

# Bladder Cancer Study

## Analysis of Sharon Hospital Cancer Registry Data 1998 - 2010

In 2010, an estimated 70,530 new cases of bladder cancer will be diagnosed in the United States. There were approximately 1,110 residents in Connecticut diagnosed with this disease.

**Note:** all cases included in this study are analytical cases in the Sharon Hospital cancer registry. Analytical cases are those cases in which the patient was diagnosed at and/or received all or part of their first course treatment at Sharon Hospital. Non-analytic patients are those patients who had all first course treatment at another facility and presented to Sharon Hospital for treatment of disease refractory to previous treatment regimens or with recurrence of previously treated disease and have not been included in this study as information on their first course treatment is often limited and/or incomplete.

### **Risk factors:**

Smoking is the most important risk factor for bladder cancer. Cigarette smoking contributes to more than 48% of cases, and smoking cigars or pipes may also increase the risk.

Other risk factors include the following:

- Age
- Chronic bladder inflammation
- Diet high in saturated fat
- Exposure to second-hand smoke
- External beam radiation and/or chemotherapy
- Family history of bladder cancer
- Gender (male)
- Personal history of bladder cancer
- Race (Caucasian)

### **Signs and symptoms:**

- Blood and/or clots in urine.
- Frequent urination.
- Intense urge to urinate.
- Bladder spasm.
- Pain or burning with urination.

### **Incidence:**

Each year in the United States, well over 70,000 men and women learn that they have bladder cancer. From 1998 to 2010, the Sharon Hospital cancer registry accessioned 112 patients with newly diagnosed bladder cancer. Distribution by year of first contact is illustrated below in Figure 1.

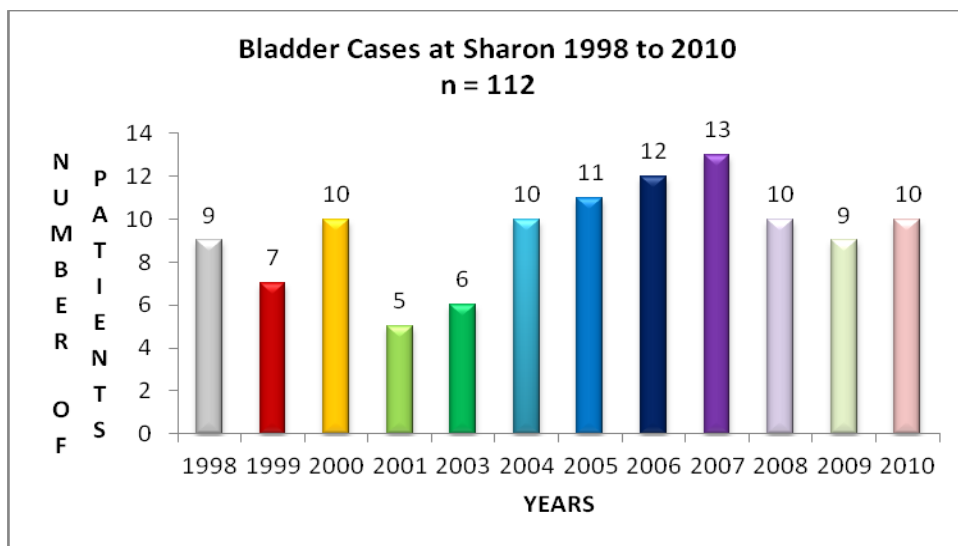


Figure 1

Bladder cancer incidence rates among men and women have been stable among men, but have been increasing slightly among women by 0.2% per year.<sup>1</sup> Bladder incidence is nearly four times higher in men than in women and almost two times higher in caucasians than in African Americans. Below is the gender distribution for bladder cancer at Sharon Hospital – Figure 2. There were 76 males and 37 females that were diagnosed between 1998 to 2010. The male to female ratio was 2:1.

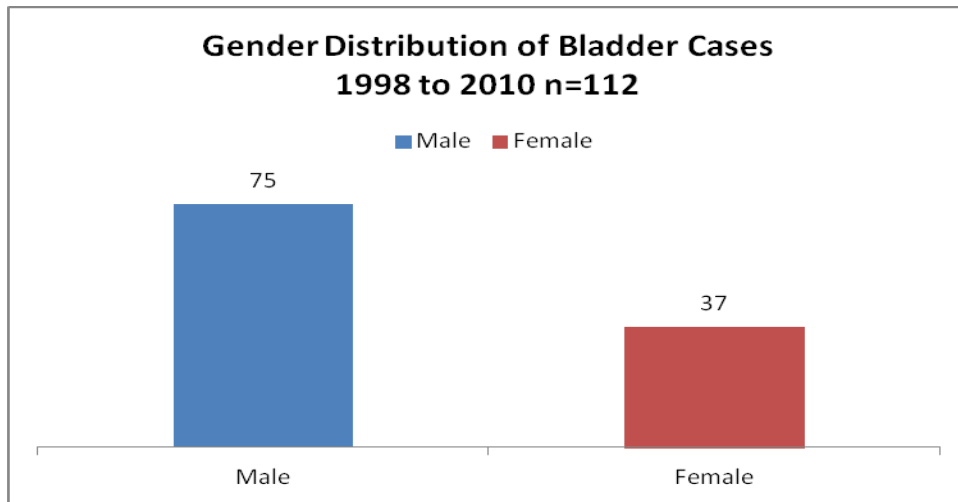


Figure 2

**SHARON HOSPITAL Patient Demographics:**

**Race**

The racial distribution for the patients in the Sharon Hospital cancer registry from 1998 to 2010 is illustrated in the Table 1 below.

**Table 1**

Race	Number of Cases	Percentage
Caucasian	110	98%
African American	1	1%
Other	1	1%
<b>Grand Total</b>	<b>112</b>	<b>100%</b>

**Age at Time of Diagnosis**

The risk of developing bladder cancer increases with age. The probability of developing invasive and/or in situ bladder cancer over selected age intervals by sex, US, 2004-2006.<sup>2</sup>

**Table 2**

	Birth to 39	40 to 59	60 to 69	70 & Older	Birth to Death
Male	0.02 (1 in 4,741)	0.39 (1 in 257)	0.95 (1 in 106)	3.66 (1 in 27)	3.81 (1 in 26)
Female	0.01 (1 in 10,613)	0.12 (1 in 815)	0.26 (1 in 385)	1.01(1 in 99)	1.18 (1 in 84)

<sup>1,2</sup> Cancer Facts & Figures 2010

<sup>3</sup> Cancer Facts & Figures 2010

Patients at Sharon Hospital ranged in ages 50 to 90+. The most cases occurred in the 80-89 age range as seen below – Figure 3.

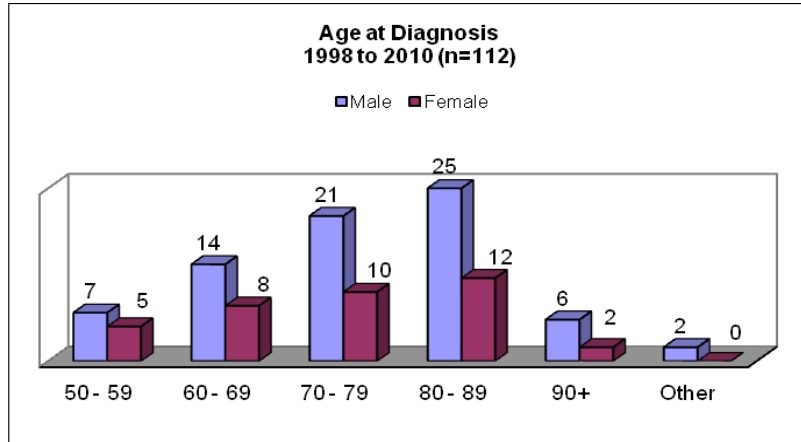


Figure 3

#### County of Residence at Time of Diagnosis

The majority of patients seen at Sharon Hospital for the treatment of bladder cancer from 1998 to 2010 resided in the following counties CT- Litchfield and NY- Dutchess. – see Figure 4.

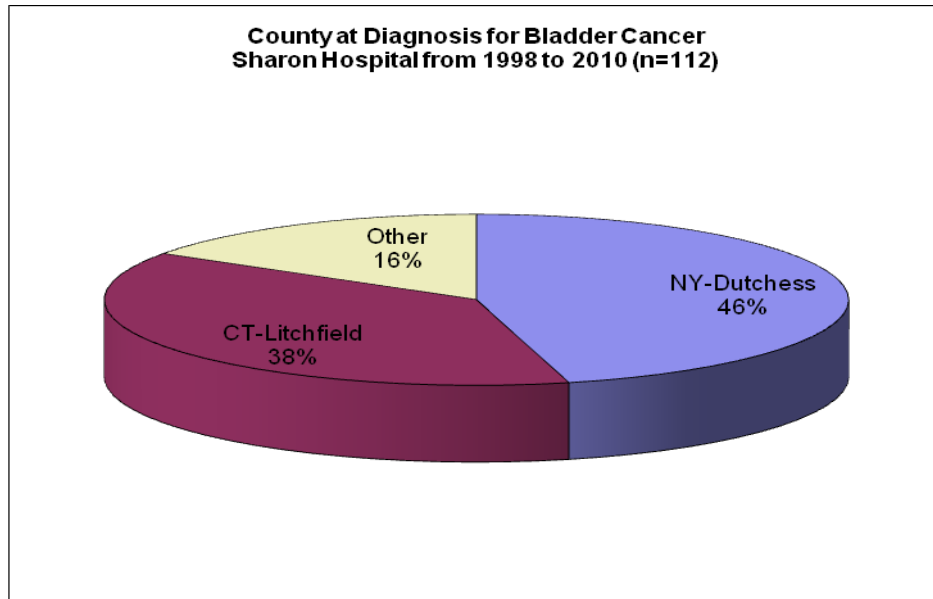


Figure 4

**Tumor Characteristics:**

**Histologic Type**

Urothelial papillary transitional cell carcinoma is the most common form of bladder cancer. It accounts for more than 90% of bladder cancers. There are, however, other histology types seen in bladder cancer cases which include squamous cell carcinoma, adenocarcinoma and small cell carcinoma.

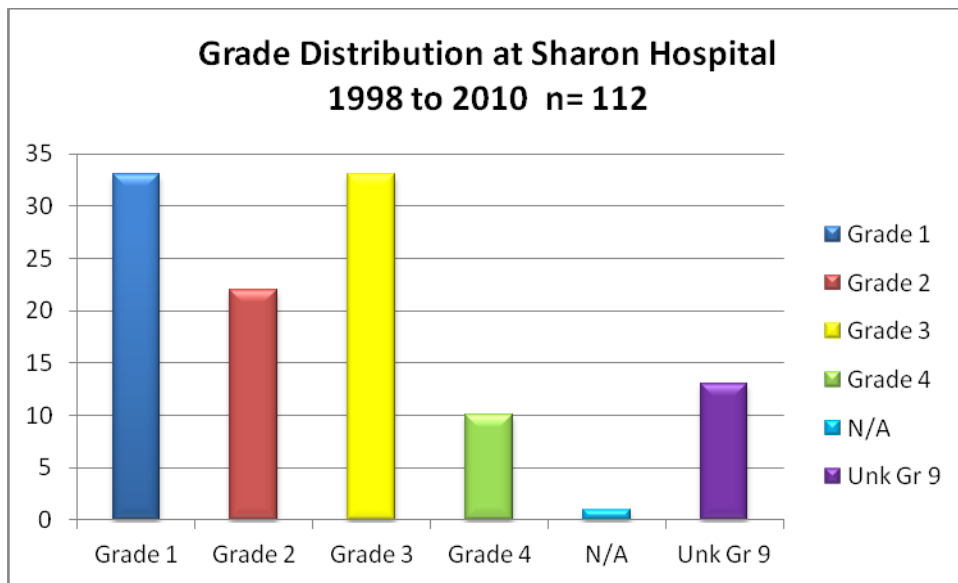
**Table 3**

<b>Histology</b>	<b>Percentage</b>
Squamous Cell Carcinoma	<b>1.7%</b>
Papillary Transitional Cell CA In Situ	<b>26.5%</b>
Papillary Transitional Cell Carcinoma	<b>59.3%</b>
All Other Histologies	<b>12.5%</b>
Total	<b>100%</b>

**Tumor Grade**

- GX – Grade cannot be assessed
- G1 – Well
- G2 – Moderately to well differentiated
- G3 – Poorly differentiated
- G4 – Undifferentiated

Histological grade distribution for bladder cancer at Sharon Hospital in 1998 to 2010 is illustrated in Figure 5.



**Figure 5**

### **Evaluation of Disease at Time of Diagnosis**

Establishing the extent of the patient's disease (stage of disease) is critical in assisting the clinician in determining the appropriate treatment modality for the individual patient. Tests that assist the physician in evaluating the initial extent of disease and establishing the patient's stage are:

- Physical Exam
- Blood & Other Tests
- Imaging – CT Abdomen and Pelvis, Chest X-ray and Bone Scan
- Cystoscopy and Biopsy

### **Staging of Disease at Time of Diagnosis**

The TNM staging system provides information on the extent of the primary tumor, the status of the lymph nodes and the presence or absence of distant (metastatic) disease.

**Clinical staging**, or the determination of the depth of invasion and/or extent of cancer based on physical exam, x-rays, cystoscopy, and transurethral bladder tumor resection, is very useful in distinguishing superficial bladder cancer from muscle-invasive disease.

**Pathological staging** is microscopic examination and confirmation of extent of disease is required. Total cystectomy and lymph node dissection generally are required.

- Ta, Tis Non-invasive tumors limited to bladder lining (Stage 0)
- T1 Tumor extends through the lining, but does not extend into the muscle layer (Stage I)
- T2 Tumor invades the muscle layer (Stage II)
- T3 Tumor extends past the muscle layer into tissue surrounding the bladder (Stage III)
- T4 Cancer has spread to regional lymph nodes or to distant sites (Stage IV)

Stage of disease at the time of diagnosis is illustrated in Figure 6 for the 112 patients seen at Sharon Hospital from 1998 to 2010.

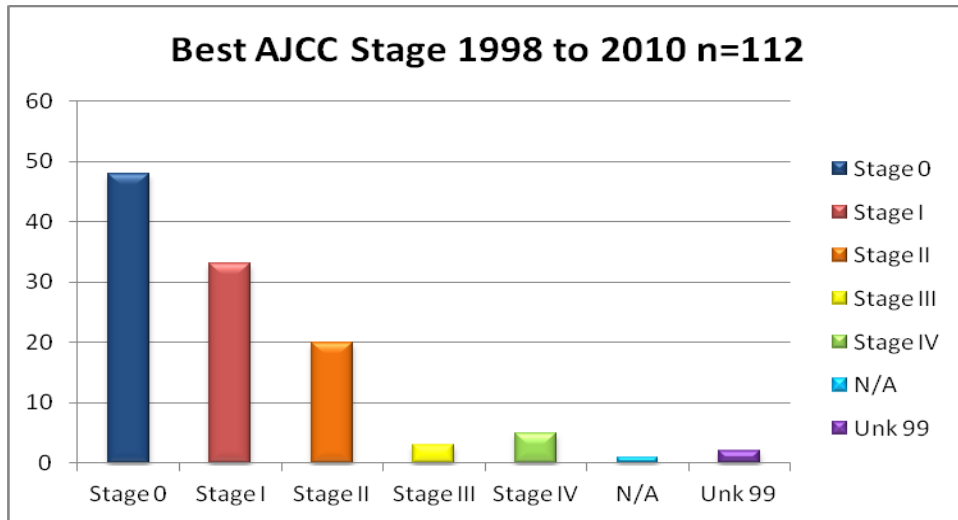


Figure 6

**Treatment Options for Bladder Cancer at Sharon Hospital**

**Surgery**

- **Transurethral surgery** – performed for early stage or superficial bladder cancers, a cystoscopic transurethral resection (TUR) is most common. Since about 70% to 80% of patients have superficial cancer when they are first diagnosed, this is usually the first treatment. Routine surveillance and period biopsy are routinely done on these patients after initial diagnosis.

**Intravesical Therapy**

- **Chemotherapy or immunotherapy (Bacillus Calmette-Guerin = BCG)** - is used for non-invasive or minimally invasive bladder and given by the urologist in the office. Indications include: patients with multiple tumors, recurrent tumors or as a prophylactic measure in high-risk patients after transurethral resection.
- **Systemic Chemotherapy** is administered by an oncologist systemically for node positive or metastatic disease.

**Cystectomy and External beam therapy are services not available at Sharon Hospital. Patients with more advanced disease (T3-T4) are referred to other, larger facilities.**

Composite report of SHARON HOSPITAL patient (n=112) by first course of therapy and AJCC Stage is shown in the table 3 below:

1 <sup>st</sup> Course of Therapy	Number of Patients	Percentage
No Treatment	0	0%
Surgery	101	90.3%
Other Combination	11	9.7%
<b>TOTAL</b>	<b>112</b>	<b>100%</b>

**Table 3**

**Survival Analysis**

The overall survival rates are for Sharon Hospital patients by stage of disease at time of diagnosis is comparable to those reported by the National Cancer Database (NCDB) and are shown below. (13 patients with unknown stage at diagnosis have been excluded). Table 4

**Table 4**

Stage	NCDB 2003 (1300 facilities)		SHARON HOSPITAL 1989 to 2003 (90 patients)	
	# of cases	% Survival	# of cases	% Survival
<b>0</b>	13,118	77.7%	38	78.9%
<b>I</b>	6036	65.7%	26	76.9%
<b>II</b>	3033	38.1%	18	38.9%
<b>III</b>	1373	29.4%	3	0%
<b>IV</b>	1832	12.6%	5	0%

**ACoS Commission on Cancer – National Cancer Data Base  
Hospital Comparison Benchmark Reports**

As an ACoS approved cancer program, Sharon Hospital data is submitted annually to the National Cancer Data Base (NCDB) during the call for data. Participation in the NCDB enables Sharon Hospital access to Comparison Benchmark Reports and other resource tools to compare our quality of care and improve performance based on nationally recognized quality measures and standards of care.

Hospital comparison benchmark reports are available from the NCDB for the years 2000 and 2008. Various comparisons can be made by primary site, hospital type (Community Hospital Cancer Program), by geographic location (individual state, ACS Division or all states) and diagnostic year (2000, 2001, 2002, 2003, 2004, 2005, 2006 or combined)

Tables 5- 11 are samples of hospital comparison benchmark reports on bladder cancer generated for ACoS approved Community Cancer Programs in the United States and SHARON HOSPITAL. Comparison data is from 30 hospitals. This will become a valuable tool for assessing our diagnostic and therapeutic efforts as more data from additional years is added to the database.

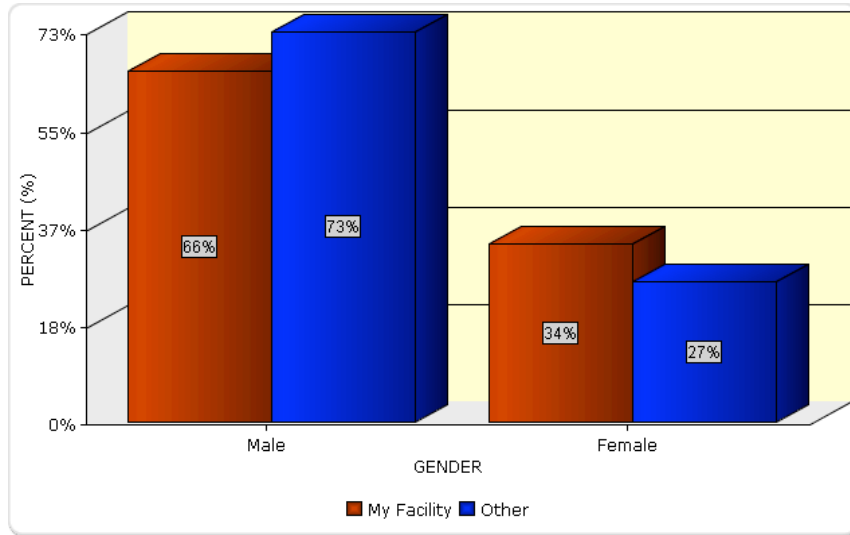
**Table 5**

<i>Diagnosis Year of Urinary Bladder Cancer Diagnosed in 2000 to 2008</i>					
<b>Sharon Hospital, Sharon CT</b>					
<b>vs. Community Hospitals in All States</b>					
<b>All Diagnosed Cases - Data from 486 Hospitals</b>					
<b>#</b>	<b>Diagnosis Year</b>	<b>Sharon (N)</b>	<b>Oth. (N)</b>	<b>Sharon (%)</b>	<b>Oth. (%)</b>
1.	<b>2000</b>	10	7009	12.99%	10.42%
2.	<b>2001</b>	5	7064	6.49%	10.5%
3.	<b>2002</b>	.	7150	.	10.63%
4.	<b>2003</b>	6	7504	7.79%	11.15%
5.	<b>2004</b>	10	7330	12.99%	10.89%
6.	<b>2005</b>	11	7423	14.29%	11.03%
7.	<b>2006</b>	13	7403	16.88%	11%
8.	<b>2007</b>	13	8119	16.88%	12.07%
9.	<b>2008</b>	9	8288	11.69%	12.32%
<b>Col. TOTAL</b>		<b>77</b>	<b>67290</b>	<b>100%</b>	<b>100%</b>

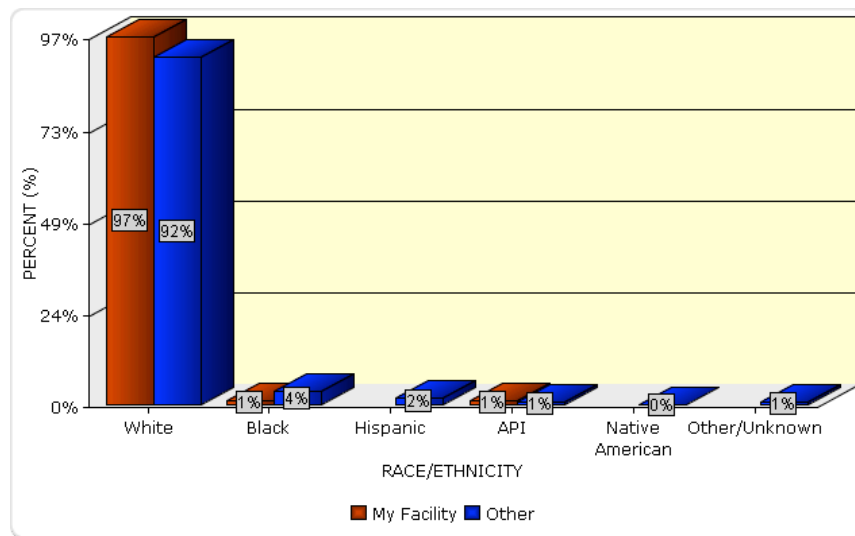
**Table 6**

**Gender of Urinary Bladder Cancer Diagnosed in 2000 to 2008**  
**Sharon Hospital, Sharon CT**  
**vs. Community Hospitals in All States**  
**All Diagnosed Cases - Data from 486 Hospitals**

# Gender	Sharon (N)	Oth. (N)	Sharon (%)	Oth. (%)
1. Male	51	49429	66.23%	73.46%
2. Female	26	17861	33.77%	26.54%
<b>Col. TOTAL</b>	<b>77</b>	<b>67290</b>	<b>100%</b>	<b>100%</b>



**Figure 7**



**Table 8**

<i>Age Group of Urinary Bladder Cancer Diagnosed in 2000 to 2008</i>					
<b>Sharon Hospital, Sharon CT</b>					
<b>vs. Community Hospitals in All States</b>					
<b>All Diagnosed Cases - Data from 486 Hospitals</b>					
#	<i>Age Group</i>	Sharon (N)	Oth. (N)	Sharon (%)	Oth. (%)
1.	<b>Under 20</b>	.	32	.	0.05%
2.	<b>20 - 29</b>	.	119	.	0.18%
3.	<b>30 - 39</b>	.	549	.	0.82%
4.	<b>40 - 49</b>	1	2676	1.3%	3.98%
5.	<b>50 - 59</b>	8	8001	10.39%	11.89%
6.	<b>60 - 69</b>	14	15247	18.18%	22.66%
7.	<b>70 - 79</b>	21	22138	27.27%	32.9%
8.	<b>80 - 89</b>	28	15864	36.36%	23.58%
9.	<b>90 and over</b>	5	2664	6.49%	3.96%
<b>Col. TOTAL</b>		<b>77</b>	<b>67290</b>	<b>100%</b>	<b>100%</b>

**Table 9**

<i>Stage of Urinary Bladder Cancer Diagnosed in 2000 to 2008</i>					
<b>Sharon Hospital, Sharon CT</b>					
<b>vs. Community Hospitals in All States</b>					
<b>All Diagnosed Cases - Data from 486 Hospitals</b>					
#	<i>Stage</i>	Sharon (N)	Oth. (N)	Sharon (%)	Oth. (%)
1.	<b>0</b>	30	32031	38.96%	47.6%
2.	<b>I</b>	25	15389	32.47%	22.87%
3.	<b>II</b>	14	7628	18.18%	11.34%
4.	<b>III</b>	1	2655	1.3%	3.95%
5.	<b>IV</b>	3	3302	3.9%	4.91%
6.	<b>NA</b>	1	81	1.3%	0.12%
7.	<b>UNK</b>	3	6204	3.9%	9.22%
<b>Col. TOTAL</b>		<b>77</b>	<b>67290</b>	<b>100%</b>	<b>100%</b>

## **SUMMARY**

The previous review of bladder cancer shows that more men than women develop this malignancy. This is partly due to bladder cancer being related to smoking and more men smoke. Also men are more likely to work in an environment with toxic chemicals and carcinogens which can also be a risk factor.

Sharon Hospital is located in a rural community which accounts for the low number of minorities diagnosed here with carcinoma of the bladder.

Most bladder tumors seen at Sharon Hospital are low grade and stage (T0-T2). These malignancies are treated at the hospital with local tumor excision and office surveillance. Higher grade tumors or having a more advanced stage may also be treated with chemotherapy in the local physician's office. Cancers requiring cystectomy and/or radiation are referred to other, larger facilities, following NCCN treatment guidelines.

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