

The optimal treatment of prostate cancer continues to be a topic of heated debate and persisting uncertainty. Resolution of this debate has been difficult due to qualities inherent in both the disease and the affected individuals, as well as a lack of data from randomized clinical trials evaluating treatment modalities. The natural history of prostate cancer is prolonged relative to other cancers.

Few untreated men with localized prostate cancer succumb to the disease within 5 years of diagnosis, and only a minority succumb within 10 years. Nevertheless, prostate cancer is the second leading cause of cancer death in men. Prostate cancer tends, however, to occur in elderly men where competing causes of death have significant impact. The SEER data presented in this chapter provide population-based information regarding treatment patterns and the impact of PSA on treatment. Data are presented separately for localized plus regional stages of disease and distant disease.

Localized and Regional Disease

Figure 4.1 displays the incidence trends in patients with localized or regional stage disease by type of treatment for 1983-1995. Concurrent with rising incidence rates (Figure 2.1), substantial increases in age-adjusted rates were noted for men having radical prostatectomy or radiation therapy, with lesser increases for those receiving no treatment or hormone therapy. Incidence rates for men undergoing radical prostatectomy increased rapidly from 1989 to 1992. Similar but less dramatic increases in rates were observed in the radiation therapy group. Concurrent with falling incidence rates subsequent to 1992 (Figure 2.1), the rates in all treatment subgroups fell (Figure 4.1).

Change in treatment patterns over time can be assessed by examining the percent of cases by treatment type in each year. Figure 4.1 indicates that the proportion of cases treated by radical prostatectomy increased while those receiving no treatment decreased from 1983 to 1995. The fractions having radiation therapy and hormone therapy have remained relatively stable. In 1983, the distribution of treatments for localized and regional cases was radical prostatectomy in 10%, radiation therapy in 27%, hormone therapy in 13%, and no treatment in 50%, (Figure 4.1). By 1992, the rank order of treatment type for cases with localized and regional disease changed, with 37% undergoing radical prostatectomy, 32% undergoing radiation therapy, 8% having hormone therapy, and 23% having no treatment. Since 1992, the proportion of cases having no treatment has risen while the proportions undergoing radical prostatectomy or radiation therapy have fallen slightly. Since 1991, radical prostatectomy has been the most common treatment for localized and regional stages of disease.

SEER coding rules dictate that the grade from surgical pathology reports be coded as the grade for radical prostatectomy cases. As a result, the diagnostic biopsy grade is not available for prostatectomy

cases. For other treatment modalities, the diagnostic biopsy or TURP grade is coded. Therefore, grade comparisons between treatment groups are subject to a potential bias, with upgrading following prostatectomy due to a larger tissue volume being available for pathologic review. Nonetheless, examination of grade reveals that the proportion of cases with moderate tumor differentiation has increased for every treatment category and is the predominant tumor grade in the PSA era (Figure 4.2). Even after rates began falling in 1992 and 1993, the proportion of cases with moderately differentiated tumors continued to increase (Figure 4.2). It is also interesting to note that the historic predominance of well differentiated TURP specimens has been replaced with moderately differentiated tumors in 1992-1995 (Figure 4.3).

Figure 4.4 displays the age-specific incidence rates by treatment for time periods before the PSA era (1983-1985) and during the PSA era (1993-1995). The peak age-specific rate shifted slightly to a younger age in the no treatment category from 1983-1985 to 1993-1995, but did not shift for other treatment categories. Between these two time periods, age-specific rates rose most dramatically for radical prostatectomy, increasing about 8-fold in men aged <60 years, and 6-fold in men aged 60-69 years. Rates in the radiation therapy group rose modestly (from 1.2- to 2.7-fold) for all age categories. In the no treatment and hormone therapy groups, rates remained relatively stable.

The percentage of men treated with radical prostatectomy, radiation therapy, hormone therapy and no treatment changes as a function of age, as physicians and patients attempt to reconcile cancer treatment decisions and the risk of death from prostate cancer with the risk of death

from competing causes. The most recent data (1993-1995) in Figure 4.5 demonstrate an inverse relationship of age to radical prostatectomy, a direct relationship of age to no treatment and hormone therapy, and an increase in radiation therapy with age up to age 75 and then a decline. Comparison of the treatment curves for 1983-1985 and 1993-1995 reveals that a higher proportion of younger men (aged <70 years) are undergoing radical prostatectomy during recent years. There was a 2.4-fold increase in the proportion of 70-74 year old cases receiving radical prostatectomy between 1983-1985 and 1993-1995.

Racial differences in incidence rates by treatment are displayed for localized and regional stages in Figure 4.6. In 1983, blacks had substantially higher rates of no treatment compared to whites, but both groups had similar rates of radical prostatectomy, radiation therapy, and hormone therapy.

Treatment patterns, as measured by the percent of cases receiving each type of treatment, are different in whites and blacks with localized and regional stages of prostate cancer (Figure 4.7). In 1983, 57% of blacks and 49% of whites received no treatment. However, this difference in choice of no treatment has narrowed. By 1995, 27% of blacks and whites had no treatment. As the percent of black cases having no treatment decreased, the percent undergoing radical prostatectomy or radiation therapy increased. In contrast, as the percent having no treatment decreased in whites, the percent undergoing radiation therapy remained quite stable. In whites, the proportion of cases having radical prostatectomy increased. In 1983, 6% of blacks and 11% of whites received radical prostatectomy, and 22% of blacks and 27% of whites received radiation therapy. In 1995, 31% of blacks and 37% of whites received radical prostatectomy, and

33% of blacks and 28% of whites received radiation therapy. The proportion of cases receiving hormone therapy declined slightly in both whites and blacks from 1983 to 1995.

Distant Disease

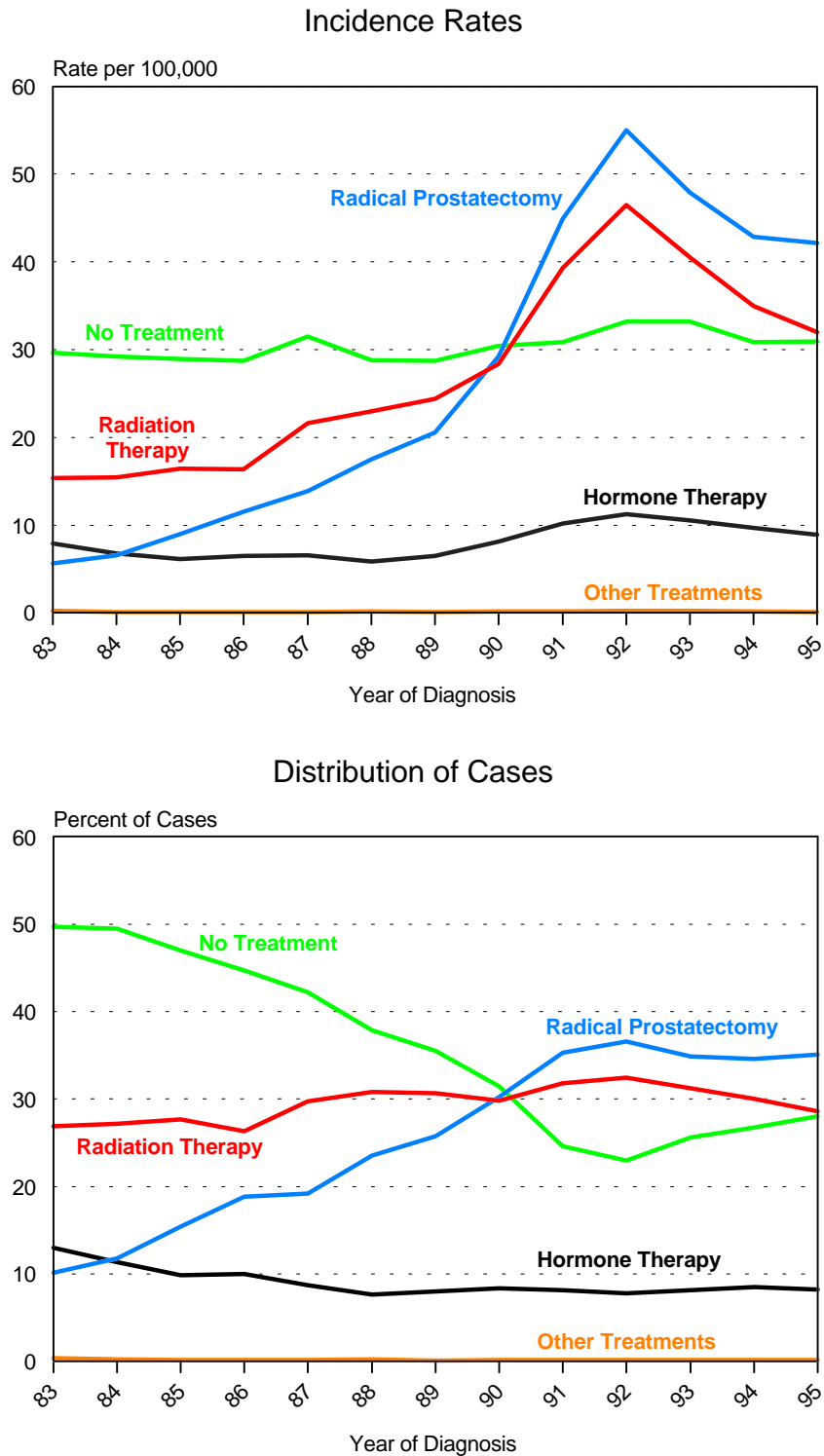
Figure 4.8 demonstrates that treatment patterns as measured by the percent of cases receiving hormone therapy, no treatment and radiation therapy have been fairly stable over time for white and black patients with distant stage disease. These data indicate that while the rate of distant disease has been falling (see Figure 3.11), the treatment for men with advanced stage prostate cancer has not changed.

Summary

Substantial changes have occurred in the treatment of prostate cancer from 1983 (prior to widespread use of PSA) to 1995 (PSA widely used). SEER data demonstrate a substantial shift toward more aggressive therapy for clinically localized prostate cancer, most notably toward radical prostatectomy. In the interval from 1983-1995, significant shifts in grade toward moderate differentiation have taken place regardless of the type of treatment received. Rates of aggressive therapy have increased in both black and white men. However, there are racial differences in treatment patterns. For localized and regional stages of disease, white men are more likely than black men to receive radical prostatectomy while black men are more likely to receive radiation therapy. Treatment patterns are strongly influenced by age with younger men tending to have radical prostatectomy, middle aged men tending to have radiation therapy and older men tending to have conservative approaches (no treatment or hormone therapy). The distribution of treatments for advanced stage disease has remained stable.

Figure 4.1

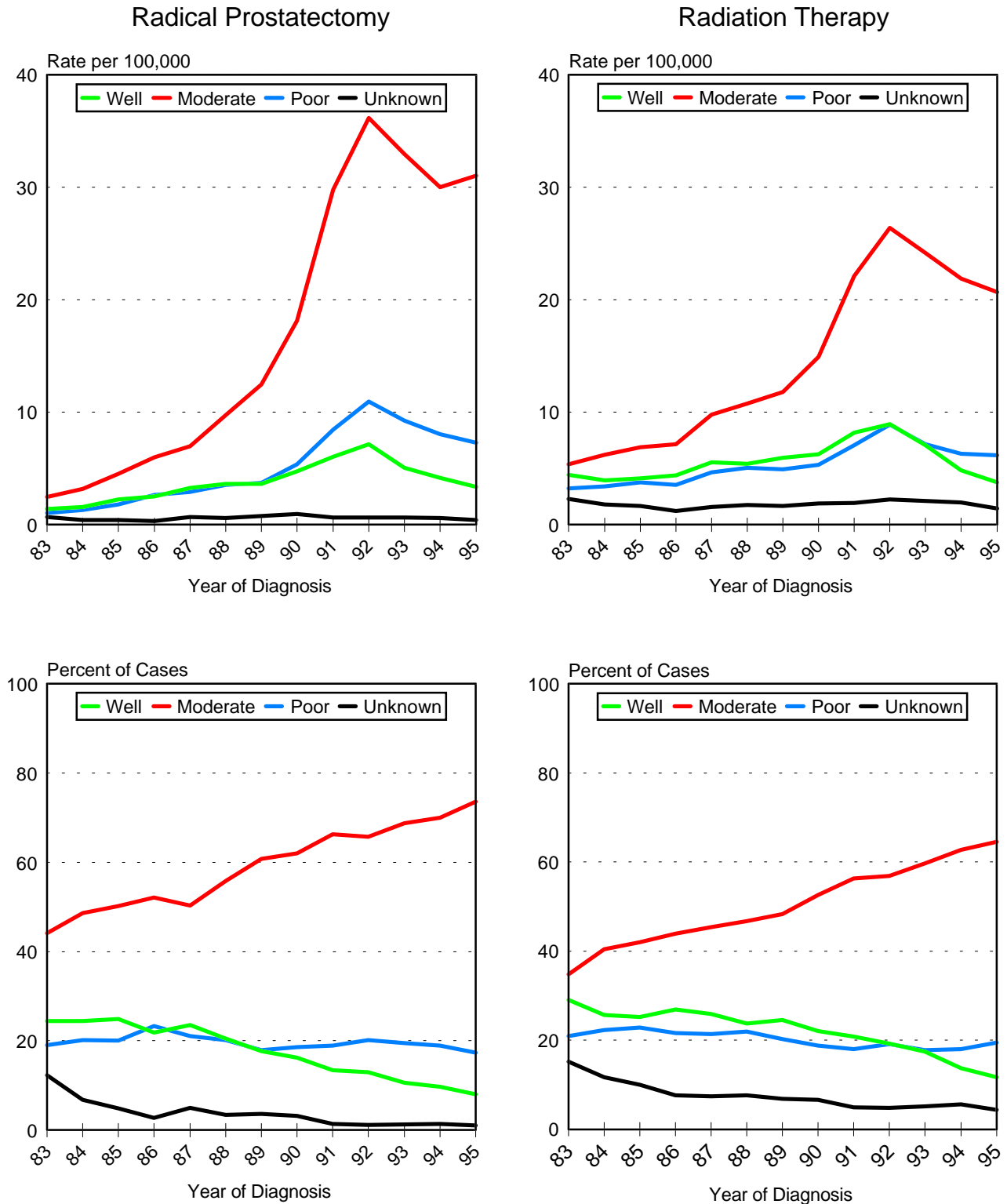
Prostate Cancer SEER Incidence by Treatment, 1983-1995 Localized and Regional Stages



Note: Based on data from the 9 standard SEER registries. Rates are age-adjusted to the 1970 U.S. standard.

Figure 4.2

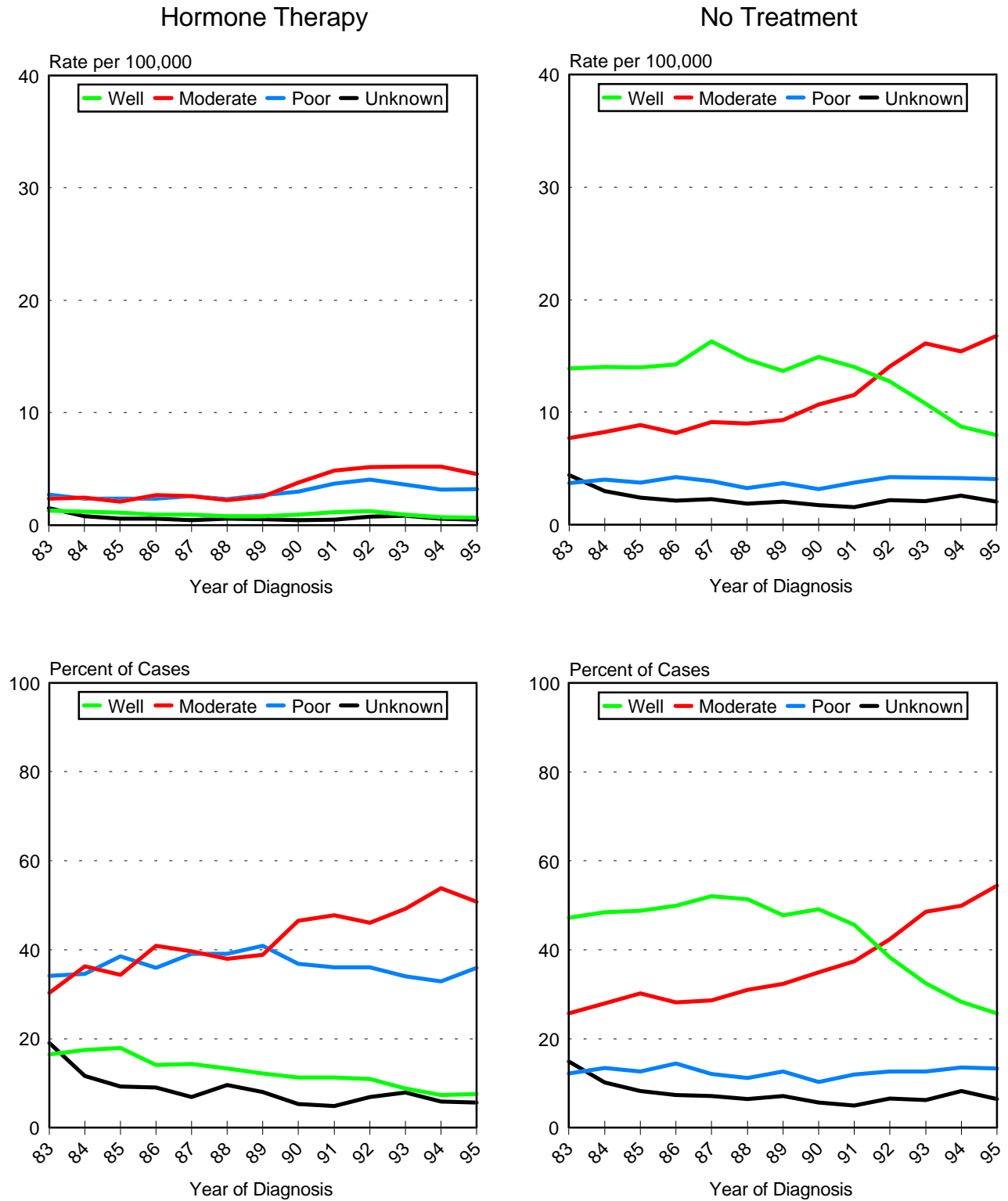
Prostate Cancer SEER Incidence by Grade and Treatment, 1983-1995 Localized and Regional Stages



Note: Based on data from the 9 standard SEER registries. Rates are age-adjusted to the 1970 U.S. standard.

Figure 4.2 (continued)

Prostate Cancer
SEER Incidence by Grade and Treatment, 1983-1995
Localized and Regional Stages

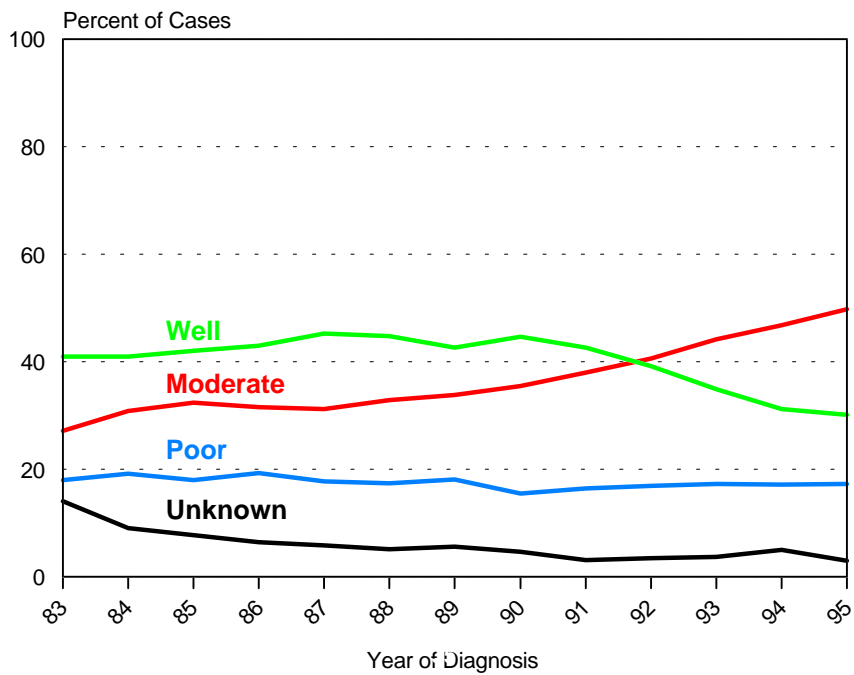
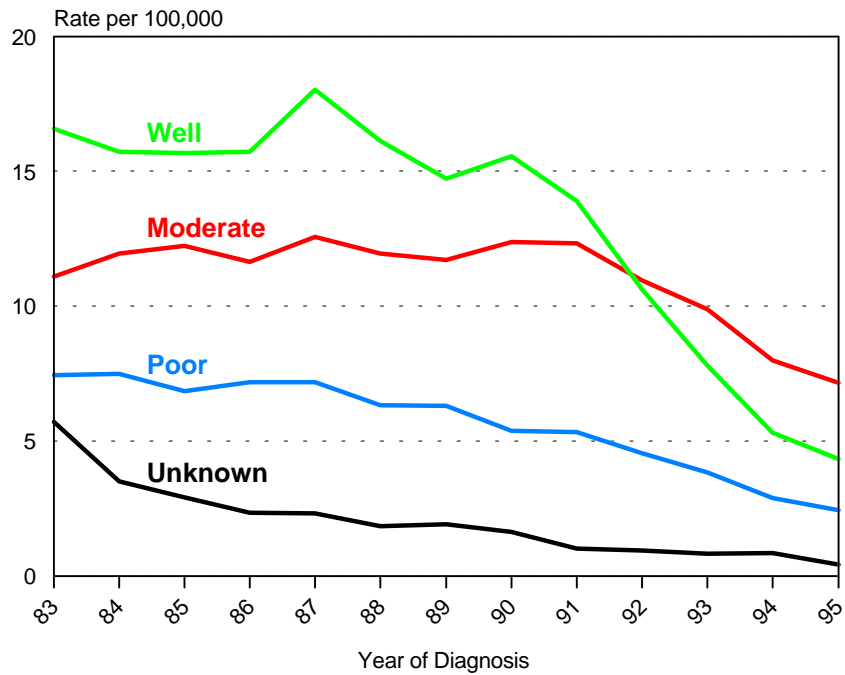


Note: Based on data from the 9 standard SEER registries. Rates are age-adjusted to the 1970 U.S. standard.

Figure 4.3

Prostate Cancer SEER Incidence by Grade, 1983-1995 Localized and Regional Stages

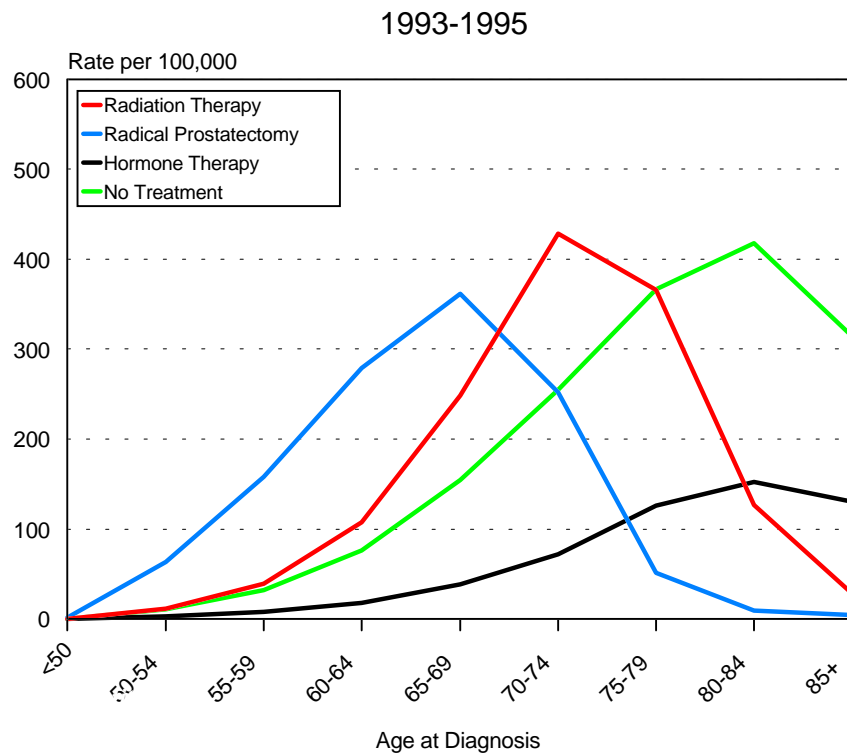
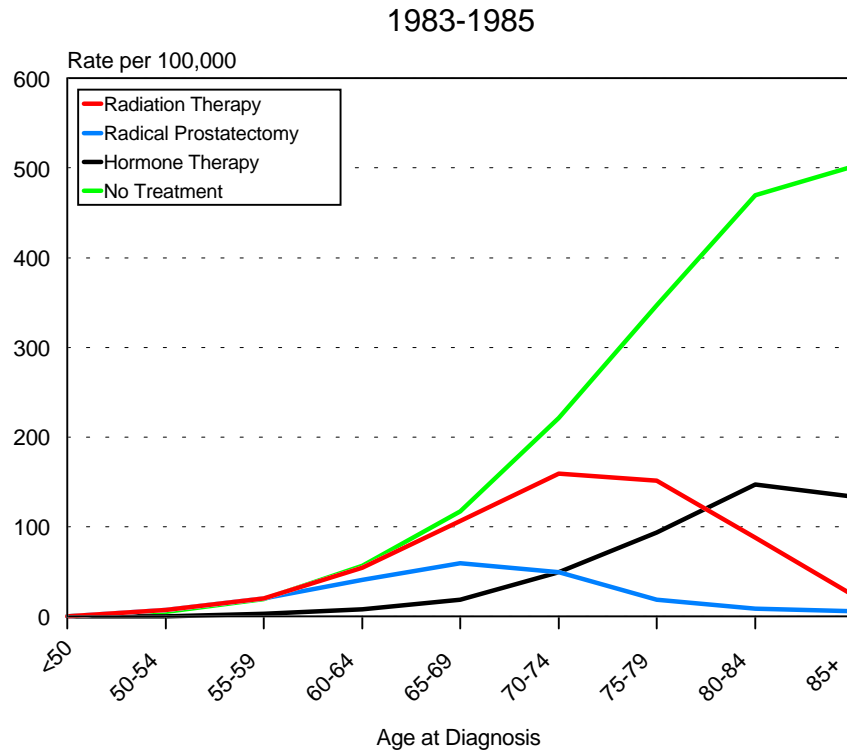
TURP Cases



Note: Based on data from the 9 standard SEER registries. Rates are age-adjusted to the 1970 U.S. standard.

Figure 4.4

Prostate Cancer SEER Incidence by Age and Treatment Localized and Regional Stages

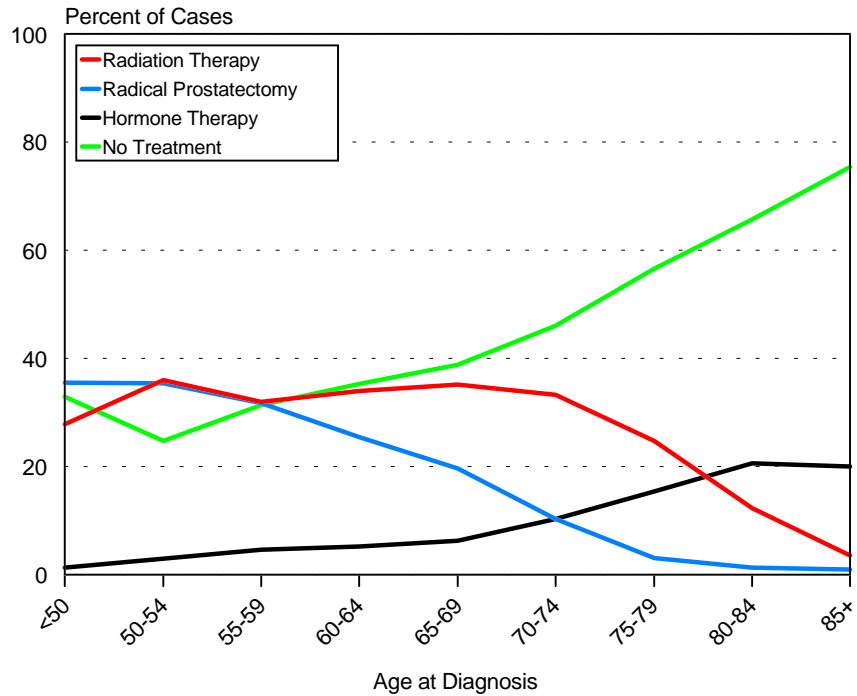


Note: Rates are age-adjusted to the 1970 U.S. standard and are based on data from the 9 standard SEER registries.

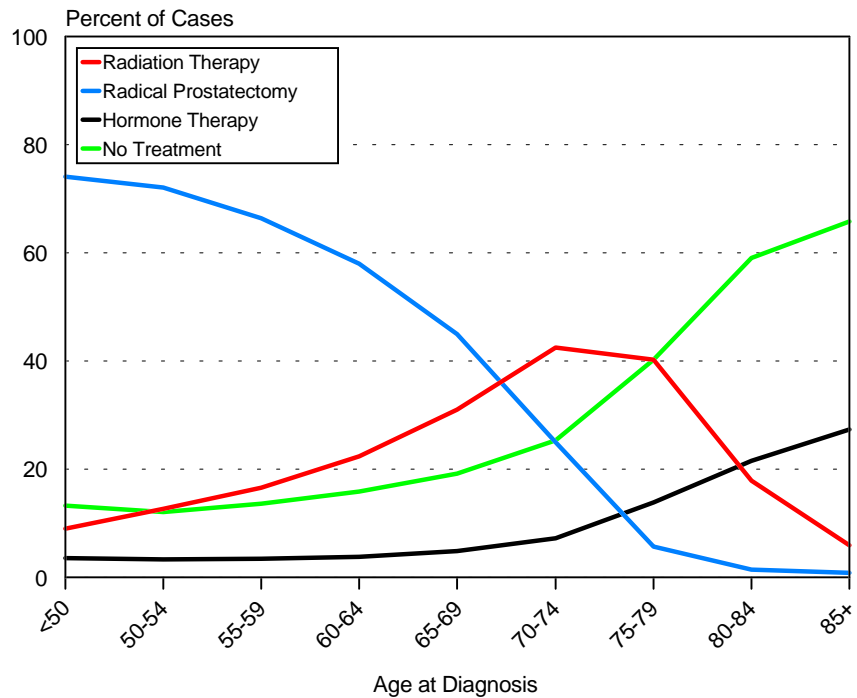
Figure 4.5

Prostate Cancer Distribution of SEER Cases by Age and Treatment Localized and Regional Stages

1983-1985



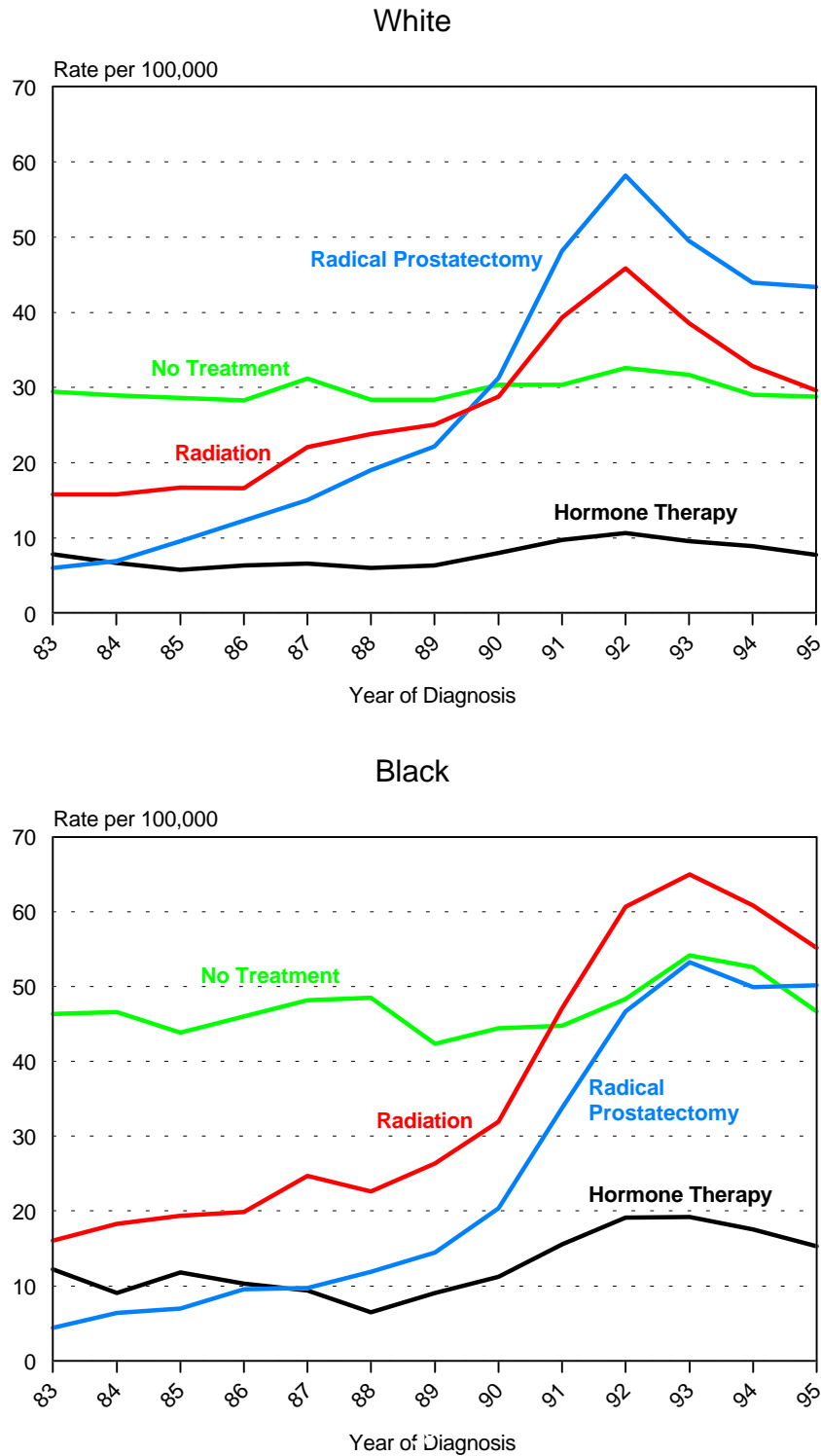
1993-1995



Note: Based on data from the 9 standard SEER registries.

Figure 4.6

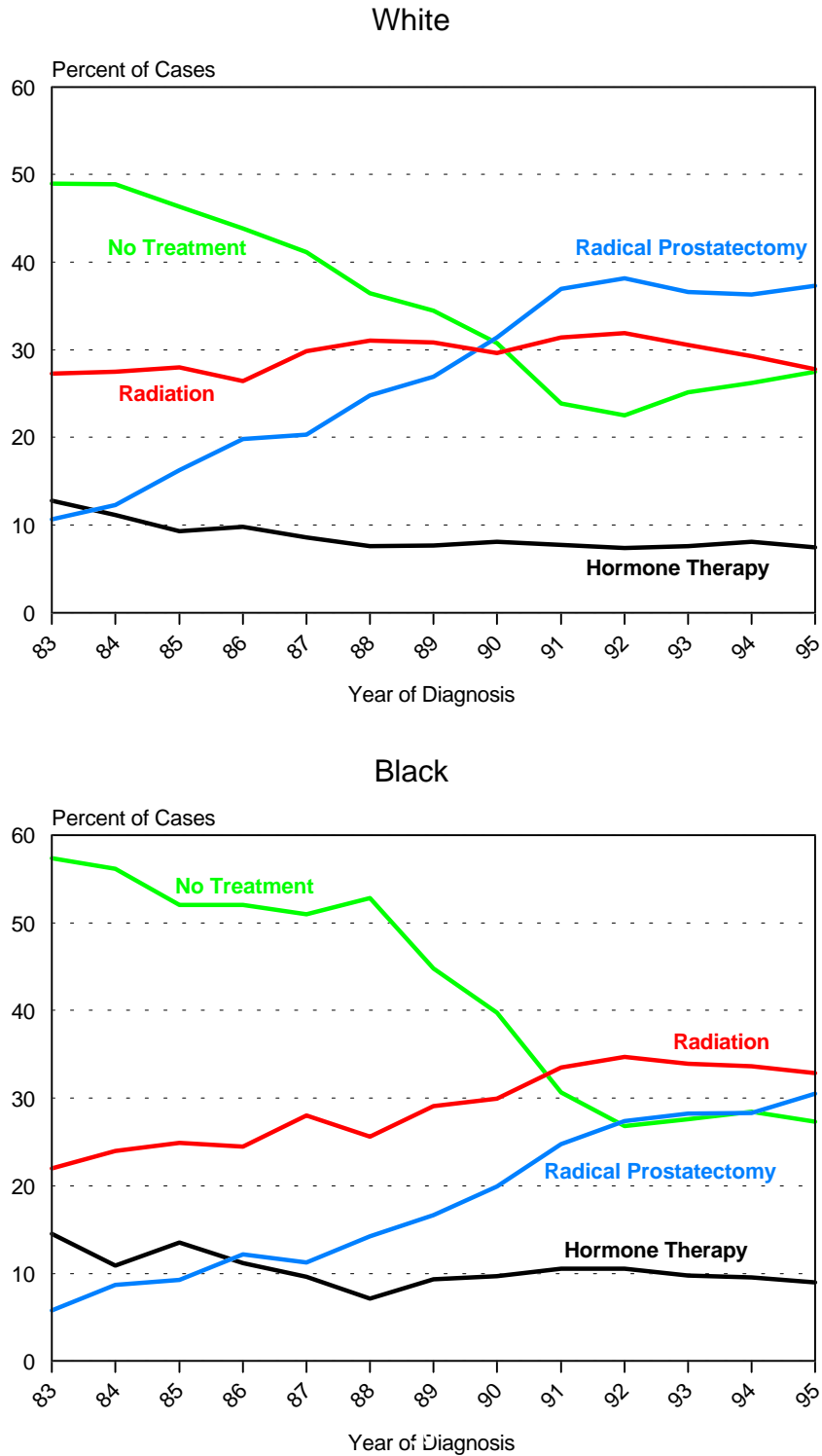
Prostate Cancer SEER Incidence Rates by Race and Treatment, 1983-1995 Localized and Regional Stages



Note: Rates are age-adjusted to the 1970 U.S. standard population and are based on data from the 9 standard SEER registries.

Figure 4.7

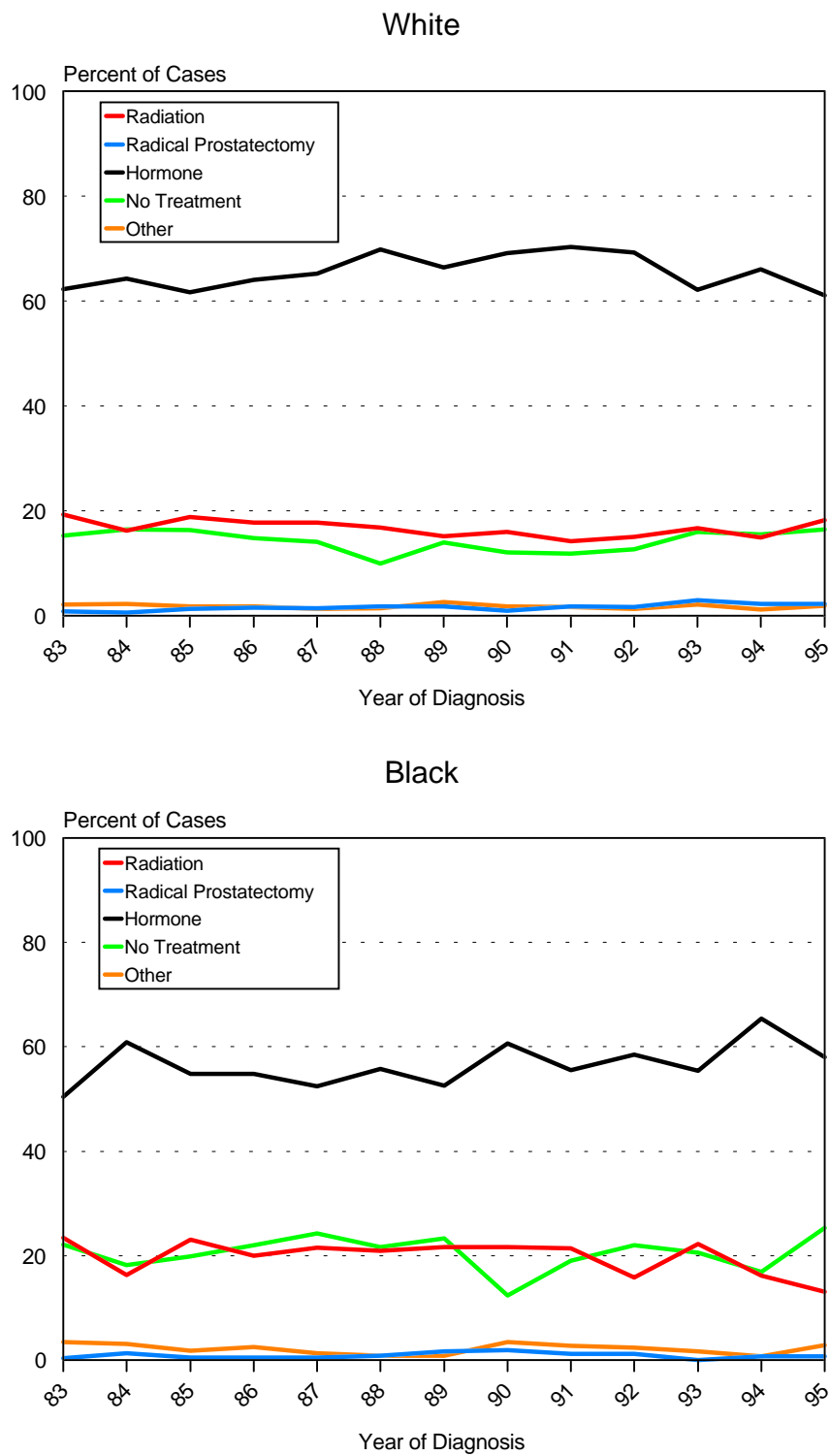
Prostate Cancer Distribution of Cases by Race and Treatment, 1983-1995 Localized and Regional Stages



Note: Based on data from the 9 standard SEER registries.

Figure 4.8

Prostate Cancer Distribution of Cases by Race and Treatment, 1983-1995 Distant Stage



Note: Based on data from the 9 standard SEER registries.