

Running the Numbers

*A Periodic Feature to Inform North Carolina Health Care Professionals
About Current Topics in Health Statistics*

*From the State Center for Health Statistics, North Carolina Department of Health and Human Services
<http://www.schs.state.nc.us/SCHS>*

Cancer Incidence and Mortality Trends in North Carolina

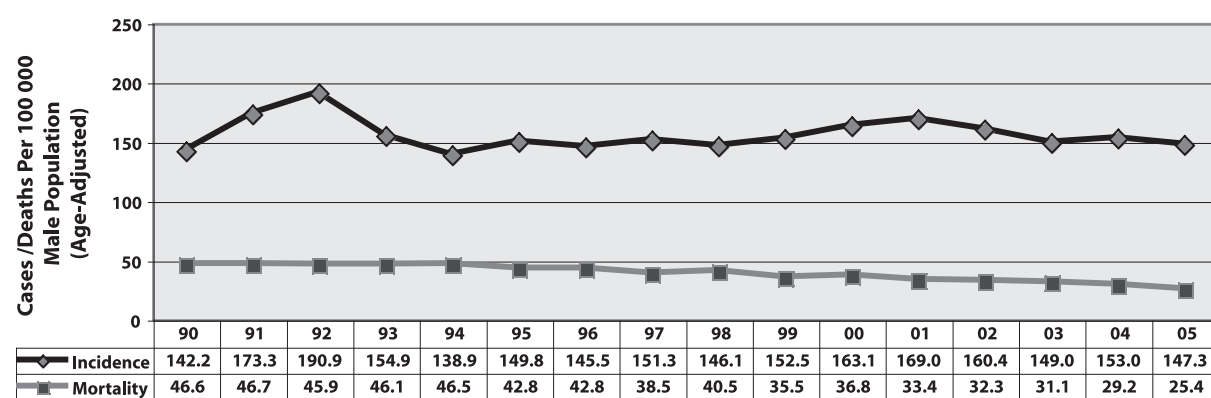
Cancer incidence (new case) and mortality rates change over time as screening tests are implemented, more effective treatments discovered, and risk factors emerge or decline. Trends in both incidence and mortality can provide insight into changes in these factors. The portrayal of disparities and trends by subgroups of the population helps in targeting scarce resources for planning and evaluation of prevention, screening, and treatment programs.

We calculated annual cancer incidence and mortality rates (age-adjusted to the 2000 United States standard population) from 1990 through 2005, the most recent complete year of cancer incidence data available. Trends are presented for the 4 most frequently diagnosed cancers - lung and bronchus, colon and rectum, prostate, and female breast - by white and African American race and by gender. Breast cancer incidence includes in situ cancers. For breast and prostate cancer rates, female and male populations, respectively, are used in the denominators. Therefore, these sex-specific rates are not directly comparable to the other rates in magnitude.

Prostate Cancer

A sharp peak in prostate cancer incidence in the early 1990s was likely due to increased Prostate Specific Antigen (PSA) testing.¹ (See Figure 1.) Otherwise, prostate cancer incidence rates have been steady. There has been a significant decrease in prostate cancer mortality since the early 1990s (46.6 deaths per 100 000 male population in 1990 to 25.4 in 2005). (See Figure 1.) The disparity between African American and white male

Figure 1.
North Carolina Prostate Cancer Incidence and Mortality Rates (1990-2005)



incidence rates is large, and the disparity has increased since 1991 (from a rate ratio of 1.21 in 1991 to 1.72 in 2005). (See Figure 2.) The mortality rates for both white and African American men have declined since the early 1990s, and the disparity has increased slightly (from a rate ratio of 2.45 in 1991 to 2.61 in 2005). (See Figure 3.)

Figure 2.
North Carolina Prostate Cancer Incidence Rates By Race (1990-2005)

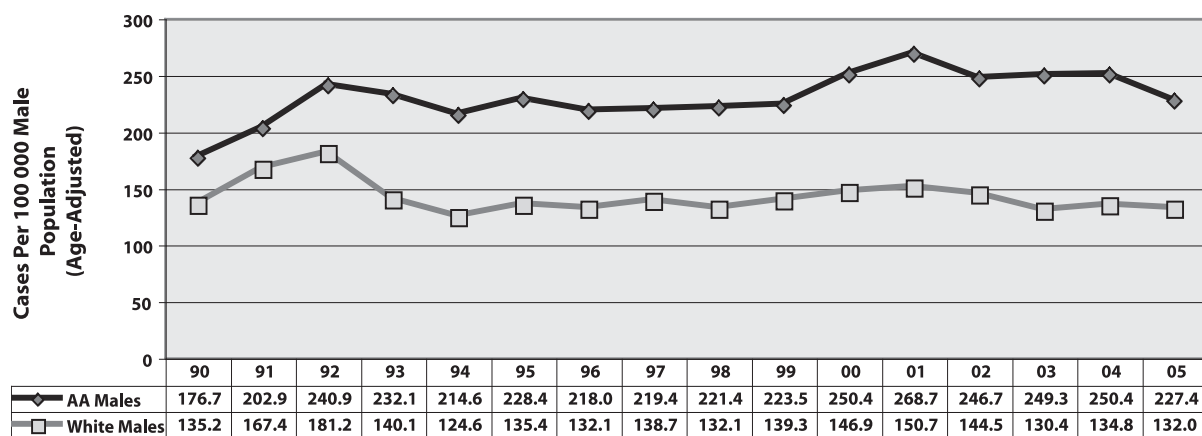
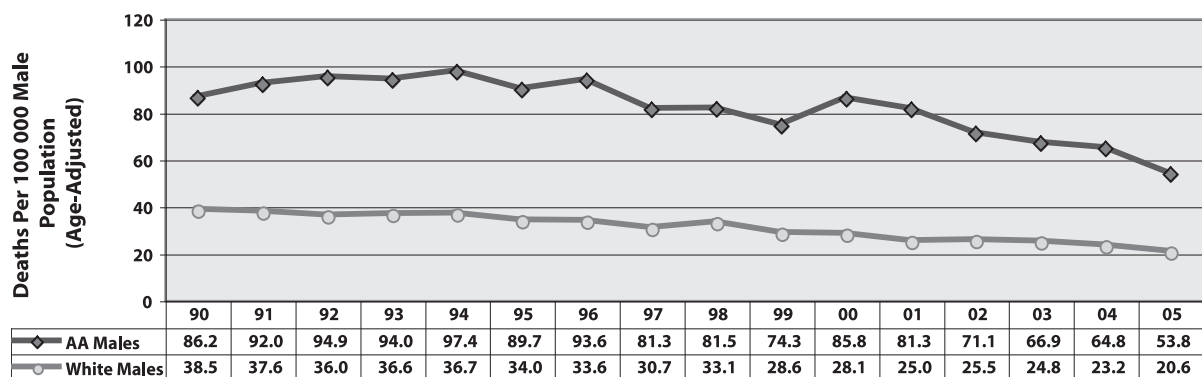


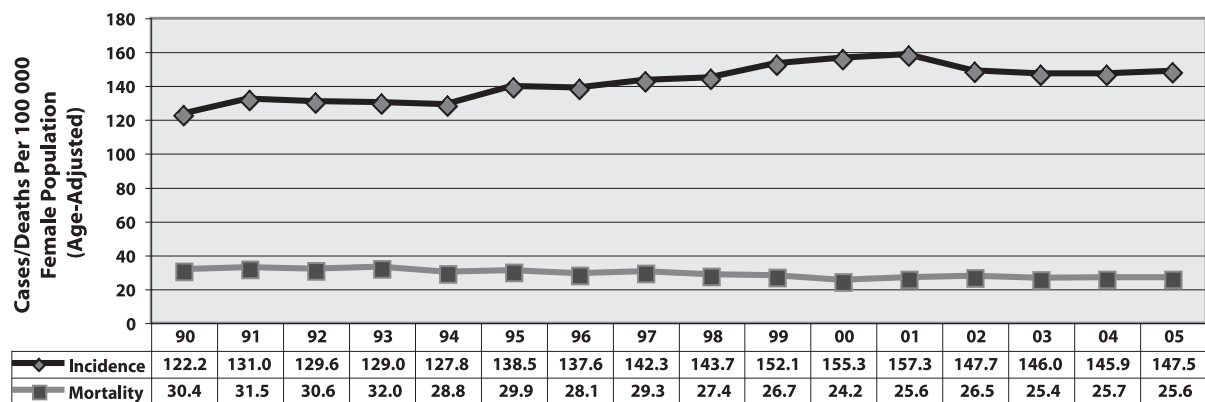
Figure 3.
North Carolina Prostate Cancer Mortality Rates By Race (1990-2005)



Female Breast Cancer

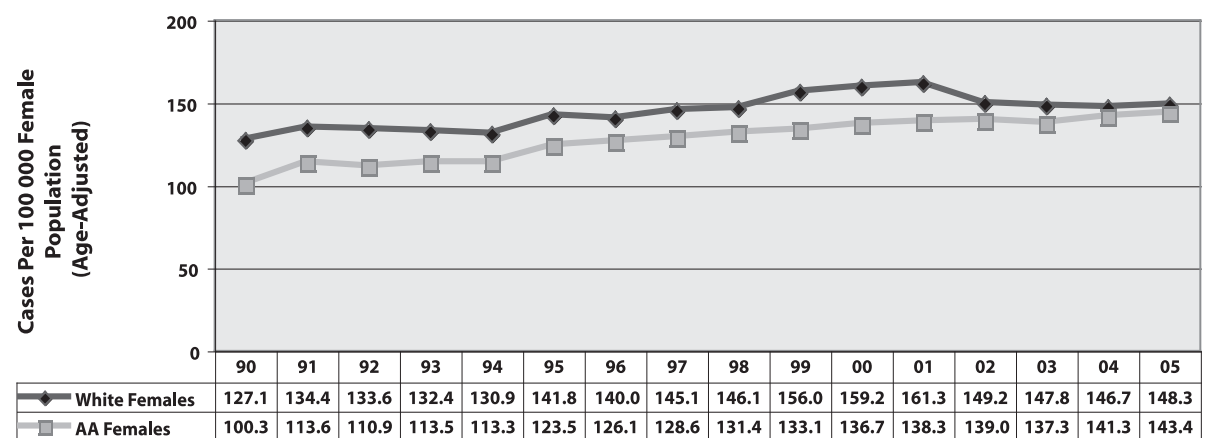
There was a steady increase in female breast cancer incidence from 1990 through 2001, but rates have decreased since 2001. This is consistent with trends in the United States.² (See Figure 4.) This steady increase in incidence occurred for both whites and African Americans until 2001, with a decrease among white women

Figure 4.
North Carolina Female Breast Cancer Incidence and Mortality Rates (1990-2005)



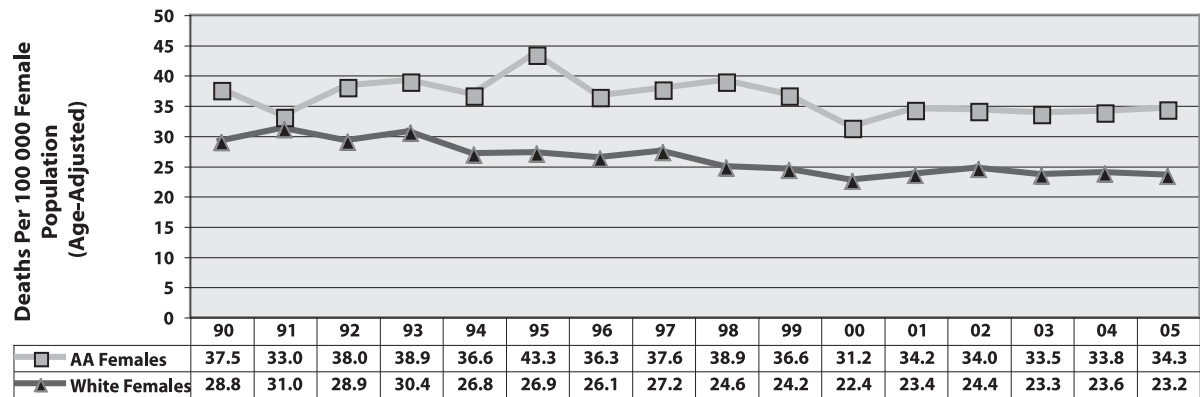
in 2002 followed by stability through 2005. (See Figure 5.) The trend for white women is consistent with that in the United States.² While the breast cancer incidence rate for African American women has also decreased recently in the United States, African American rates continue to increase in North Carolina. (See Figure 5.)

Figure 5.
North Carolina Female Breast Cancer Incidence Rates By Race (1990-2005)



Likely due to early detection, the North Carolina breast cancer mortality rate decreased from 30.4 per 100 000 in 1990 to 25.6 per 100 000 in 2005. (See Figure 4.) This decrease occurred for both African American and white women from 1990 through 2000, but rates have remained steady since 2001. (See Figure 6.)

Figure 6.
North Carolina Female Breast Cancer Mortality Rates By Race (1990-2005)



Lung Cancer

Unlike some other cancers, the mortality rates for lung cancer are only moderately lower than the incidence rates. (See Figure 7.) Lung cancer incidence and mortality rates are consistently greater for males than for females. The disparity between males and females for incidence and mortality has decreased since 1990 due to a decrease in male mortality and increases in female incidence and mortality. (See Figure 8.)

Figure 7.
North Carolina Lung/Bronchus Cancer Incidence and Mortality Rates (1990-2005)

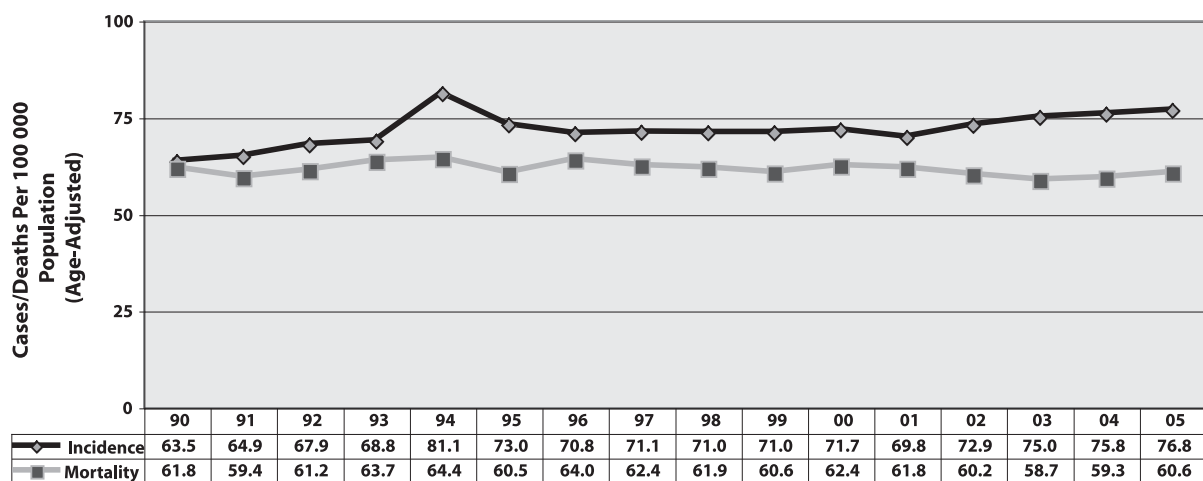
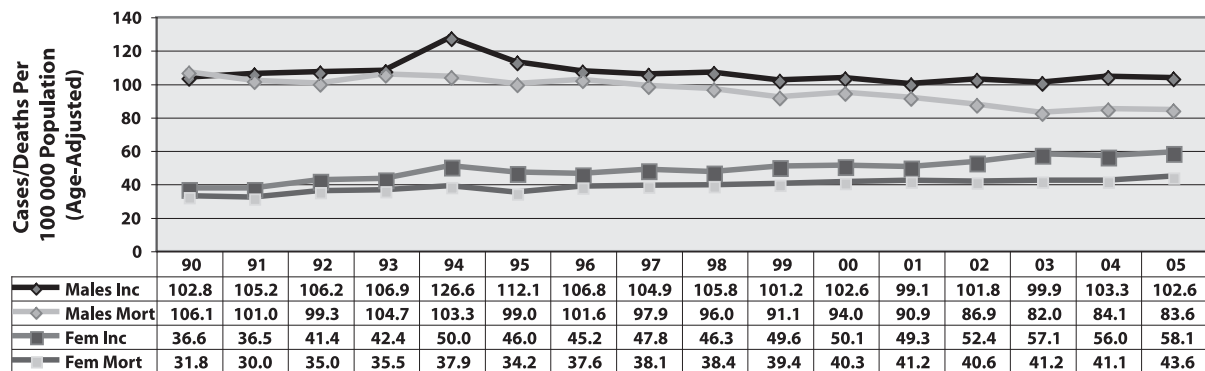


Figure 8.
North Carolina Lung/Bronchus Cancer Incidence and Mortality Rates By Gender (1990-2005)



Lung cancer incidence rates among African American and white males have been steady, but higher than the rates for females. (See Figure 9.) Female incidence and mortality have increased for both African Americans and whites, with consistently higher incidence and mortality rates among white women. (See Figures 9 and 10.)

Since 1990, African American and white male lung cancer mortality rates have decreased, as has the disparity between African American and white males. (See Figure 10.)

Lung cancer has the highest mortality rates of all cancer sites, and because of the increase in female mortality (see Figure 8), the overall rates have not improved over time. (See Figure 7).

Figure 9.
North Carolina Lung/Bronchus Cancer Incidence Rates By Race and Gender (1990-2005)

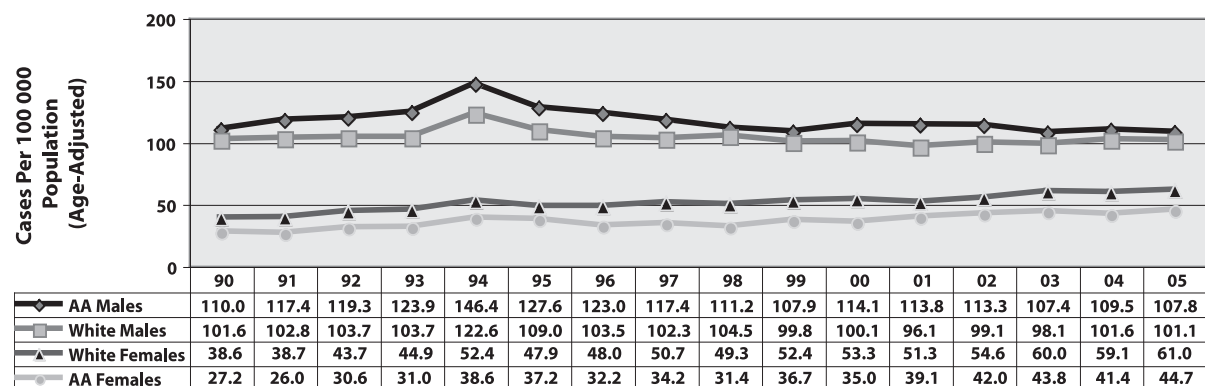
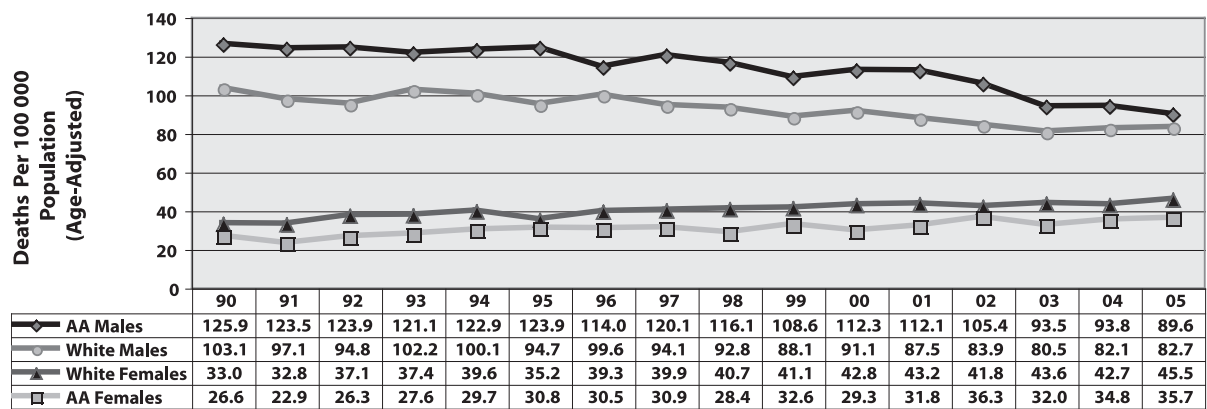


Figure 10.
North Carolina Lung/Bronchus Mortality Rates By Race and Gender (1990-2005)



Colon/Rectum Cancer

Colon/rectum cancer incidence has remained steady over time, but mortality has decreased. (See Figure 11.)
 Colon/rectum cancer incidence and mortality rates are consistently higher for males than for females, and the mortality rates for both males and females have decreased over time. (See Figure 12.)

Figure 11.
North Carolina Colon/Rectum Cancer Incidence and Mortality Rates (1990-2005)

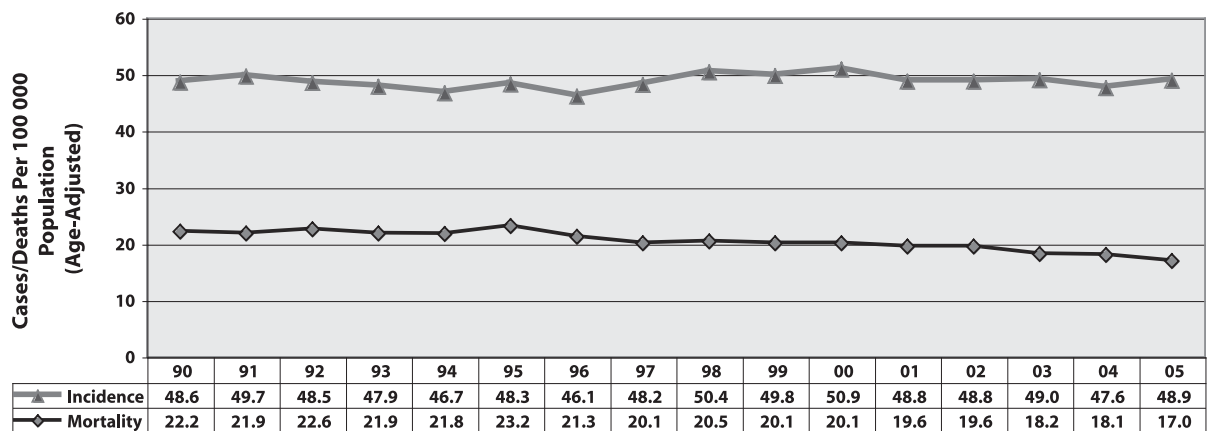
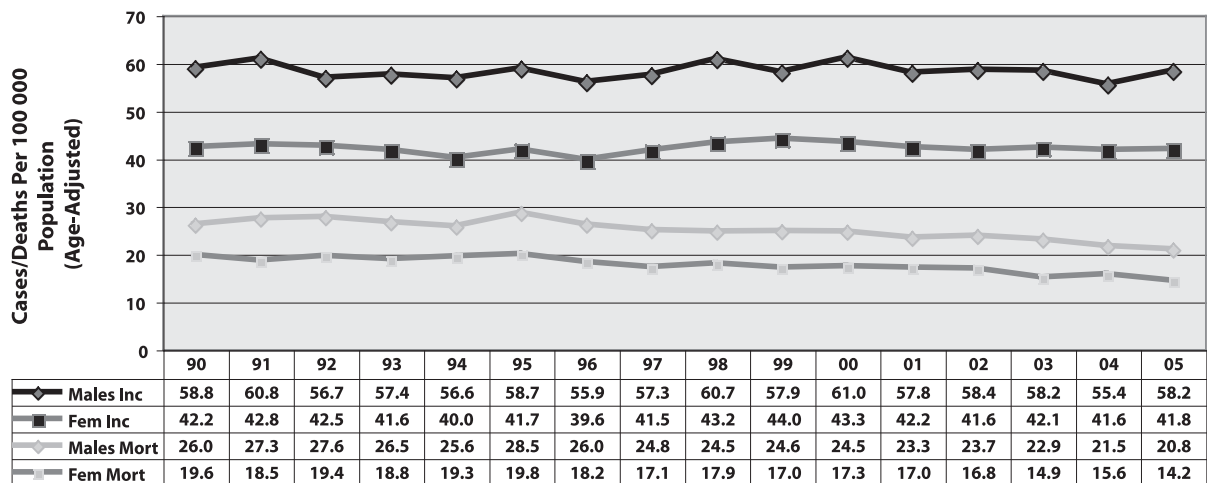


Figure 12.
North Carolina Colon/Rectum Cancer Incidence and Mortality Rates By Gender (1990-2005)



Colon/rectum cancer incidence rates are higher for both African American males and females compared to white males and females. From 2002-2005, the African American/white male disparity has decreased. (See Figure 13.)

Colon/rectum mortality rates have decreased for white males and females and for African American females, but not for African American males. (See Figure 14.)

Figure 13.
North Carolina Colon/Rectum Cancer Incidence Rates By Race and Gender (1990-2005)

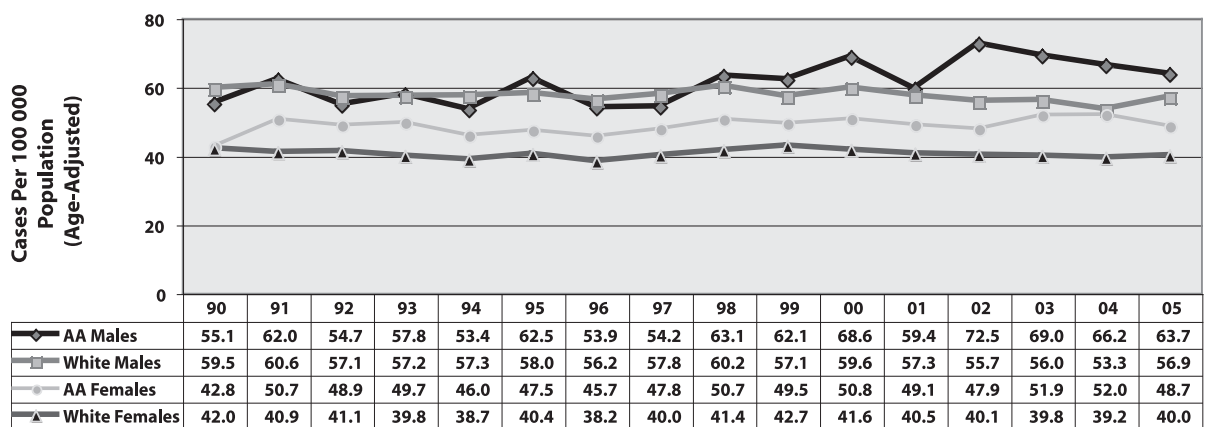
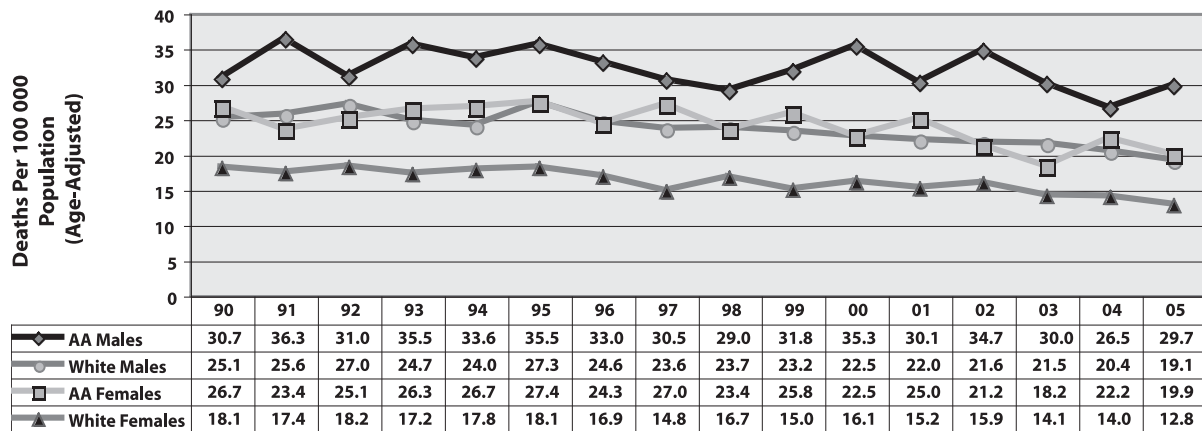


Figure 14.
North Carolina Colon/Rectum Mortality Rates By Race and Gender (1990-2005)



Conclusion

Overall, decreasing trends in cancer incidence and mortality demonstrate progress in prevention, early detection and treatment for prostate, breast, and colorectal cancers. The notable exception is increasing lung cancer mortality, due to increases in both incidence and mortality among women. For these 4 cancer sites, trends by race and gender reveal disparities that can direct cancer control programs to groups with the most need.

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- 1 Recent trends in prostate cancer incidence and mortality. National Institutes of Health Web site. <http://www.nih.gov/news/pr/nov97/nci-21.htm>. Published November 21, 1997. Accessed May 16, 2008.
- 2 Centers for Disease Control and Prevention. Decline in breast cancer incidence—United States, 1999–2003. *MMWR Weekly*. 2007;56(22):549–553. www.cdc.gov/mmwr/preview/mmwrhtml/mm5622a1.htm. Published June 8, 2007. Accessed May 16, 2008.

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