

**2010 SITE REPORT**  
**St. Joseph Hospital**  
**PROSTATE CANCER**

Humboldt County is located on the Redwood Coast of Northern California. U.S census data for 2010 reports county population at 134,623, an increase of 6.4% over the previous census. Data on male residents from the latest census is not available, however in 1999 approximately 50 percent of the county population was male. Humboldt County covers 3,572 square miles, with an average population of 34 per square mile, compared to 212.5 per square mile statewide. Nearly 13 percent of the population was over 65 compared to 11.1% in the state population as a whole. Income for 19% of the population was below the poverty level in 2009 versus 14.2% statewide. Median household income in Humboldt County was \$35,985 vs. \$58,925 for the state overall.

St. Joseph Hospital (SJH) is located in Humboldt County. SJH, a 189-bed acute care facility with a co-located inpatient Rehabilitation Unit, is located in Eureka, the largest city and county seat. SJH has had an active American College of Surgeons (ACoS) accredited Cancer Program since 1991. Redwood Memorial Hospital (RMH) is another ACoS accredited facility located in Fortuna, California, 20 miles south of Eureka, however, Urology and Radiation Oncology services are not available at RMH. Because prostate cases are generally referred to SJH for urologic, radiation therapy and medical oncology consultation, this report will provide outcomes analysis using registry data for SJH, as well as county-wide and nationwide incidence and national mortality statistics. Treatment and diagnosis data by stage will be compared with national results using data from the NCDB for 2008 (the most recent year data is available). Comparison of survival stratified by stage will use data from 1998 to 2002, however because of the small volume of analytic cases and high concentration of stage II patients the only data available for survival comparison is stage II.

### **Background**

Prostate cancer is the most commonly diagnosed cancer in men in the United States. It is estimated that 240,890 new cases will be diagnosed in 2011 and that 33,720 will die of the disease. Although prostate cancer death rates decreased by 4.1 percent annually from 1994 to 2006 (CDC Prostate Cancer Trends), 11 percent of male cancer deaths are attributed to prostate cancer, second only to lung cancer. Age-adjusted incidence rates increased in the 1980s and early 1990s, however this is thought to be related to increased use of screening PSA testing and transurethral prostatectomy which resulted in diagnosis of cases which otherwise might have gone undetected for many years. From 2000 to 2006 incidence decreased 2.4 percent annually for men as a whole, although the incidence remained level from 1997 to 2006 for white, American Indian/Alaska Native and Asian/Pacific Islander men. The decrease is attributable to a decline among African American and Hispanic men. It is estimated that 20 percent of men in the United States will be diagnosed with prostate cancer during their lifetime, but only 3 percent will die from prostate cancer.

Screening for prostate cancer can be done by following prostate specific antigen (PSA) levels in conjunction with digital rectal exams (DRE). Prior to 1990 DRE was the standard modality for prostate cancer screening. Transrectal ultrasound (TRUS) is also used. It is noted in many discussions of incidence of prostate cancer that age-adjusted incidence rates increased significantly and steadily during the 1980s and 1990s in conjunction with large-scale screening programs instituted in the expectation that early diagnosis would decrease mortality.

There is an ongoing discussion of the effectiveness of screening all men for prostate cancer. There is no clear evidence that screening does in fact reduce mortality associated with prostate cancer although there are ongoing studies attempting to answer this question. Many patients do well for 5, 10 or more years with surveillance alone; however, patients often choose to pursue treatment at the time of diagnosis. There is not currently a reliable method to predict who will benefit from early intervention. Side effects of treatment may have a profound effect on quality of life, including impotence and incontinence after surgery and/or radiation as well as debilitating (but reversible) side effects of androgen blockade – depression, decline in cognitive function, osteoporosis, decrease in muscle mass, fatigue, gynecomastia, weight gain, hematologic effects and erectile dysfunction have been commonly observed. At present, studies are ongoing to develop prognostic indicators to identify patients at risk for aggressive disease who will benefit from early intervention while avoiding potentially debilitating treatments in patients with indolent disease. Because incidence increases with age (prostate cancer is rarely diagnosed in patients less than 50 years old and rates of disease increase dramatically after age 70 – see **Table 1**) many patients will have co-morbidities that present barriers to treatment.

Table 1  
Age at Diagnosis for Prostate Cancers Nationwide  
2000 to 2008  
All Diagnosed Cases in All Types of Hospitals in All States  
Data from 1394 Hospitals

	<b>Age Group</b>	<b>Number Diagnosed</b>	<b>Percent of Total</b>
1.	<b>Under 20</b>	<b>94</b>	<b>0.01</b>
2.	<b>20 - 29</b>	<b>40</b>	<b>0</b>
3.	<b>30 - 39</b>	<b>718</b>	<b>0.06</b>
4.	<b>40 - 49</b>	<b>37,422</b>	<b>3.11</b>
5.	<b>50 - 59</b>	<b>262,372</b>	<b>21.83</b>
6.	<b>60 - 69</b>	<b>461,474</b>	<b>38.40</b>
7.	<b>70 - 79</b>	<b>349,870</b>	<b>29.11</b>
8.	<b>80 - 89</b>	<b>82,945</b>	<b>6.90</b>
9.	<b>90 and over</b>	<b>6,797</b>	<b>0.57</b>
	<b>TOTAL</b>	<b>1,201,732</b>	<b>100%</b>
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The U.S. Preventive Services Task Force states that PSA screening is associated with significant risk of harm resulting from additional medical visits, adverse effect of prostate biopsies, anxiety and the identification of prostate cancers that would never have caused symptoms while potential benefits remain uncertain (August 2008). Screening guidelines released by the American Cancer Society in 2010 stress that routine screening should only be done with a specific, informed consent. Men should have an opportunity to discuss the potential risks and benefits of screening with their physician before testing begins. The ACS suggests that for men at high risk of developing a clinically significant prostate cancer (African Americans and men with a first degree relative diagnosed prior to age 65) this discussion should take place at age 45, at age 40 for men with several first-degree relatives who were diagnosed at an early age, and at age 50 for men with a life-expectancy of at least 10 years. For those who choose screening ACS advises if PSA is less than 2.5ng/ml, testing can be done every 2 years, for those above 2.5ng/ml annual screening should be done.

Risk of developing prostate cancer increases with age as noted above. In addition, risk increases for those with a first-degree male relative diagnosed with prostate cancer. Race is also a factor – African American men have a significantly higher risk of developing prostate cancer: incidence per 100,000 is 226.0 for African American men compared to 145.1 for white men (CDC) and African American men also have a higher mortality rate from prostate cancer than other races. This increased risk is not found in the native African population, raising questions of environmental exposure, diet. Increased levels of dietary fat have been associated with a significantly increased mortality from prostate cancer. This is thought to explain the observation that while first-generation Japanese-American men have an intermediate risk of prostate cancer in comparison to the U.S. population (but increased from the risk for native Japanese men), subsequent generations have a comparable risk to the U.S. population. There is also an association with high intake of dairy and calcium products and prostate cancer.

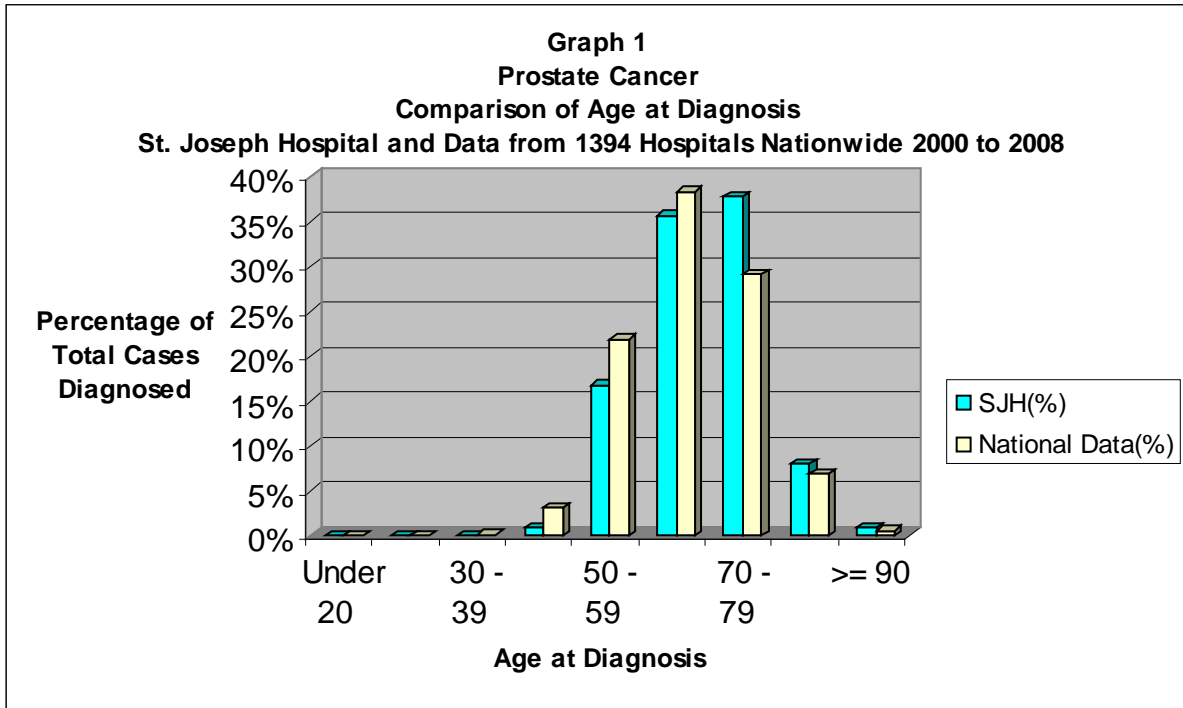
### **Prostate Cancer in Humboldt**

State Cancer Profiles at the NIH cancer.gov website report that the average annual number of new diagnoses of prostate cancer for all races in Humboldt County between 2004 and 2008 was 105, however the annual age-adjusted incidence rate per 100,000 population is 164.7. This is higher than both the California age-adjusted incidence of 146.5 per 100,000 population and the United States age-adjusted incidence of 152.7. Table 2 lists age at diagnosis in Humboldt County between 2000 and 2008. Comparison of SJH registry data with Humboldt Cancer Incidence data from the California Cancer Registry shows that SJH analytic cases comprise the majority of cases diagnosed in the county. (Table 3)

Graph 1 compares age at diagnosis nationwide to Humboldt County data. The graph shows that men in Humboldt County are generally diagnosed at a later age than the United States population as a whole, with 37.8 percent of diagnoses occurring in patients 70 to 79 years old in comparison with 29 percent of diagnoses occurring in this cohort in patients nationwide. As discussed above, risk factors for prostate cancer include race, however Humboldt County population is 81 percent White (including Hispanic), 1.1 percent African American, 5.7 percent Native American and 2.2 percent Asian. California as a whole is 57.6 percent white, 6.2 percent African American, 1 percent Native American, and 13 percent Asian. Diet, obesity rates and environmental exposure in a rural, agricultural region may all play a part in explaining the higher rate of prostate cancer incidence, although the small population in the County makes definitive analysis difficult.

Table 2  
 Age at Diagnosis for Prostate Cancers St. Joseph Hospital  
 Diagnosed in 2000 to 2008

	<b>Age Group</b>	<b>Number Diagnosed</b>	<b>Percent of Total</b>
1.	40 - 49	5	0.82%
2.	50 - 59	103	16.80%
3.	60 - 69	219	35.73%
4.	70 - 79	232	37.85%
5.	80 - 89	49	7.99%
6.	90 and over	5	0.82%
<b>TOTAL</b>		<b>613</b>	<b>100%</b>
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## Stage at Diagnosis

Table 3  
Comparison of Stage of Diagnosis, Humboldt County as a Whole  
And St. Joseph Hospital Analytic Cases  
2004 to 2008

Humboldt County Data Provided by California Cancer Registry (CCR), Public Health Institute, California Department of Public Health

AJCC Stage at Diagnosis	I		II		III		IV		Unknown Stage		Total Cases		Male Population
	County	SJH	County	SJH	County	SJH	County	SJH	County	SJH	County	SJH	
2004	0	0	65	56	8	7	12	4	7	0	92	67	63,631
2005	0	0	85	63	10	8	9	5	^	0	105	76	63,835
2006	0	^	87	68	11	10	12	6	5	^	115	86	63,861
2007	0	^	77	59	10	8	7	6	^		98	74	63,665
2008	0	^	79	43	13	6	8	5	13	9	113	64	63,827
Total	0	0	445	289	57	39	58	26	45	9	523	367	383,082

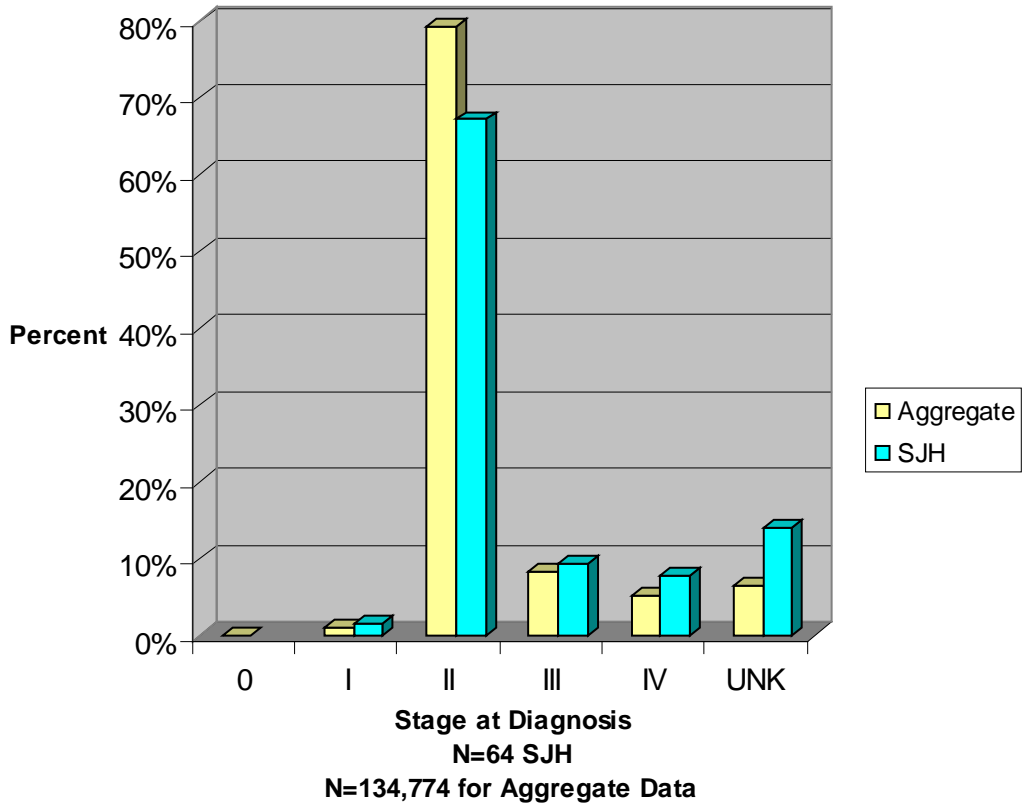
^ Statistic not displayed due to fewer than 15 cases or a population of less than 100,000. Counts less than 5 are suppressed.

\* Rates are per 100,000 and age-adjusted to the 2000 US Std Population (19 age groups - Census P25-1130) standard.

Surveillance Research Program, National Cancer Institute SEER\*Stat software ([www.seer.cancer.gov/seerstat](http://www.seer.cancer.gov/seerstat)) version 7.0.5. Cancer Surveillance and Research Branch (CSRB),

In 2008, 79 percent of prostate cancer cases reported through the NCDB were diagnosed with Stage II disease. Stage II disease includes tumors ranging from T1 (clinically inapparent) through T2c (tumor invades both lobes but does not extend through the prostate capsule) without regional lymph node metastases. SJH registry data shows that slightly over 67 percent of analytic cases were diagnosed at Stage II. Because of the small number of cases at SJH (64) in comparison with the national aggregate number of 134,774 cases it is difficult to draw definite conclusions from these discrepancies. On a percentage basis it appears that SJH patients were diagnosed at a somewhat later stage than the national average, however with only 64 cases, a change of one or two cases in a category will produce a noticeable change in percentage. Graph 2 compares stage at diagnosis for SJH and national data.

**Graph 2**  
**Comparison of St. Joseph Hospital Stage at Diagnosis versus**  
**Nationwide Data**  
**2008**



### Treatment Modalities

Prostate cancer is treated with surgery, radiation, hormone therapy and chemotherapy, either alone or in combination. SJH offers surgery and radiation therapy, hormone therapy is offered by both the local Medical Oncology practice and the local Urology practice. NCCN guidelines include consideration of expected patient survival in treatment decision making: for patients characterized as very low risk (tumor T1c, Gleason score less than or equal to 6, PSA less than 10ng/ml, fewer than 3 prostate biopsy cores positive) with expected survival less than 20 years, the guidelines advise active surveillance with PSA at least every 6 months, DRE at least every 12 months and repeat prostate biopsy as often as every 12 months. For patients with expected survival more than 20 years, radiation or radical prostatectomy are options for treatment although active surveillance remains an option. For intermediate risk patients (tumor T2b or T2c, Gleason score 7 or PSA 10-20ng/ml), treatment is also dependent on expected survival, with radical prostatectomy suggested only if expected survival is greater than 10 years.

Comparisons between treatment regimens for SJH analytic cases and national aggregate data are difficult because of the disparity in numbers. For example, although the table below indicates that 100% of Stage I patients were treated with surgery alone, there was in fact only one Stage I patient in the SJH registry data for 2008. In addition, it is likely the percentage of patients treated with hormone therapy alone is higher than indicated as biopsies may be done in the local Urology practice office rather than at SJH and so are not included in SJH Cancer Registry data.

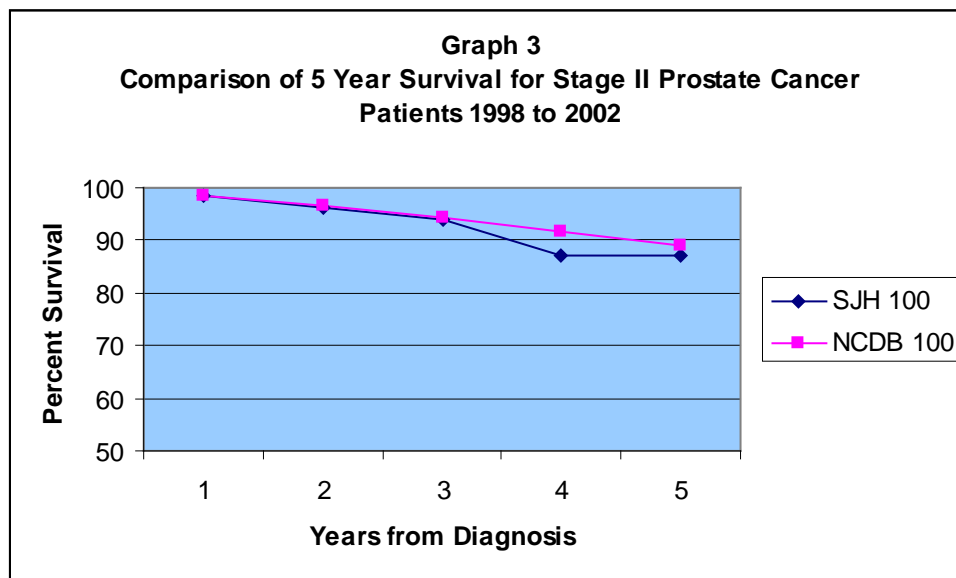
**Table 4**  
**Comparison of First Course of Treatment for Patients Diagnosed with Prostate Cancer 2008**  
**St. Joseph Hospital (N=64) and NCDB Aggregate Data (N=134,774)**

Stage	Surgery Alone		Radiation Alone		Hormone Therapy Alone		Radiation & Hormone Therapy		Other Therapy		No first Course
	SJH	NCDB	SJH	NCDB	SJH	NCDB	SJH	NCDB	SJH	NCDB	NCDB
I	100%	51%	0%	22%	0%	2%	0%	10%	0%	5%	10%
II	33%	49%	40%	24%	2%	2%	19%	12%	7%	9%	9%
III	28%	72%	0%	2%	0%	2%	0%	8%	0%	15%	70%
IV	20%	14%	0%	3%	0%	34%	40%	16%	40%	22%	12%
Unk	56%	50%	33%	15%	0%	5%	0%	7%	0%	4%	19%

## Survival

Death rates attributed to prostate cancer have been declining nationwide and Humboldt County has reflected that trend. From 2003 to 2007 the county averaged 13 deaths per year from prostate cancer. The county experienced an average decline in deaths from prostate cancer of 5.6 percent annually during that period. State Cancer Profiles from the NIH show that age-adjusted death rates for California 2003-2007 were similar to the state overall, in spite of the higher incidence. (See appendices)

Survival data (Graph 3) is presented only for Stage II cases. Because of the small number of cases in Stage I, III, and IV the SEER database cannot provide statistics on those stages separately. Five year survival for all stages combined is 82.7 percent for SJH compared with 85.9 percent for the aggregated NCDB patients, however, as shown in Graph 2, a higher percentage of SJH analytic cases were diagnosed at Stage III and IV than for the aggregated data.



## Conclusions

Humboldt County and SJH incidence of prostate cancer is somewhat higher than the state as a whole and diagnoses tend to be both at a later age and higher stage than reported for the aggregate NCDB. Mortality rates are similar to the State average, indicating perhaps that the cancers diagnosed in older men are less likely to cause death than those diagnosed in younger men.

A full range of clinical treatment modalities are available to Humboldt County residents. The small number of cases in the County makes it difficult to draw firm conclusions as to differences in treatment patterns or survival, however as can be seen in Graph 3 above, five year survival is very similar to national data for Stage II patients.

Prostate cancer cases are not frequently presented at Cancer Conference, although the Radiation Oncology service has presented several cases this year. Although the local urologists do not generally attend the Cancer Conference, there has been an ongoing effort to increase the number of genitourinary cases presented to the Cancer Conference in recent years.

Stanley T. Hino, M.D.  
Chairman, Cancer Committee

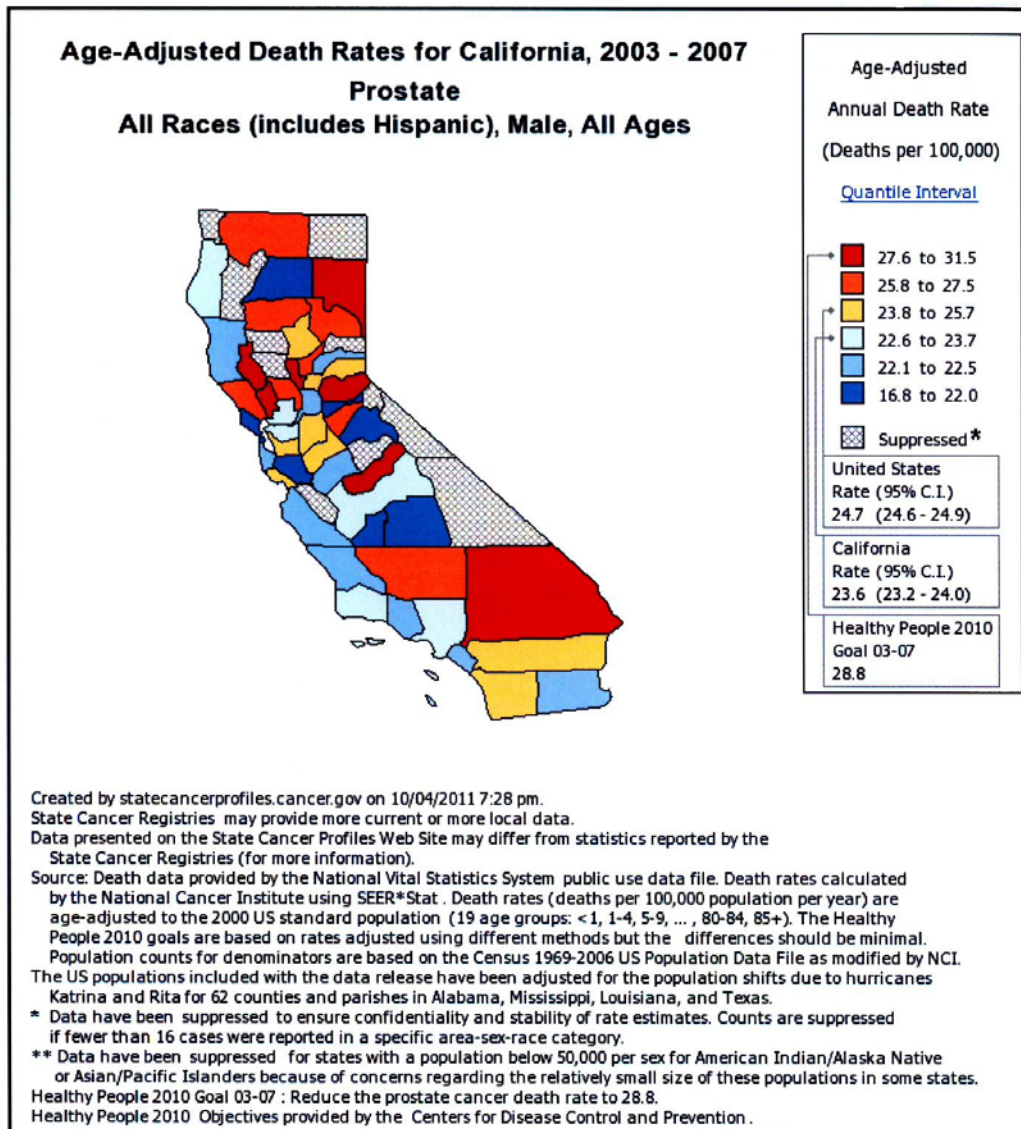
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## State Cancer Profiles

Map



## State Cancer Profiles

Map

