

# Chapter 24

## Cancers of the Kidney and Renal Pelvis

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### INTRODUCTION

Cancers of the kidney arise primarily from cells that compose the renal tubules and are most often designated as renal cell carcinomas or clear cell adenocarcinomas (1). Cancers of the renal pelvis and calyces arise in the transitional epithelium that lines these structures and are most often designated as nonpapillary or papillary transitional cell carcinomas. Over 80% of these cancers arise in the renal parenchyma, while less than 20% arise in the renal pelvis (2).

In 2006, cancer of the kidney and renal pelvis was the 9th most common incident malignancy (estimated 38,890 new cancers) and the 12th most common cause of cancer death (estimated 12,840 deaths) in the United States (3). However, increasing incidence rates of renal cell and renal pelvis carcinoma have been reported during more recent years (1,4,5,6). Although the use of abdominal imaging has increased, leading to more renal cancers being detected at local or regional stages of disease, the incidence of cancer presenting at a distant stage has not declined (6). This finding suggests that a true increase in renal cancer has occurred that cannot be solely attributed to changes in diagnostic practices.

Regardless of race, age-adjusted incidence rates have remained higher in males compared with females (4). Among cancers of the kidney, age-adjusted incidence rates in white males and females have remained lower compared with black males and females (4). However, among renal pelvis carcinomas, white males and females have higher age-adjusted incidence rates compared with black males and females.

Rising mortality rates from cancers of the kidney and renal pelvis have also been observed (4). During more recent years, similar age-adjusted mortality rates have been reported in white males and black males, as well as in white females and white males. In both white and blacks, mortality rates were significantly higher in males compared with females.

Although incidence and mortality from cancers of the kidney and renal pelvis have increased, 5-year relative survival rates in whites have improved over time (4). However, significant changes in survival among blacks have not been observed.

**Table 24.1: Cancer of the Kidney and Renal Pelvis : Number of Cases and Exclusions by Reason, 12 SEER Areas, 1988-2001**

Number Selected/Remaining	Number Excluded	Reason for Exclusion/Selection
47,220	0	Select 1988-2001 diagnosis (Los Angeles for 1992-2001 only)
38,329	8,891	Select first primary only
37,583	746	Exclude death certificate only or at autopsy
37,443	140	Exclude unknown race
37,392	51	Exclude alive with no survival time
36,431	961	Exclude children (Ages 0-19)
35,786	645	Exclude in situ cancers for all except breast & bladder cancer
32,755	3,031	Exclude no or unknown microscopic confirmation
32,603	152	Exclude sarcomas
32,583	20	Exclude carcinoids

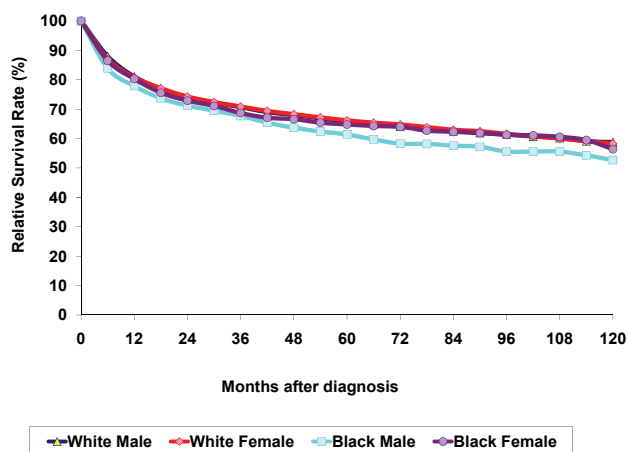
Table 24.2: Cancer of the Kidney and Renal Pelvis: Number and Distribution of Cases by Age (20+), Race and Sex, 12 SEER Areas, 1988-2001

Age Group (Years)	Total		Race/Sex							
			White				Black			
			Male		Female		Male		Female	
Cases	Percent	Cases	Percent	Cases	Percent	Cases	Percent	Cases	Percent	
Total	32,583	100.0	17,221	100.0	10,228	100.0	1,876	100.0	1,268	100.0
20-29	228	0.7	78	0.5	81	0.8	22	1.2	28	2.2
30-39	1,263	3.9	607	3.5	366	3.6	111	5.9	91	7.2
40-49	4,209	12.9	2,271	13.2	1,108	10.8	351	18.7	214	16.9
50-59	7,200	22.1	4,006	23.3	1,962	19.2	525	28.0	272	21.5
60-69	8,845	27.1	4,879	28.3	2,638	25.8	470	25.1	293	23.1
70-79	8,006	24.6	4,109	23.9	2,833	27.7	323	17.2	280	22.1
80+	2,832	8.7	1,271	7.4	1,240	12.1	74	3.9	90	7.1

## MATERIALS AND METHODS

The material and methods follow the description provided in the introductory chapter. Topographic codes used at this site within the SEER Program permit separation of kidney (C64) and renal pelvis (C65). The number of persons with cancers of the kidney and renal pelvis from this population for the period from 1988 to 2001 is provided in Table 24.1, accompanied by the numbers and reasons for those excluded for this survival analysis.

Figure 24.1: Cancer of the Kidney & Renal Pelvis: Relative Survival Rates (%) by Race and Sex, Ages 20+, 12 SEER Areas, 1988-2001



## RESULTS

### All Kidney and Renal Pelvis Cancers

#### *Distribution and survival by age, sex and race*

Eighty-two percent of adults were diagnosed at age 50 and older (Table 24.2). The greatest numbers occurred in the 60-69 age group, and the 50-79 age group contained 73.8% of all kidney and renal pelvis cancers. The male to female ratio was 1.7:1 for whites and 1.5:1 for blacks. White males alone accounted for 52.9% of all eligible persons. Whereas 15.2% of the cancers occurred under age 50 in white females, 26.3% occurred under age 50 in black females.

Relative survival curves were similar by race and sex (Figure 24.1). Five to ten years after diagnosis, black males have the poorest relative survival rates. The five-year relative survival rates ranged from a low of 59% for black males aged 50+ to a high of 78% for white females aged 20-49 (Table 24.3). Under age 50, median survival times were greater than 10 years for both races and sexes. For ages 50 and older, median survival times and 5-year relative survival rates were lowest for black males and highest for white females. Overall for ages 20+, five-year relative survival rates varied by age, race, and sex.

#### *Survival by histology*

Of the 32,583 adult cases, 87.7% were diagnosed with adenocarcinoma (Table 24.4). Pathologists specify adenocarcinoma through several different terms, which relate to histologic features representing the different cells of origin recapitulated in differentiation. The most common coded term was renal cell carcinoma (ICD-O-3 M-8312,

**Table 24.3: Cancer of the Kidney and Renal Pelvis: Number of Cases, Median Survival Time (Months) and 5-Year Survival Rates (%) by Race, Sex, and Age Group (20+), 12 SEER Areas, 1988-2001**

Race, Sex and Age Group	Cases	Median Survival Time (Months)	5-Year Survival Rate (%)		
			Observed	Expected	Relative
White Females, 20-49	1,555	> 120	77.4	99.0	78.3
White Males, 20-49	2,956	> 120	71.1	97.9	72.6
Black Females, 20-49	333	> 120	70.5	97.9	71.4
Black Males, 20-49	484	> 120	63.4	95.2	66.4
White Females, 50+	8,673	77.2	54.7	85.8	63.8
White Males, 50+	14,265	67.6	52.6	81.8	64.3
Black Females, 50+	935	70.4	52.3	84.6	61.8
Black Males, 50+	1,392	51.7	47.2	79.7	59.2
White Females, 20+	10,228	92.6	58.1	87.8	66.2
White Males, 20+	17,221	79.8	55.7	84.6	65.9
Black Females, 20+	1,268	91.9	57.1	88.1	64.8
Black Males, 20+	1,876	64.4	51.4	83.7	61.4

8316-8319) followed by clear cell adenocarcinoma (ICD-O-3 M-8310). The second most common histologic type, accounting for nearly 10% of all cancers, was transitional cell carcinoma. Most of these cancers were coded as papillary transitional cell carcinoma (ICD-O-3 M-8130) or transitional cell carcinoma (ICD-O-3 M-8120). Squamous cell carcinoma was rare and most commonly was reported as having arisen in the renal pelvis, where it has been often associated with squamous metaplasia, renal calculi, and chronic infection (7). Oxyphilic adenocarcinoma, also known as oncocytic carcinoma, in the ICD-O coding scheme, probably consists largely of renal oncocytoma, a tumor distinct from renal cell carcinoma because it typically has a benign behavior (8). The occasional malignant cases are thought to be most likely chromophobe renal cell carcinomas (ICD-O-3 M-8270) (9). Nephroblastoma, also known as Wilms tumor, rarely occurs in adults, but is the most common form of renal cancer in children (10). Oxyphilic adenocarcinoma and nephroblastoma arose only in the kidney. We classified 2.4% of kidney and renal pelvis cancers to an “other” category. Within this category, carcinoma not otherwise specified (ICD-O-3 M-8010) was the most common histologic type.

Five-year relative survival rates were greatest for oxyphilic adenocarcinoma followed by nephroblastoma/Wilms tumor (Table 24.5). Squamous cell carcinoma had the poorest survival rate. Median survival rates for these histologic types followed a similar pattern. The two most common histologic types, adenocarcinoma and transitional cell carcinoma, had observed survival rates that were about 10 percentage points lower than their corresponding relative rates. Median survival for adenocarcinoma (92 months) was more than double that for transitional cell carcinoma (45 months).

Relative survival curves for each of these histologic types showed oxyphilic adenocarcinoma with the best survival and squamous cell carcinoma with the worst (Figure 24.2). Eighteen or more months after diagnosis, the relative survival rates for adenocarcinoma was significantly better than transitional cell carcinoma.

## Adenocarcinoma

### *Survival by age, race, sex, and laterality*

Of the 28,560 persons with adenocarcinoma, 81.3% were diagnosed when at least 50 years old (Table 24.6). Persons in the 50-79 year age groups were diagnosed with almost three-quarters of all adenocarcinomas. The male to female ratio was 1.75:1. White males alone accounted for 53.4% of all adenocarcinomas. Whereas 17.6% of adenocarcinomas occurred in whites under age 50, 26.8% occurred in blacks under age 50.

Over 99% of adenocarcinomas with classifiable laterality (n = 28,078) were coded as arising in the kidney (Table 24.7). Right kidney was a slightly more common location (50.7%). The median survival time was slightly higher for adenocarcinomas of the right kidney compared with the left kidney.

In the 20-49, 50+ and 20+ age groups, five-year observed and relative survival rates were highest among white females and lowest among black males (Table 24.8). In each of these age groups, five-year survival rates for white males and black females were similar. For each race-sex group, survival rates were highest in the 20-49 age group. Relative survival curves for adenocarcinoma by race and

Table 24.4: Cancer of the Kidney and Renal Pelvis: 5-Year Relative Survival Rate (RSR) and Distribution of Cases by Histology, Ages 20+, 12 SEER Areas, 1988-2001

Histology/ICD-O Code	Cases	Percent	5-Year RSR (%)
Total	32,583	100.0	65.5
Adenocarcinoma	28,560	87.7	67.5
Renal Cell Carcinoma (8312,8316-8319)	20,045	61.5	65.6
Adenocarcinoma, NOS (8140)	684	2.1	39.1
Tubular Adenocarcinoma (8211)	96	0.3	79.5
Papillary Adenocarcinoma (8260)	371	1.1	74.1
Clear Cell Adenocarcinoma, NOS (8310)	6,445	19.8	75.4
Granular Cell Carcinoma (8320)	748	2.3	72.2
Other Adeno (8141,8190,8200,8251,8255,8270,8280,8323,8370,8440,8450,8480-8481,8490,8500,8504,8510,8521,8550,8570,8940)	171	0.5	68.6
Transitional Cell Carcinoma	3,049	9.4	57.5
Transitional Cell Carcinoma, NOS (8120)	1,495	4.6	38.2
Papillary Transitional Cell Carcinoma (8130)	1,550	4.8	75.4
Other Transitional (8121-8122)	<5	~	~
Squamous Cell Carcinoma	93	0.3	4.0
Squamous Cell Carcinoma, NOS (8070)	78	0.2	4.7
Other Squamous (8052,8071)	15	0.0	~
Oxyphilic Adenocarcinoma (8290)	65	0.2	94.9
Nephroblastoma/Wilms Tumor (8960)	42	0.1	78.1
Other Histologies (8000-8001,8004,8010,8012,8020-8022,8030,8032-8033,8041,8046,8050,8560,8933,8935,8963-8964,8990,9082,9364,9473)	774	2.4	23.8

~ Statistic not displayed due to less than 25 cases.

Table 24.5: Cancer of the Kidney and Renal Pelvis: Number and Distribution of Cases, Median Survival Time (Months) and 5-Year Relative Survival Rates (%) by Histology, Ages 20+, 12 SEER Areas, 1988-2001

Histology	Cases	Percent	Median Survival Time (Months)	5-Year Survival Rate (%)		
				Observed	Expected	Relative
Total	32,583	100.0	83.3	56.3	86.0	65.5
Adenocarcinoma	28,560	87.7	91.9	58.6	86.9	67.5
Transitional cell carcinoma	3,049	9.4	45.4	45.5	79.1	57.5
Squamous cell carcinoma	93	0.3	5.2	3.2	80.7	4.0
Oxyphilic adenocarcinoma	65	0.2	> 120	81.1	79.9	94.9
Nephroblastoma/Wilms tumor	42	0.1	> 120	76.9	97.5	78.1
Other Histologies	774	2.4	6.7	19.3	81.2	23.8

sex (Figure 24.3) were almost identical to those for all histologic types combined (Figure 24.1).

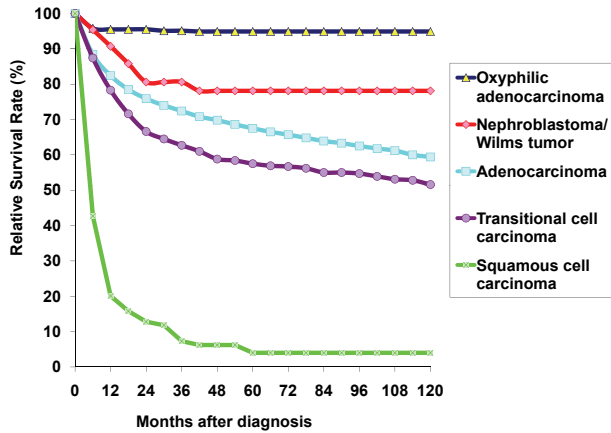
### Survival by stage

Staging information for adenocarcinoma was available for 78.3% of the 26,824 patients in the comparison of stage for white patients and black patients (Table 24.9). For each of these race and sex subgroups, the greatest percentages of adenocarcinomas were diagnosed at stage I, 30.6% among

white males, 35.0% among black males, 35.5% among white females, and 35.6% among black females (Table 24.9). Overall, 40.4% of adenocarcinomas in white males, 45.2% in black males, 45.3% in white females, and 47.3% in black females were diagnosed at AJCC stages I & II. The percentages of stage III adenocarcinomas ranged from 9.5% in black females to 15.6% in white males, whereas for stage IV adenocarcinomas the percentages were in a much tighter range of 19.1% in black females to 22.7% in white males.

For Stages I and II, 5-year relative survival varied more by race than stage for males. Relative survival curves were higher for white males compared with black males for Stages I, II, and III but similar for Stage IV (Figure 24.4). Analogous curves for females were different at stage III up until 10 years but similar for other stages (Figure 24.5).

**Figure 24.2: Cancer of the Kidney & Renal Pelvis: Relative Survival Rates (%) by Histology, Ages 20+, 12 SEER Areas, 1988-2001**



**Transitional Cell Carcinoma**

*Survival by age, race, sex, and laterality*

Among persons with transitional cell carcinoma, 92.9% occurred in patients at least 50 years old (Table 24.10). The male to female ratio was 1.2:1. The under 60 age group comprised only 14.5% in white females, whereas 23.4%, 26.3%, and 31.4% occurred in white males, black females, and black males, respectively.

About 99% (n = 3,019) of the transitional cell carcinomas were coded as arising in the right or left kidney and right or left renal pelvis (Table 24.11). Most of these (80.3%) were classifiable to renal pelvis with the right renal pelvis being the preferred side (50.8%). The median survival times were similar between the right and left renal pelvis. Median survival times for transitional cell carcinomas that arose in the kidney were less than half that of those arising in the renal pelvis.

Age-specific five-year relative survival rates ranged from a low of 36% for black males aged 70+ to a high of 64% for white males in the 20-69 age group (Table 24.12). Observed and relative survival rates were greater for

**Table 24.6: Adenocarcinoma of the Kidney and Renal Pelvis: Number and Distribution of Cases by Age (20+), Race and Sex, 12 SEER Areas, 1988-2001**

Age Group (Years)	Total		Race/Sex							
			White				Black			
			Male		Female		Male		Female	
			Cases	Percent	Cases	Percent	Cases	Percent	Cases	Percent
Total	28,560	100.0	15,252	100.0	8,707	100.0	1,723	100.0	1,142	100.0
20-29	198	0.7	63	0.4	74	0.8	20	1.2	23	2.0
30-39	1,179	4.1	561	3.7	347	4.0	100	5.8	88	7.7
40-49	3,964	13.9	2,126	13.9	1,048	12.0	335	19.4	202	17.7
50-59	6,648	23.3	3,713	24.3	1,785	20.5	493	28.6	249	21.8
60-69	7,860	27.5	4,369	28.6	2,310	26.5	425	24.7	274	24.0
70-79	6,652	23.3	3,472	22.8	2,282	26.2	287	16.7	235	20.6
80+	2,059	7.2	948	6.2	861	9.9	63	3.7	71	6.2

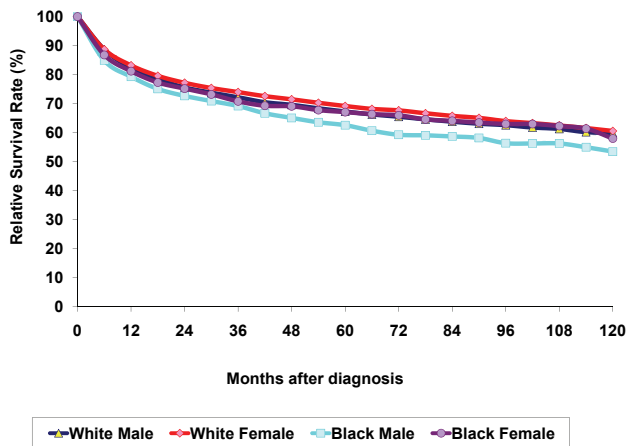
**Table 24.7: Adenocarcinoma of the Kidney and Renal Pelvis: 5-Year Relative Survival Rate (RSR), Distribution of Cases with Classifiable Laterality and Median Survival Time (Months) by Laterality and Subsite, Ages 20+, 12 SEER Areas, 1988-2001**

Laterality	Kidney				Renal Pelvis			
	Cases	Percent	Median Survival Time (Months)	5-Year RSR (%)	Cases	Percent	Median Survival Time (Months)	5-Year RSR (%)
Total (with classifiable laterality)	28,014	100.0	95.1	68.4	64	100.0	34.5	47.7
Right	14,217	50.7	99.8	69.5	37	57.8	34.4	46.0
Left	13,797	49.3	89.7	67.2	27	42.2	47.1	47.0

Table 24.8: Adenocarcinoma of the Kidney and Renal Pelvis: Number and Distribution of Cases, Median Survival Time (Months) and 5-Year Survival Rates (%) by Race, Sex and Age (20+), 12 SEER Areas, 1988-2001

Race, Sex and Age Group (Years)	Cases	Percent	Median Survival Time (Months)	5-Year Survival Rate (%)		
				Observed	Expected	Relative
All	28,560	100.0	91.9	58.6	86.9	67.5
White Females, 20-49	1,469	5.1	> 120	78.3	99.0	79.1
White Males, 20-49	2,750	9.6	> 120	71.7	97.9	73.2
Black Females, 20-49	313	1.1	> 120	71.8	97.9	72.8
Black Males, 20-49	455	1.6	> 120	64.6	95.1	67.7
White Females, 50+	7,238	25.3	89.6	58.3	87.0	67.0
White Males, 50+	12,502	43.8	73.5	54.4	82.7	65.8
Black Females, 50+	829	2.9	75.7	54.8	85.3	64.3
Black Males, 50+	1,268	4.4	54.8	48.3	80.0	60.4
White Females, 20+	8,707	30.5	105.0	61.6	89.0	69.2
White Males, 20+	15,252	53.4	86.1	57.5	85.4	67.3
Black Females, 20+	1,142	4.0	104.7	59.5	88.7	67.1
Black Males, 20+	1,723	6.0	66.0	52.6	84.0	62.6

Figure 24.3: Adenocarcinoma of the Kidney & Renal Pelvis: Relative Survival Rates (%) by Race and Sex, Ages 20+, 12 SEER Areas, 1988-2001



males than females in each of these age groups except blacks 70+. Survival rates were higher for the younger age group by race and sex.

Black and white males had the best relative survival rates 2 to 6 years after diagnosis (Figure 24.6). Thereafter, relative survival rates in black males tailed off and were similar to black and white females. Overall, black and white males had better relative survival rates than black and white females and higher median survival times.

**Survival by sex, stage, and grade**

Staging information was available for 65.0% of the 3,049 transitional cell carcinomas. AJCC (5th edition) stage I transitional cell carcinomas were slightly more frequent in

males (17.2%) compared with females (14.5%), whereas stage IV transitional cell carcinomas were slightly more frequent in females (29.1%) than males (25.4%) (Table 24.13). AJCC (5th edition) stage distribution was similar for blacks and whites except blacks had a higher percentage unknown, 41.5% and 35.2%, respectively. Survival rates for blacks with stages II and III could not be calculated due to insufficient case numbers for analysis (Table 24.13, Figure 24.8).

Males had slightly better relative survival rates than females for each stage of disease with the exception of stage II and III (Figure 24.7). Coupled with the slightly larger percentage of tumors in the early stage, this, at least in part, explained the overall better survival rates for males compared with females (Figure 24.6). Relative survival differences between blacks and whites were not substantial, in part due to low numbers of blacks at each stage (Figure 24.8).

Within both sexes, low grade (grades I & II) transitional cell carcinomas had better survival than high grade (grades III & IV) at each stage (Figures 24.9 & 24.10).

**DISCUSSION**

During 2006, cancers of the kidney and renal pelvis were the 9th most common incident malignant cancer and the 12th most common cause of cancer death. Of the 32,583 patients, 84.2% were white, 9.6% black, and 6.2% other races. The greatest number of these cancers was diagnosed in the 60-69 age group. Adenocarcinoma was the most common histologic type, accounting for 87.7% of

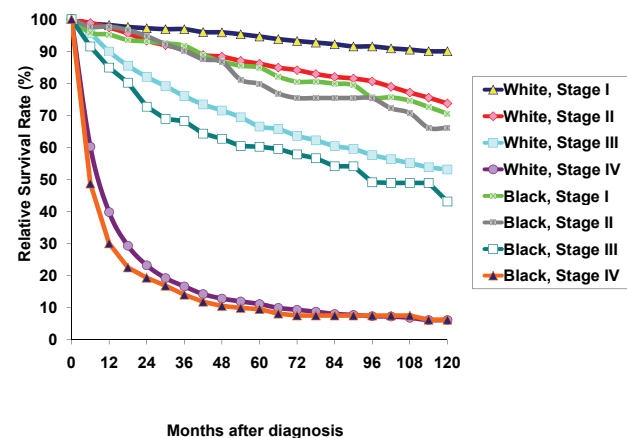
Table 24.9: Adenocarcinoma of the Kidney and Renal Pelvis: Number and Distribution of Cases, 5-Year Relative Survival Rates (%), and Median Survival Time (Months) by AJCC Stage (5th Edition), Race, and Sex, Ages 20+, 12 SEER Areas, 1988-2001

AJCC Stage	Race/Sex											
	White						Black					
	Male			Female			Male			Female		
	Cases	Percent	5-Year Relative Survival Rate (%)	Cases	Percent	5-Year Relative Survival Rate (%)	Cases	Percent	5-Year Relative Survival Rate (%)	Cases	Percent	5-Year Relative Survival Rate (%)
Total	15,252	100.0	67.3	8,707	100.0	69.2	1,723	100.0	62.6	1,142	100.0	67.1
Stage I	4,674	30.6	94.6	3,088	35.5	93.3	603	35.0	84.9	407	35.6	91.0
Stage II	1,490	9.8	86.1	856	9.8	88.2	175	10.2	79.8	134	11.7	88.8
Stage III	2,372	15.6	66.5	1,137	13.1	62.1	188	10.9	60.2	109	9.5	48.2
Stage IV	3,460	22.7	11.1	1,723	19.8	9.4	381	22.1	9.5	218	19.1	8.1
Unstaged/Unknown	3,256	21.3	80.2	1,903	21.9	80.0	376	21.8	73.0	274	24.0	74.3

Median Survival Time (Months)				
AJCC Stage	White Males	White Females	Black Males	Black Females
Total	86.1	105.0	66	104.7
Stage I	> 120	> 120	116.4	> 120
Stage II	> 120	> 120	112.5	> 120
Stage III	76.6	74.9	58.7	35.9
Stage IV	8.1	7.0	5.6	5.8
Unstaged/Unknown	116.6	> 120	99.7	110.1

all cancers, followed by transitional cell carcinoma, which accounted for 9.4%. Squamous cell carcinoma, oxyphilic adenocarcinoma, and nephroblastoma/Wilms tumor accounted for less than 1%. Oxyphilic adenocarcinoma had the highest 5-year relative survival rate (95%), followed by nephroblastoma/Wilms tumor (78%), adenocarcinoma (68%), transitional cell carcinoma (58%), and squamous cell carcinoma (4%). The male:female ratio was 1.75:1

Figure 24.4: Male Adenocarcinoma of the Kidney & Renal Pelvis: Relative Survival Rates (%) by AJCC Stage (5th Edition) and Race, Ages 20+, 12 SEER Areas, 1988-2001



for adenocarcinoma and 1.2:1 for transitional cell carcinoma.

For adenocarcinomas, blacks had a slightly higher percentage of stage I & II disease than whites. Nevertheless, their overall relative survival was slightly less than whites because of lower survival rates by stage. Females had a slightly higher relative survival percentage than males except for stage III. Part of the explanation for this was a higher percentage of stages I & II adenocarcinomas in females compared with males for both blacks and whites.

For transitional cell carcinoma, low grade tumors had better relative survival rates than high grade tumors within each stage. Overall, relative survival was higher among males than females. This was, at least in part, explained by males 1) having a greater percentage diagnosed under age 60, 2) having a lower percentage of stage IV cancers, and 3) having a higher percentage of low grade cancers.

Figure 24.5: Female Adenocarcinoma of the Kidney & Renal Pelvis: Relative Survival Rates (%) by AJCC Stage (5th Edition) and Race, Ages 20+, 12 SEER Areas, 1988-2001

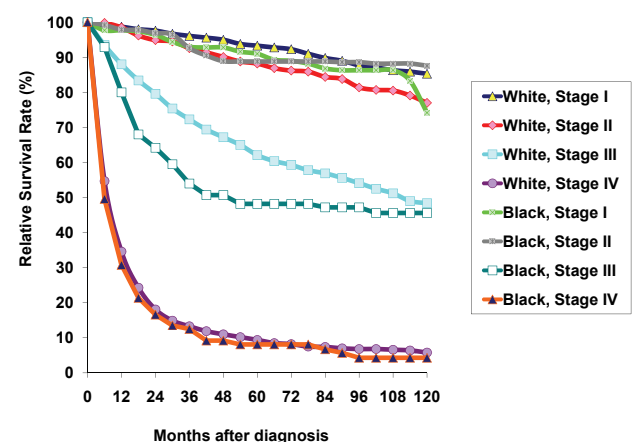


Table 24.10: Transitional Cell Carcinoma of the Kidney and Renal Pelvis: Number and Distribution of Cases by Age (20+), Race and Sex, 12 SEER Areas, 1988-2001

Age Group (Years)	Total		Race/Sex							
			White				Black			
			Male		Female		Male		Female	
	Cases	Percent	Cases	Percent	Cases	Percent	Cases	Percent	Cases	Percent
Total	3,049	100.0	1,501	100.0	1,192	100.0	83	100.0	76	100.0
20-49	216	7.1	144	9.6	46	3.9	11	13.3	6	7.9
50-59	383	12.6	207	13.8	126	10.6	15	18.1	14	18.4
60-69	766	25.1	385	25.6	269	22.6	29	34.9	14	18.4
70-79	1,069	35.1	512	34.1	444	37.2	20	24.1	29	38.2
80+	615	20.2	253	16.9	307	25.8	8	9.6	13	17.1

Table 24.11: Transitional Cell Carcinoma of the Kidney and Renal Pelvis: 5-Year Relative Survival, Distribution of Cases with Classifiable Laterality and Median Survival Time (Months) by Laterality and Subsite, Ages 20+, 12 SEER Areas, 1988-2001

Laterality	Kidney				Renal Pelvis			
	Cases	Percent	Median Survival Time (Months)	5-Year Relative Survival	Cases	Percent	Median Survival Time (Months)	5-Year Relative Survival
Total	596	100.0	25.3	44.4	2,423	100.0	54.9	60.9
Right	302	50.7	25.9	44.2	1,230	50.8	56.0	61.6
Left	294	49.3	23.6	44.0	1,193	49.2	54.1	60.2

Table 24.12: Transitional Cell Carcinoma of the Kidney and Renal Pelvis: Number and Distribution of Cases, Median Survival Time (Months) and 5-Year Survival Rates (%) by Race, Sex, and Age (20+), 12 SEER Areas, 1988-2001

Race, Sex and Age Group (Years)	Cases	Percent	Median Survival Time (Months)	5-Year Survival Rate (%)		
				Observed	Expected	Relative
All	3,049	100.0	45.4	45.5	79.1	57.5
White Females, 20-69	441	14.5	85.9	53.5	94.2	56.6
White Males, 20-69	736	24.1	94.7	58.4	91.1	64.0
Black Females, 20-69	34	1.1	> 120	52.3	92.0	55.8
Black Males, 20-69	55	1.8	81.4	54.8	86.8	63.1
White Females, 70+	751	24.6	29.7	36.5	72.0	50.6
White Males, 70+	765	25.1	33.8	37.3	64.2	58.1
Black Females, 70+	42	1.4	21.0	36.3	70.7	46.9
Black Males, 70+	28	0.9	30.0	23.1	62.0	35.9
White Females, 20+	1,192	39.1	39.3	42.7	80.2	53.3
White Males, 20+	1,501	49.2	50.8	47.7	77.4	61.5
Black Females, 20+	76	2.5	44.0	43.4	80.2	51.7
Black Males, 20+	83	2.7	43.9	43.9	78.5	56.0



Figure 24.6: Transitional Cell Carcinoma of the Kidney & Renal Pelvis: Relative Survival Rates (%) by Race and Sex, Ages 20+, 12 SEER Areas, 1988-2001

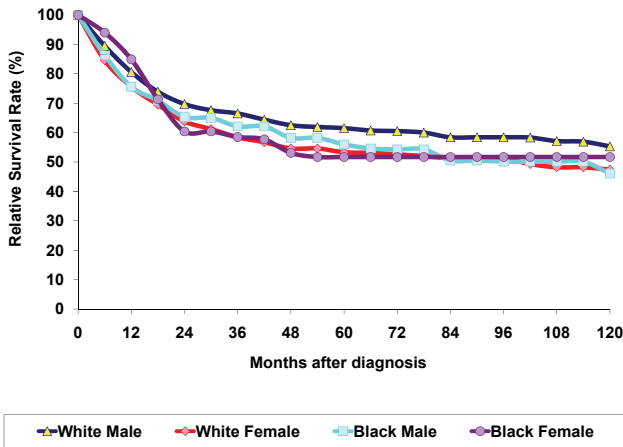


Figure 24.7: Transitional Cell Carcinoma of the Kidney & Renal Pelvis: Relative Survival Rates (%) by AJCC Stage (5th Edition) and Sex, Ages 20+, 12 SEER Areas, 1988-2001

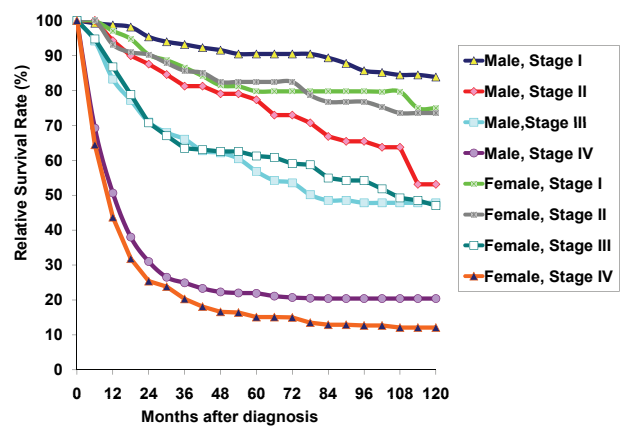


Figure 24.8: Transitional Cell Carcinoma of the Kidney & Renal Pelvis: Relative Survival Rates (%) by AJCC Stage (5th Edition) and Race, Ages 20+, 12 SEER Areas, 1988-2001

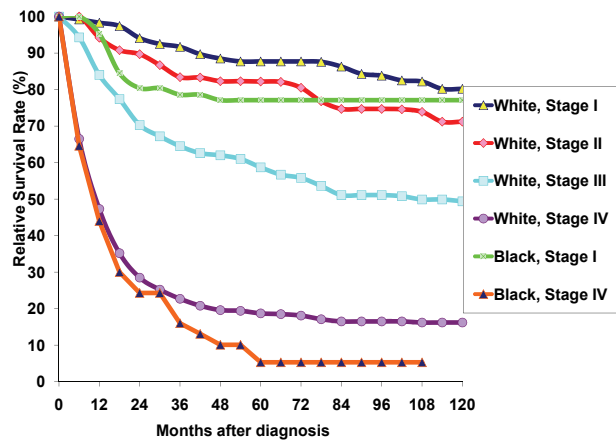


Figure 24.9: Male Transitional Cell Carcinoma of the Kidney & Renal Pelvis: Relative Survival Rates (%) by AJCC Stage (5th Edition) and Grade, Ages 20+, 12 SEER Areas, 1988-2001

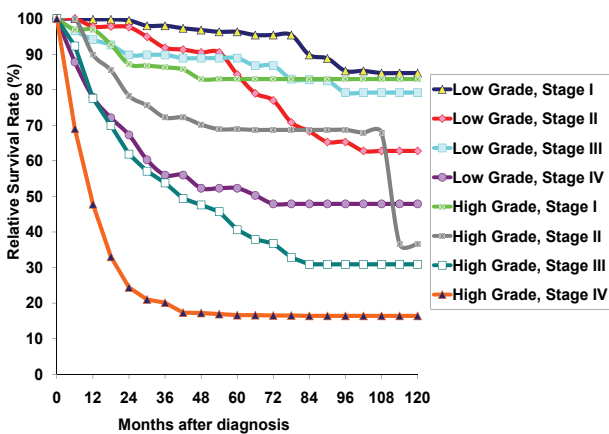
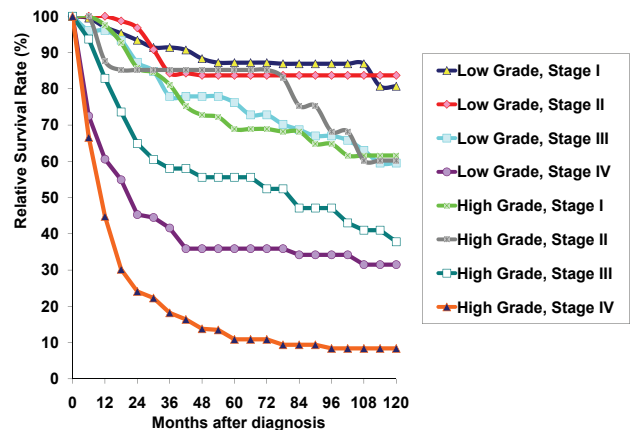


Figure 24.10: Female Transitional Cell Carcinoma of the Kidney & Renal Pelvis: Relative Survival Rates (%) by AJCC Stage (5th Edition) and Grade, Ages 20+, 12 SEER Areas, 1988-2001



**Table 24.13: Transitional Cell Carcinoma of the Kidney and Renal Pelvis: Number and Distribution of Cases, 5-Year Relative Survival Rates (%), and Median Survival Time (Months) by AJCC Stage (5th Edition), Sex, and Race, Ages 20+, 12 SEER Areas, 1988-2001**

AJCC Stage (5th Edition)	Sex						Race					
	Male			Female			White			Black		
	Cases	Percent	5-Year Relative Survival Rate (%)	Cases	Percent	5-Year Relative Survival Rate (%)	Cases	Percent	5-Year Relative Survival Rate (%)	Cases	Percent	5-Year Relative Survival Rate (%)
<b>Total</b>	<b>1,704</b>	<b>100.0</b>	<b>61.1</b>	<b>1,345</b>	<b>100.0</b>	<b>53.2</b>	<b>2,693</b>	<b>100.0</b>	<b>57.9</b>	<b>159</b>	<b>100.0</b>	<b>55.0</b>
<b>Stage I</b>	<b>293</b>	<b>17.2</b>	<b>90.4</b>	<b>195</b>	<b>14.5</b>	<b>79.7</b>	<b>422</b>	<b>15.7</b>	<b>87.7</b>	<b>25</b>	<b>15.7</b>	<b>77.1</b>
<b>Stage II</b>	<b>97</b>	<b>5.7</b>	<b>77.3</b>	<b>62</b>	<b>4.6</b>	<b>82.4</b>	<b>143</b>	<b>5.3</b>	<b>82.2</b>	<b>6</b>	<b>3.8</b>	<b>~</b>
<b>Stage III</b>	<b>298</b>	<b>17.5</b>	<b>56.8</b>	<b>215</b>	<b>16.0</b>	<b>61.2</b>	<b>459</b>	<b>17.0</b>	<b>58.7</b>	<b>24</b>	<b>15.1</b>	<b>~</b>
<b>Stage IV</b>	<b>432</b>	<b>25.4</b>	<b>21.9</b>	<b>391</b>	<b>29.1</b>	<b>15.1</b>	<b>722</b>	<b>26.8</b>	<b>18.7</b>	<b>38</b>	<b>23.9</b>	<b>5.3</b>
<b>Unstaged/Unknown</b>	<b>584</b>	<b>34.3</b>	<b>72.1</b>	<b>482</b>	<b>35.8</b>	<b>64.3</b>	<b>947</b>	<b>35.2</b>	<b>69.0</b>	<b>66</b>	<b>41.5</b>	<b>67.5</b>

Median Survival Time (Months)				
AJCC Stage	White Males	White Females	Black Males	Black Females
<b>Total</b>	<b>51.6</b>	<b>39.9</b>	<b>45.1</b>	<b>43.8</b>
<b>Stage I</b>	<b>&gt; 120</b>	<b>&gt; 120</b>	<b>&gt; 120</b>	<b>116.0</b>
<b>Stage II</b>	<b>77.9</b>	<b>104.0</b>	<b>97.2</b>	<b>~</b>
<b>Stage III</b>	<b>50.2</b>	<b>65.0</b>	<b>53.1</b>	<b>~</b>
<b>Stage IV</b>	<b>11.2</b>	<b>9.3</b>	<b>10.3</b>	<b>9.0</b>
<b>Unstaged/Unknown</b>	<b>79.9</b>	<b>65.2</b>	<b>74.0</b>	<b>91.3</b>

~Statistic not displayed due to less than 25 cases.

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