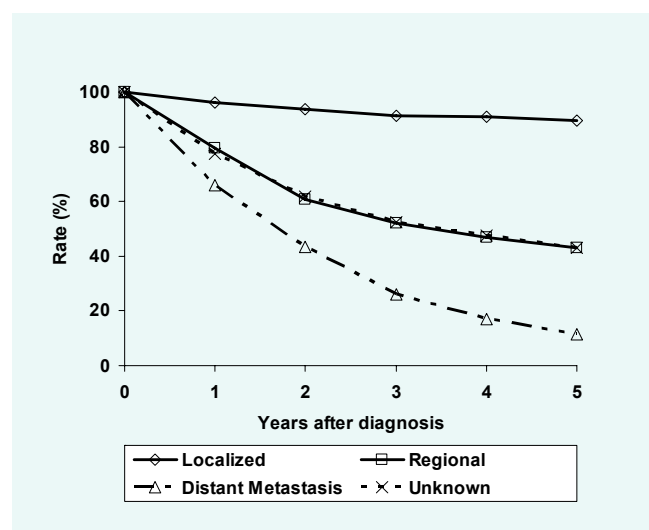


Figure 1b. Absolute survival (%) by extent of disease, Costa Rica, 1995–2000, cancer of the cervix



References

1. 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.

Table 1. Data quality indices - Proportion of histologically verified and death certificate only cases, number and proportion of included and excluded cases by site: Costa Rica, 1995–2000 cases followed-up until 2003

Site	ICD-10	Total registered	%		Excluded cases					Included cases	
			HV	DCO	DCO	Follow-up	Others	Total	%	No.	%
Breast	C50	2 854	92.4	2.5	72	316	4	392	13.7	2 462	86.3
Cervix	C53	1 807	91.4	3.3	60	259	3	322	17.8	1 485	82.2
In-situ cervix	D06	3 009	99.7	0.0	0	658	1	659	21.9	2 350	78.1

HV: histologically verified; DCO: death certificate only

Table 2. Number and proportion of cases with complete/incomplete follow-up (in years) and median follow-up (in months) by site: Costa Rica, 1995–2000 cases followed-up until 2003

Site	ICD-10	Cases included	Complete FU		Incomplete FU: lost 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		
Breast	C50	2 462	1 866	75.8	596	24.2	7.1	4.5	5.8	6.8	82.6	45.3
Cervix	C53	1 485	1 001	67.4	484	32.6	9.9	8.6	7.8	6.3	73.7	30.9
In-situ cervix	D06	2 350	792	33.7	1 558	66.3	12.4	20.9	19.4	13.6	47.3	46.9

FU: follow-up

Table 3. Comparison of 1-, 3- and 5-year absolute and relative survival and 5-year age-standardized relative survival by site: Costa Rica, 1995–2000 cases followed-up until 2003

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
Breast	C50	2 462	91.7	73.8	63.4	92.9	76.6	67.7	66.0	69.6
Cervix	C53	1 485	81.9	59.6	51.5	82.7	61.2	53.8	50.0	53.5
In-situ cervix	D06	2 350	99.6	99.0	97.3	99.9	99.9	98.8	98.5	96.0

ASRS: age-standardized relative survival

Table 4a. Site-wise number of cases, 5-year absolute and relative survival by sex: Costa Rica, 1995–2000 cases followed-up until 2003

Site	ICD-10	Cases included	Male			Female		
			% 5-year survival			% 5-year survival		
			No.	Abs	Rel	No.	Abs	Rel
Breast	C50	2 462	15	72.8	90.8	2 447	63.3	67.5
Cervix	C53	1 485				1 485	51.5	53.8
In-situ cervix	D06	2 350				2 350	97.3	98.8

Abs: absolute survival; Rel: relative survival

Table 4b. Site-wise number of cases and relative survival by age group: Costa Rica, 1995–2000 cases followed-up until 2003

Site	ICD-10	Cases included	Number of cases by age group					Relative survival by age group				
			% 5-year survival					% 5-year survival				
			< 45	45-54	55-64	65-74	> 75	< 45	45-54	55-64	65-74	> 75
Breast	C50	2 462	597	671	478	451	265	62.6	70.3	72.9	74.6	49.8
Cervix	C53	1 485	652	311	224	174	124	65.9	54.4	44.2	42.4	24.5
In-situ cervix	D06	2 350	1 820	287	140	82	21	74.4	80.6	71.4	59.4	57.2

Table 5. Proportion of cases and 5-year absolute survival by extent of disease and site: Costa Rica, 1995–2000

Site	ICD-10	Cases included	% of cases by extent of disease				% 5-year absolute survival			
			Localized	Regional	Dist. met.	Unknown	Localized	Regional	Dist. met.	Unknown
Breast	C50	2 462	31.2	34.0	20.3	14.5	89.9	77.1	31.0	29.9
Cervix	C53	1 485	22.4	40.5	4.0	33.1	89.5	43.1	11.3	43.2

Dis. met.: distant metastasis