

Chapter 19

Cancer of the Vagina

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INTRODUCTION

Cancers of the vagina are extremely rare, accounting for approximately 1% of all cancers of the female genital organs. Nearly 50% of cancers of the vagina cases are diagnosed in women age 70 and over. The most common histologic types of vaginal cancer are squamous cell carcinoma and adenocarcinoma. The 5-year relative survival rate for squamous cell carcinoma is 54%. The 5-year relative survival rate for patients with adenocarcinoma is nearly 60%.

MATERIALS AND METHODS

Exclusions

Between 1988 and 2001, there were 3,471 cases of cancer of the vagina diagnosed in SEER. The following were excluded from the analysis: patients for whom vaginal cancer was not the first primary, cases identified through autopsy or death certificate only, persons of unknown race, cases without active follow-up or alive with no survival time, patients less than 20 years old, cases without microscopic confirmation, sarcomas and carcinoids. After these exclusions, 1,041 adult cases remained for analysis (Table 19.1).

AJCC Staging

The Federation Internationale de Gynecologie et d'Obstetrique (FIGO) and the American Joint Committee on Cancer (AJCC) have designated staging for cancers of the vagina. SEER modified AJCC staging, 3rd edition, was used for analyses in this chapter. The 3th Edition AJCC staging (1) states:

Stage I vaginal cancer is defined as tumor confined to vagina with no lymph node metastases.

Stage II vaginal cancer is defined as tumor which invades paravaginal tissues but not to pelvic wall with no lymph node metastases.

Stage III vaginal cancer is defined as tumor extending to pelvic wall, or either tumor confined to the vagina or tumor with lymph node metastases invading paravaginal tissues.

Stage IV vaginal cancer is defined as either tumor invasion of the mucosa of the bladder or rectum or extension beyond the true pelvis.

Table 19.1: Cancer of the Vagina: Number of Cases and Exclusions by Reason, 12 SEER Areas, 1988-2001

Number Selected/Remaining	Number Excluded	Reason for Exclusion/Selection
3,471	0	Select 1988-2001 diagnosis (Los Angeles for 1992-2001 only)
2,249	1,222	Select first primary only
2,241	8	Exclude death certificate only or at autopsy
2,140	101	Exclude unknown race
2,131	9	Exclude alive with no survival time
2,082	49	Exclude children (Ages 0-19)
1,104	978	Exclude in situ cancers
1,082	22	Exclude no or unknown microscopic confirmation
1,041	41	Exclude sarcomas, stromal sarcomas, and carcinoids

Table 19.2: Cancer of the Vagina: Number and Distribution of Cases and 1-, 2-, 3-, 5-, 8-, & 10-Year Relative Survival Rates (%) by Age (20+), 12 SEER Areas, 1988-2001

Age (Years)	Cases	Percent	Relative Survival Rate (%)					
			1-Year	2-Year	3-Year	5-Year	8-Year	10-Year
Total 20+	1,041	100.0	75.5	62.1	56.4	49.4	43.6	40.7
20-29	10	1.0	~	~	~	~	~	~
30-39	43	4.1	81.3	69.1	66.5	63.0	63.0	51.9
40-49	108	10.4	84.5	68.4	60.2	54.2	51.1	51.1
50-59	157	15.1	82.5	70.9	66.1	57.0	50.4	49.0
60-69	210	20.2	83.8	70.6	62.3	51.8	42.4	41.8
70-79	261	25.1	74.7	61.3	53.1	45.4	36.8	29.3
80+	252	24.2	57.4	42.3	38.6	34.1	28.1	22.7

~ Statistic not displayed due to less than 25 cases.

Table 19.3: Cancer of the Vagina: Number of Cases, Median Survival Time (Months) and 5-Year Survival Rates (%) by Race and Age (20+), 12 SEER Areas, 1988-2001

Race and Age Group (Years)	Cases	Median Survival Time (Months)	5-Year Survival Rate (%)		
			Observed	Expected	Relative
All Races, 20+	1,041	36.8	40.5	82.1	49.4
White, 20+	834	38.3	41.2	81.9	50.3
Black, 20+	135	24.0	34.9	79.9	43.5
All Races, 20-69	528	69.2	52.9	95.5	55.4
White, 20-69	424	72.2	54.0	95.7	56.4
Black, 20-69	67	45.1	44.0	93.4	46.7
All Races, 70+	513	19.5	28.2	68.4	41.3
White, 70+	410	19.9	28.3	67.6	41.7
Black, 70+	68	14.5	26.4	66.6	39.1

RESULTS

Age

Nearly half of eligible adult cases were diagnosed in women ages 70 and over. Only 15% of all adult cases were diagnosed in women 20-49 years of age (Table 19.2).

Eight-year and 10-year relative survival rates following diagnosis of vaginal cancer were found to decline with age at diagnosis (Table 19.2).

Race and Age

Survival rates were lower for black females. The largest survival difference was for age groups 20-69 where the 5-year relative survival rate was 47% for black females compared to 56% for white females 20-69 years of age (Table 19.3).

Geographic Location

Five-year relative survival rates in the 12 SEER areas included in this study ranged from 56% in San Francisco-Oakland to 34% in Hawaii. However, small numbers of cases within most registries makes survival rates by geographic area difficult to compare (Table 19.4).

Histology

Approximately 68% of the vaginal cancer cases are squamous, with an additional 17% adenocarcinoma, 9% melanoma, and the remainder consisting of various other histologies. Patients with melanoma of the vagina had the lowest 5-year relative survival rates, 13% (Table 19.5).

Survival by Age and Stage

Little difference in stage distribution is seen for women under 70 compared to those over the age of 70, with 62%

Table 19.4: Cancer of the Vagina: Number and Distribution of Cases and 1-, 2-, 3-, 5-, 8-, & 10-Year Relative Survival Rates (%) by SEER Geographic Area, Ages 20+, 12 SEER Areas, 1988-2001

SEER Geographic Area	Cases	Percent	Relative Survival Rate (%)					
			1-Year	2-Year	3-Year	5-Year	8-Year	10-Year
Total	1,041	100.0	75.5	62.1	56.4	49.4	43.6	40.7
Atlanta and Rural Georgia	90	8.6	77.2	59.1	57.0	47.3	42.0	36.9
Atlanta (Metropolitan) - 1988+	86	8.3	77.3	59.7	57.5	47.7	42.5	37.4
Rural Georgia - 1988+	4	0.4	~	~	~	~	~	~
California								
Los Angeles - 1992+	186	17.9	78.0	63.7	56.6	52.7	46.5	22.5
Greater Bay Area	178	17.1	82.0	67.7	63.1	55.1	46.3	43.8
San Francisco-Oakland SMSA - 1988+	107	10.3	78.6	66.8	63.6	56.0	45.1	41.6
San Jose-Monterey - 1988+	71	6.8	87.0	69.1	62.0	52.9	45.2	45.2
Connecticut - 1988+	129	12.4	72.3	64.0	57.9	47.0	32.3	32.3
Detroit (Metropolitan) - 1988+	161	15.5	73.3	58.5	51.1	41.2	38.3	38.3
Hawaii - 1988+	29	2.8	63.3	48.9	37.4	33.8	!	!
Iowa - 1988+	83	8.0	73.5	61.5	53.0	47.0	44.5	43.4
New Mexico - 1988+	47	4.5	74.4	53.3	48.8	43.0	39.5	37.3
Seattle (Puget Sound) - 1988+	104	10.0	68.8	60.9	56.8	54.1	53.0	43.5
Utah - 1988+	34	3.3	81.2	67.4	57.9	47.7	39.0	39.0

~ Statistic not displayed due to less than 25 cases.

! Not enough intervals to produce rate.

Table 19.5: Cancer of the Vagina: Number and Distribution of Cases and 5-Year Relative Survival by Histology, Ages 20+, 12 SEER Areas, 1988-2001

Histology	ICD-O Code	Cases	Percent	5-Year Relative Survival Rate(%)
Total	8000-9989	1,041	100.0	49.4
Squamous	8050-8130	705	67.7	53.6
Squamous, NOS*	8070	530	50.9	52.4
All Other Squamous	8050-8069,8071-8130	175	16.8	56.8
Adenocarcinoma	8140-8147,8160-8162,8180-8221,8250-8506,8520-8550,8560,8570-8573,8940-8941	172	16.5	59.0
Clear Cell	8310	20	1.9	~
All Other Adenocarcinoma	8140-8147,8160-8162,8180-8221,8250-8309,8311-8506,8520-8550,8560,8570-8573,8940-8941	152	14.6	58.5
Other Specified Carcinomas	8030-8045,8150-8155,8170-8171,8230-8248,8510-8512,8561-8562,8580-8671	13	1.2	~
Carcinoma, NOS*	8010-8022	40	3.8	32.9
Other Specified Types	8720-8790,8935,8950-8979,8982,9000-9030,9060-9110,9350-9364,9380-9512,9530-9539	106	10.2	16.9
Melanoma	8720-8790	92	8.8	13.3
All Other Specified Types	8935,8950-8979,8982,9000-9030,9060-9110,9350-9364,9380-9512,9530-9539	14	1.3	~
Unspecified	8000-8004	5	0.5	~

~ Statistic not displayed due to less than 25 cases.

* NOS : Not Otherwise Specified

Table 19.6: Cancer of the Vagina: Number and Distribution of Cases by AJCC Stage (SEER modified, 3rd edition) and Age (20+), 12 SEER Areas, 1988-2001

AJCC Stage	Age (Years)					
	Total 20+		20-69		70+	
	Cases	Percent	Cases	Percent	Cases	Percent
Total	1,041	100.0	528	100.0	513	100.0
I	368	35.4	204	38.6	164	32.0
II	236	22.7	124	23.5	112	21.8
III	120	11.5	66	12.5	54	10.5
IV	164	15.8	70	13.3	94	18.3
Unknown/Unstaged	153	14.7	64	12.1	89	17.3

Table 19.7: Cancer of the Vagina: Number of Cases and 5-Year Relative Survival Rates (%) by AJCC Stage (SEER modified, 3rd edition) and Age (20+), 12 SEER Areas, 1988-2001

AJCC Stage	Age (Years)					
	Total 20+		20-69		70+	
	Cases	5-Year Relative Survival Rate(%)	Cases	5-Year Relative Survival Rate(%)	Cases	5-Year Relative Survival Rate(%)
Total	1,041	49.4	528	55.4	513	41.3
I	368	68.4	204	72.9	164	61.9
II	236	54.3	124	61.7	112	43.3
III	120	35.5	66	33.0	54	37.0
IV	164	20.3	70	23.6	94	17.4
Unknown/Unstaged	153	31.7	64	43.5	89	20.0

~ Statistic not displayed due to less than 25 cases.

and 54% of cases diagnosed in stages I-II, respectively (Table 19.6).

Somewhat lower survival is seen in stages I, II, IV, and unknown for women ages 70 and above compared to younger women. Small numbers, however, make comparisons difficult (Table 19.7 & Figure 19.1).

Survival by Stage

Table 19.8 and Figure 19.2 show the contrast across stage over time since diagnosis. In stages II-IV, the steepest declines in survival are observed within 2 years of diagnosis. Survival continues to decline throughout the 10 years observed in stages I-III, but somewhat stabilizes 5 years after diagnosis in stage IV.

Survival by Stage and Grade

Stages I and II had more well/moderately differentiated tumors and stages III and IV had more poorly/undifferentiated tumors. Grade is found to impact survival

in cases diagnosed in stage I, II, and IV (Table 19.9 & Figure 19.3).

Conditional Survival

Five-year relative survival rates, conditioned on years since diagnosis, are presented in Table 19.10 and Figure 19.4. For stages I-IV, the probability of surviving the next 5 years increases as time since diagnosis increases. This is most marked for the stage IV cases. The 5-year relative survival rate from time of diagnosis is 20%. For those individuals who survive 1 year post-diagnosis, 5-year survival increases to 37%. This increases to 91% for those individuals who survive 5 years, albeit few cases survive the first five years to be able to survive the next five years.

DISCUSSION

Cancer of the vagina is a very rare cancer. The comparisons of survival rates between subgroups presented in this

Table 19.8: Cancer of the Vagina: Number and Distribution of Cases and 1-, 2-, 3-, 5-, 8-, & 10-Year Relative Survival Rates by Stage (SEER modified AJCC, 3rd edition), Ages 20+, 12 SEER Areas, 1988-2001

AJCC Stage	Cases	Percent	Relative Survival Rate (%)					
			1-Year	2-Year	3-Year	5-Year	8-Year	10-Year
Total	1,041	100.0	75.5	62.1	56.4	49.4	43.6	40.7
I	368	35.4	91.0	82.8	76.6	68.4	60.4	55.2
II	236	22.7	83.2	67.1	62.8	54.3	45.2	42.8
III	120	11.5	69.9	54.6	44.7	35.5	27.6	24.8
IV	164	15.8	47.5	31.2	25.5	20.3	18.7	18.4
Unknown/Unstaged	153	14.7	59.5	41.5	35.6	31.7	28.6	28.6

~ Statistic not displayed due to less than 25 cases.

Table 19.9: Cancer of the Vagina: Number of Cases and 5-Year Relative Survival Rates (%) by Stage (SEER modified AJCC, 3rd edition) and Grade, Ages 20+, 12 SEER Areas, 1988-2001

AJCC Stage	Grade							
	Total		Well/Moderately Differentiated		Poorly/ Undifferentiated		Unknown	
	Cases	5-Year Relative Survival Rate(%)	Cases	5-Year Relative Survival Rate(%)	Cases	5-Year Relative Survival Rate(%)	Cases	5-Year Relative Survival Rate(%)
Total	1,041	49.4	338	58.7	349	42.5	354	46.6
I	368	68.4	131	76.6	95	60.0	142	65.4
II	236	54.3	97	60.3	81	54.7	58	41.5
III	120	35.5	41	36.3	54	33.0	25	34.6
IV	164	20.3	37	30.0	66	18.7	61	15.7
Unknown/Unstaged	153	31.7	32	30.0	53	24.0	68	37.8

Figure 19.1: Cancer of the Vagina: 5-Year Relative Survival Rate (%) by Age (20+) and Stage (SEER modified AJCC, 3rd edition), 12 SEER Areas, 1988-2001

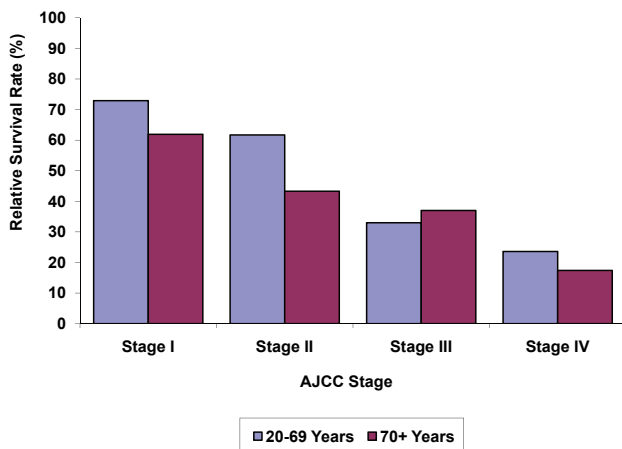


Figure 19.2: Cancer of the Vagina: Relative Survival Rates (%) by Stage (SEER modified AJCC, 3rd edition), Ages 20+, 12 SEER Areas, 1988-2001

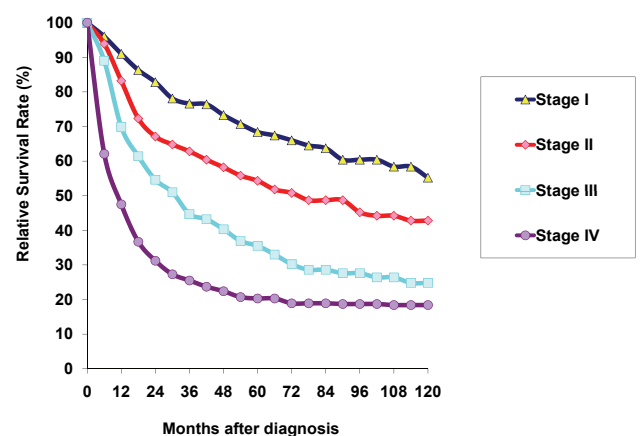


Table 19.10: Cancer of the Vagina: 5-Year Relative Survival Rates (%), Conditioned on Years Since Diagnosis, by AJCC Stage (SEER modified, 3rd edition), Ages 20+, 12 SEER Areas, 1988-2001

AJCC Stage	5-Year Relative Survival Rate (%)					
	Years Since Diagnosis					
	0	1	2	3	4	5
Total	49.4	59.5	69.7	73.8	77.0	79.6
I	68.4	71.5	75.4	77.0	78.8	79.9
II	54.3	60.2	70.1	69.5	73.5	75.1
III	35.5	42.4	51.1	58.9	63.9	70.2
IV	20.3	36.9	57.7	69.7	82.2	91.1
Unknown/Unstaged	31.7	44.9	61.8	73.7	74.9	79.2

Figure 19.3: Cancer of the Vagina: 5-Year Relative Survival Rate (%) by AJCC Stage (SEER modified, 3rd edition) and Grade, Ages 20+, 12 SEER Areas, 1988-2001

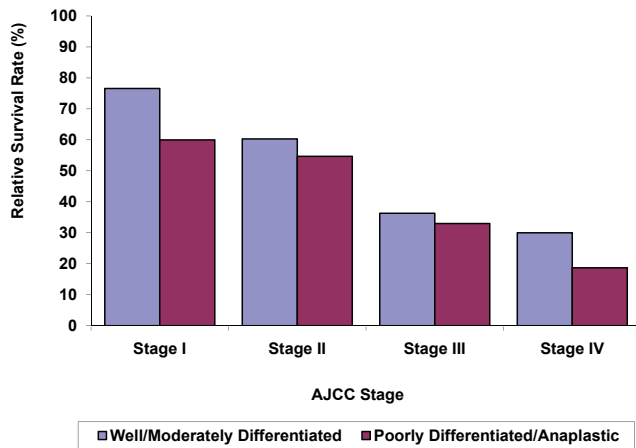
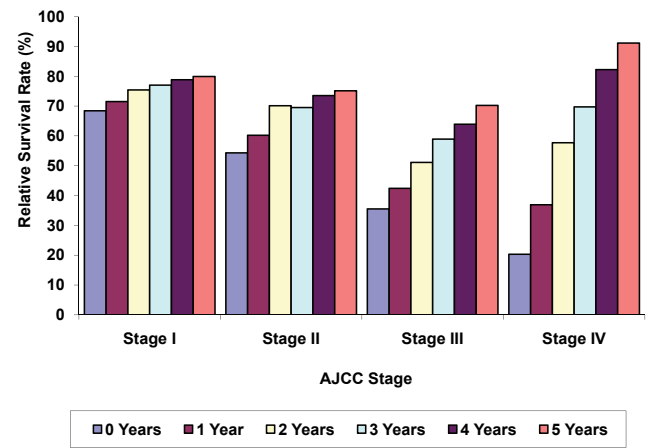


Figure 19.4: Cancer of the Vagina: 5-Year Relative Survival Rate (%), Conditioned on Years Since Diagnosis, by AJCC Stage (SEER modified, 3rd edition), Ages 20+, 12 SEER Areas, 1988-2001



chapter are for descriptive purposes only. As confidence intervals were not included here, interpretation of differences between groups should be made with caution, especially given the rarity of this cancer.

In terms of histologic distribution, approximately two-thirds of these cancers are squamous, 17% are adenocarcinoma, and less than 10% are melanoma. Melanomas have the lowest 5-year survival rate. Black women exhibit a lower survival rate than white women, especially in the age group of 20-69 years.

Over half of cancers of the vagina are diagnosed in stage I and II. Lower survival is seen in women 70 years or older with stages I and II. The steepest decline in relative survival for all stages is during the first 2 to 3 years after

diagnosis. The negative impact of advanced tumor grade is seen primarily for stage I, II, and IV survival rates.

REFERENCES

1. Beahrs, OH, Henson DE, Hutter RVP, Myers MH (eds). AJCC Cancer Staging Manual, Third edition. American Joint Committee on Cancer. Philadelphia: Lippincott, 1988.