Cancer Statistics

Cancer statistics for Colorado and the four comparison counties were obtained from the Colorado Department of Public Health and Environment, Colorado Central Cancer Registry, Prevention Services Division (www.cdphe.state.co.us). Mr. Jack Finch, (Statistical Analyst III) provided the most recently available data (through 2005) for the most frequently observed cancers in Colorado, as well as for several other cancers that are of interest because of their potential link to exposure to benzene or to radionuclides. For cancers that have sufficiently high rates of occurrence to provide meaningful trend data, trends in incidence and mortality rates are provided for the four comparison counties for the years 1992 through 2005. (Please see Appendix M for data tables.) Table 23 (below) shows comparisons of selected cancer incidence rates to the state incidence rates for the same time periods. Blank cells indicate that there was no significant difference from the state rate.

Table 24 provides the same information for mortality rates. It is important to note that mortality rates – more so than incidence rates – may reflect differences in socio-economic status and/or healthcare access (i.e., access to "state-of-the-art" treatment), rather than differences in risk factors for developing cancer. The latter may include an individual's genetic background, lifestyle choices, and/or exposures to a wide range of environmental toxins (chemical, biological, or radiological). One of the difficulties of observing relatively recent trends in cancer incidence statistics and trying to draw conclusions about possible changes in risk factors, is that, with respect to carcinogenic exposures, these trends reflect events that happened 10- 20 years ago or are cumulative over a lifetime. Generally speaking, the appearance of clinical cancer has a "lag" time of up to two decades following initiation of carcinogenesis. (Childhood cancers and some rare cancers are exceptions.) Thus, with the exception of changes in cancer screening practices that often artifactually inflate cancer rates, short-term trends may not reflect changes in the potential for exposure to carcinogenic materials.

Incidence and mortality trends among the comparison counties have also been portrayed graphically (see below). Incidence rates for all cancers have changed little over time, although cancer rates in males dropped slightly for Delta, Garfield, and Montrose counties for the most recent time period. There is relatively little difference among the counties for either male or female cancer incidence rates across the designated time periods. In addition to the county-specific cancer statistics, the information on Colorado and National incidence rates and risk factors was obtained from the "*Cancer in Colorado 1998-2003*" report (www.cdphe.state.co.us/pp/cccr/1998-2003/index.html) and *"Cancer Facts and Figures 2008"* (American Cancer Society, www.cancer.org).

Selected cancers.

Prostate cancer – Although Garfield County's average annual incidence rates for the period of 1992-1998 were higher than those of Delta, Mesa and Montrose Counties, there has been a steady downward trend in prostate cancer rates in Garfield County. For the most recent time period, prostate cancer rates were lower than those for the other three counties. It is important to note that incidence rates are a reflection of "detection" rates. Changes in rates may be an artifact of screening practices (which, in turn, reflect "standards of practice", health insurance coverage, and public acceptance).

Female Breast cancer – A similar downward trend in female breast cancer incidence is seen for Garfield County. Incidence rates among the comparison counties are not significantly different from each other or from the state rate.

Colorectal cancer – Colorectal cancer rates in males for Garfield County have decreased since 1992, and are now similar to those in Montrose County and lower than those in Delta and Mesa Counties and in the state, as a whole. Female colorectal cancer incidence has been highly variable, and is currently similar to the rates in Delta and Montrose Counties and in the state, as a whole (which are all higher than the most recent incidence rate for Mesa County).

Lung cancer – There has been a significant drop in the male lung cancer incidence rates in Garfield County over the most recent tracking period (2003-2005). Garfield County has the lowest incidence rate among the comparison counties and the state of Colorado for this period. Female lung cancer rates in Garfield County have essentially remained stable since 1992. The most recent rates are similar to the state rates, are higher than those for Delta County, and are lower than those for Mesa and Montrose Counties.

Bladder cancer – Bladder cancer incidence rates have been highly variable in Garfield County for both males and females. All of the comparison counties saw a spike in male bladder cancer incidence for the 2001-2002 period (true also for female bladder cancer, with the exception of Delta County, for which no female bladder cancers were reported during this period). The most recent tracking period showed decreases in the incidence rates for all counties, except Montrose County (continued upward trend in male bladder cancer) and Delta County (increase in female bladder cancer). State rates have remained stable for both male and female bladder cancer over the 1992-2005 time period.

Melanoma – Melanoma rates for Garfield County do not differ significantly from those in the comparison counties or the state as whole. Male melanoma rates have tended to decrease since 1999, while female rates have been more variable, although relatively low.

Leukemias – The incidence rates for all male leukemias in Garfield County were lower than those in the comparison counties and the state during 2003-2005 (the only period for which county-specific data were available). Female leukemia incidence rates for Garfield County were essentially the same as for the state, as a whole, slightly lower than for Montrose County, and higher than those for Mesa and Delta Counties.

Thyroid cancer – In all cases, incidence rates for male thyroid cancer were lower than for thyroid cancer in females, during 2003-2005, the only period for which county-specific data were available. In Garfield County, male thyroid cancer rates were lower than in Montrose County and the state, but higher than in Mesa and Delta Counties (No thyroid cancer was recorded for males in Delta County). Thyroid cancer rates for females in Garfield County were only higher than the rates for female residents of Mesa County.

Cervical cancer – Garfield County had the lowest incidence rates for cervical cancer among the comparison counties and the state, as a whole.

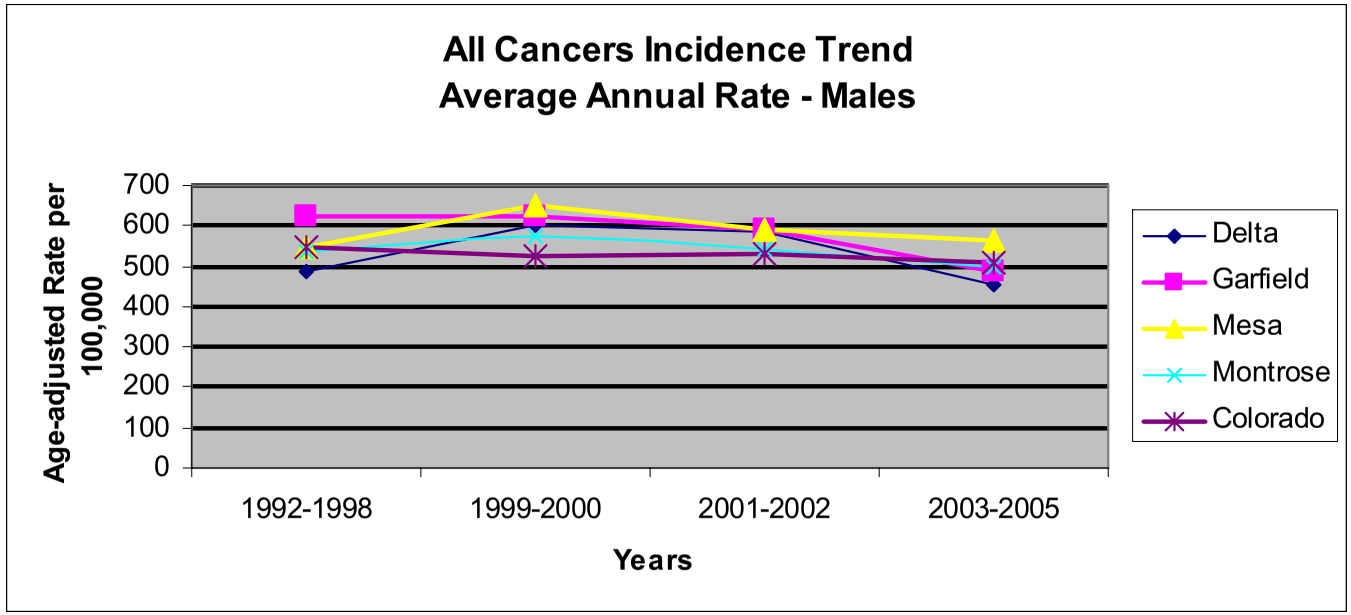
TABLE 23. COMPARISON OF COUNTY RATES WITH STATE RATES - INCIDENCE

Male	Delta				Garfield				Mesa				Montrose			
	1992-1998	1999-2000	2001-2002	2003-2005	1992-1998	1999-2000	2001-2002	2003-2005	1992-1998	1999-2000	2001-2002	2003-2005	1992-1998	1999-2000	2001-2002	2003-2005
Prostate	↓				↑	↑			↓	↑	↑	↑		↑		
Lung									↑	↑		↑				
Colo-rectal																
Melan-oma										↑						
Bladder														↓		
Leuke-mias																
Thyroid																
All Cancers	↓				↑	↑				↑	↑	↑				
Female																
Breast			↓													
Lung									↑	↑		↑				
Colo-rectal																
Melan-oma	↑		***													
Thyroid												↓				
Leuke-mias																
Bladder			***			***					↑					
Cervix		***	***			***	***									
All Cancers					↑	↓										

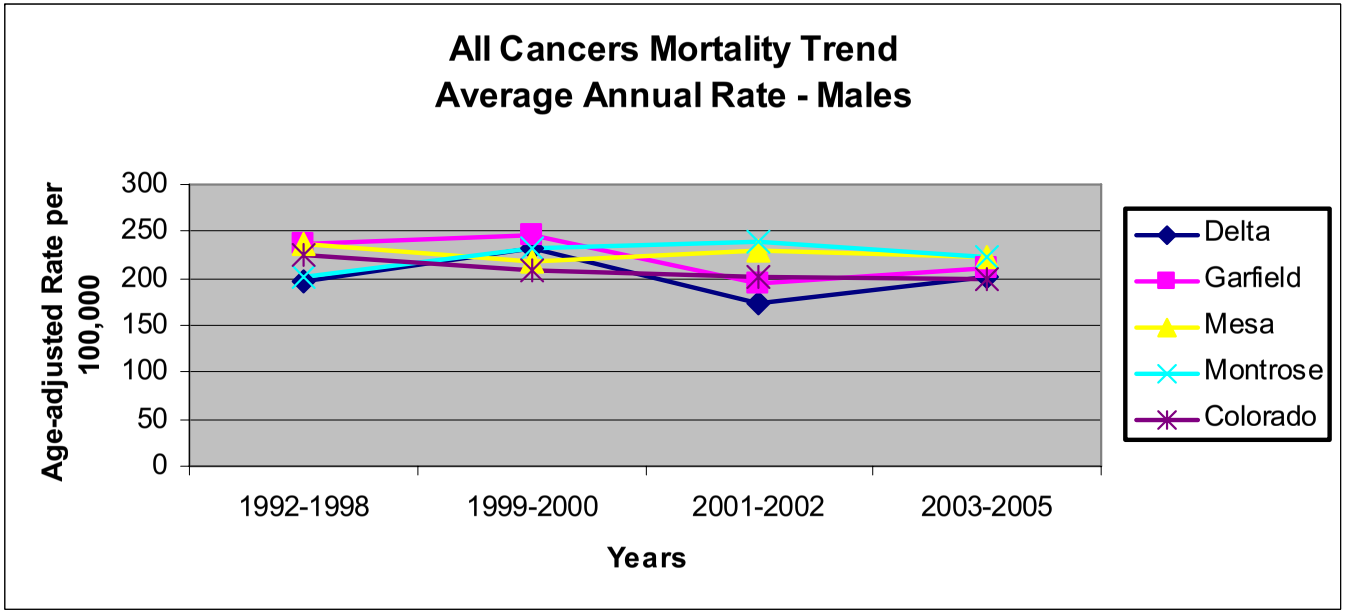
↑ Rate is significantly higher than Colorado rate.
↓ Rate is significantly lower than Colorado rate.
***Indicates fewer than 3 events in this category.

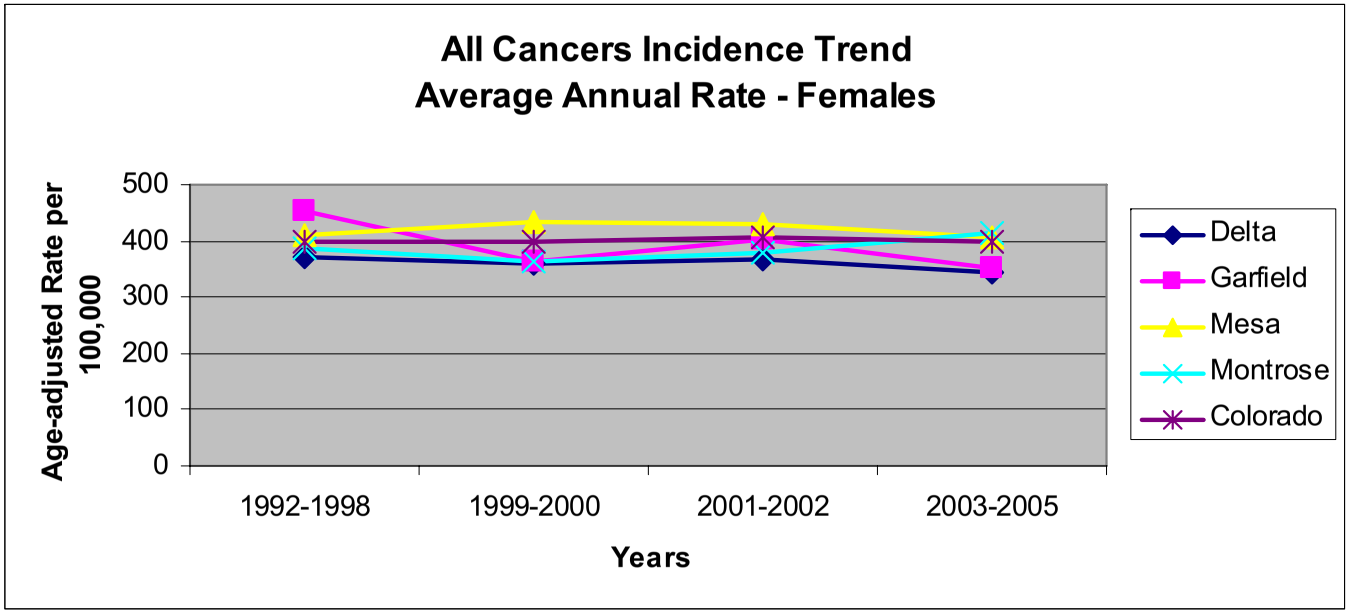
TABLE 24. COMPARISON OF COUNTY RATES WITH STATE RATES - MORTALITY																
Male	Delta				Garfield				Mesa				Montrose			
	1992-1998	1999-2000	2001-2002	2003-2005	1992-1998	1999-2000	2001-2002	2003-2005	1992-1998	1999-2000	2001-2002	2003-2005	1992-1998	1999-2000	2001-2002	2003-2005
Prostate									↓			↓				
Lung												↑				
Colo-rectal	↓						***									
Melan-oma		***					***	***					***	***		
Bladder	***	***			***		***	***		***				***		
Leuke-mias																
Thyroid				***				***				***				***
All Cancers	↓											↑				↑
Female																
Breast																
Lung				↓								↑				
Colo-rectal												↓				
Melan-oma		***	***	***	***	***	***	***				↓	***	***	***	
Thyroid				***				***					***	***	***	
Leuke-mias								***								***
Bladder		***	***	***	***	***	***	***					***		***	***
Cervix		***	***	***		***	***	***			***		***	***	***	***
All Cancers								***	↑			↑				↑

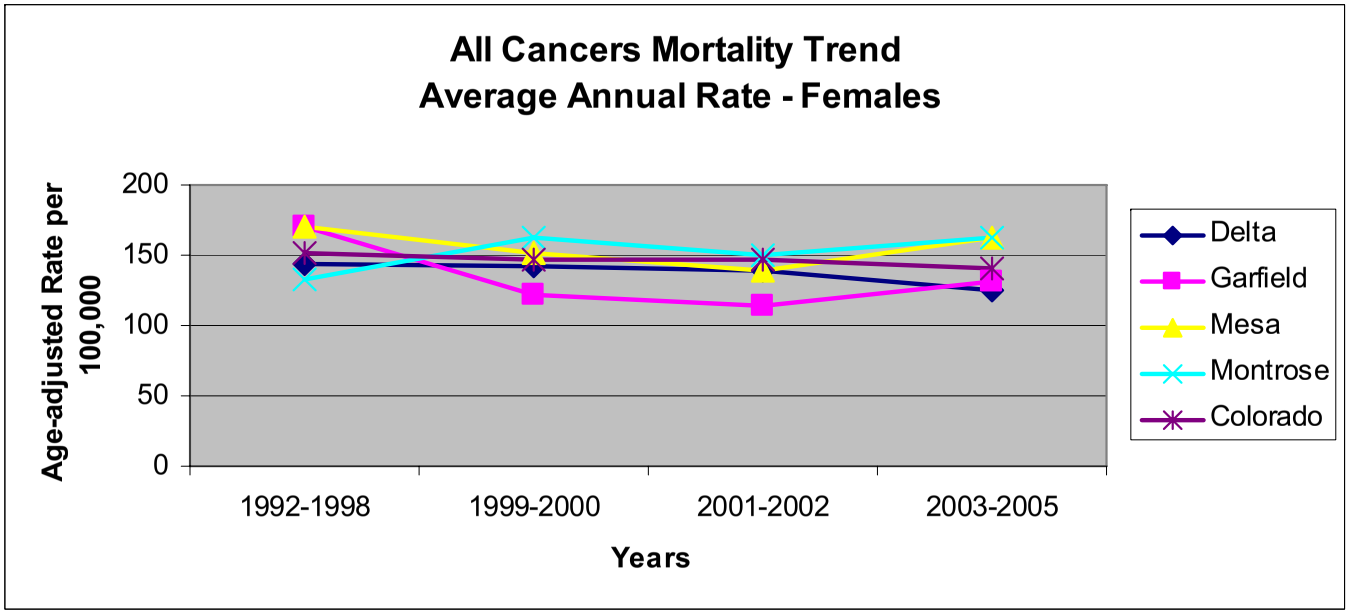
↑Rate is significantly higher than Colorado rate.
↓Rate is significantly lower than Colorado rate.
***Indicates fewer than 3 events in this category

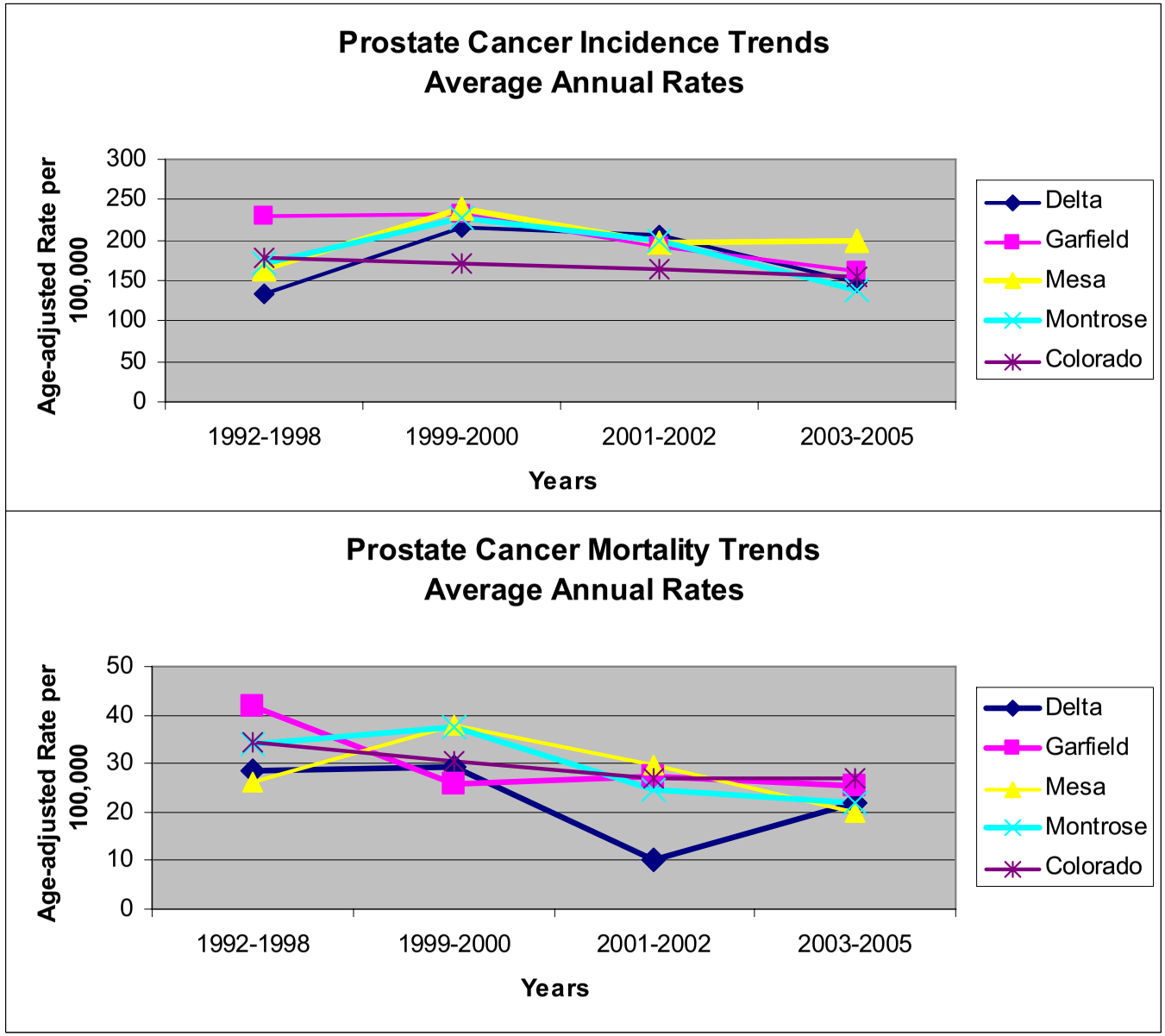


Figures 40a-d. In Colorado, the cummulative lifetime risk for developing cancer of any type is 1 in 2 for males and 2 in 5 for females.

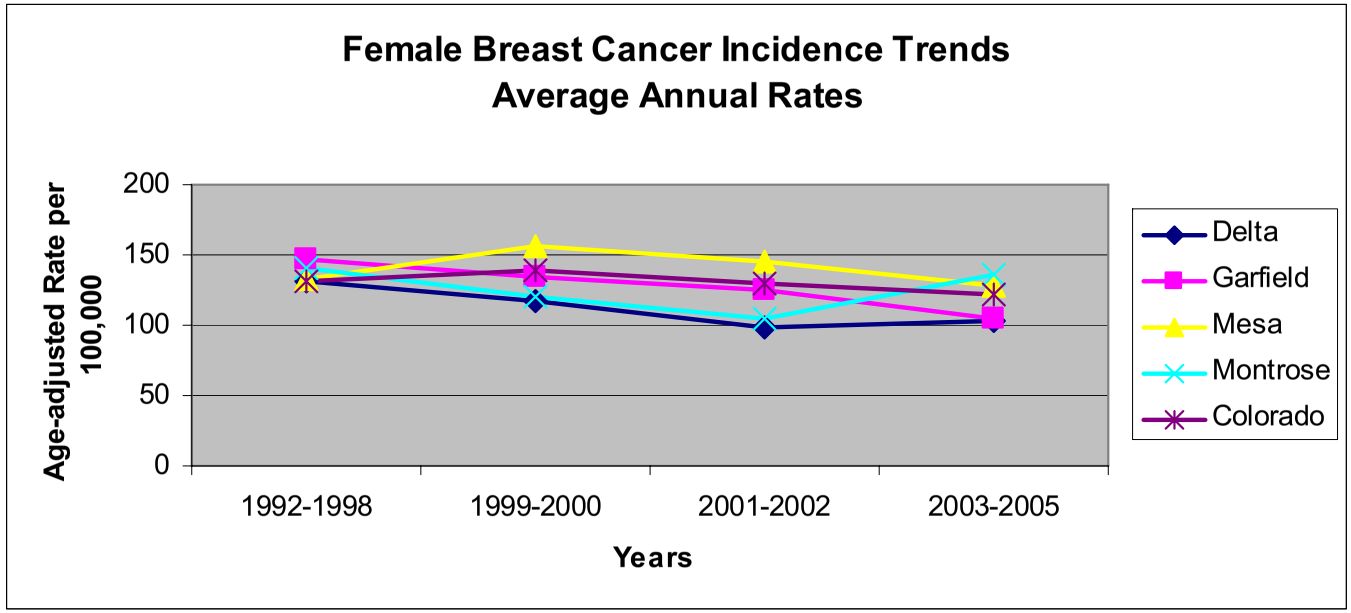


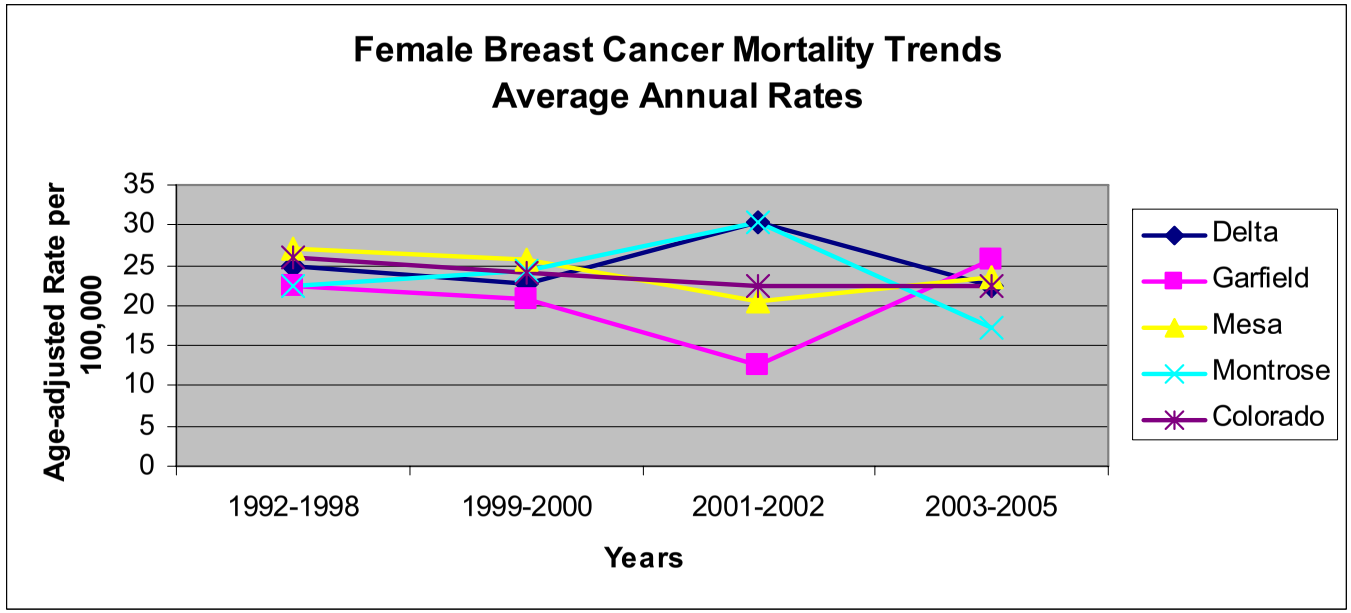

All Cancers Incidence Trend
Average Annual Rate - Females
Age-adjusted Rate per 100,000
500
400
300
200
100
0
1992-1998
1999-2000
2001-2002
2003-2005
Years
Delta
Garfield
Mesa
Montrose
Colorado


All Cancers Mortality Trend
Average Annual Rate - Females
Age-adjusted Rate per 100,000
200
150
100
50
0
1992-1998
1999-2000
2001-2002
2003-2005
Years
Delta
Garfield
Mesa
Montrose
Colorado

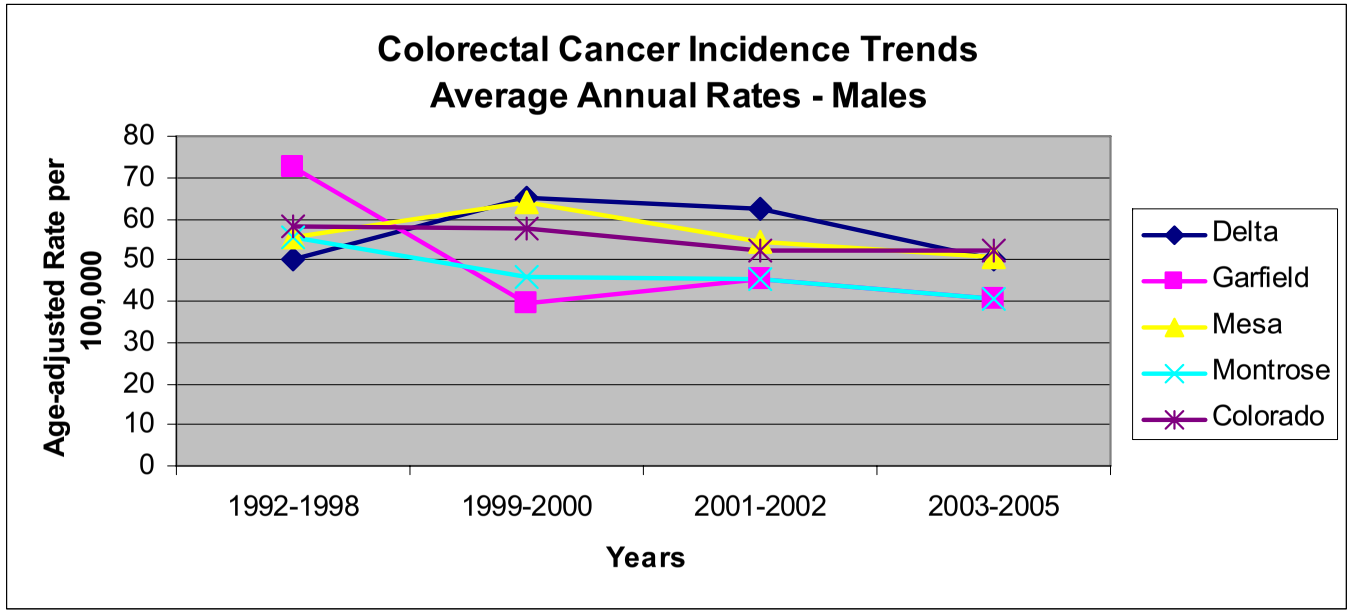


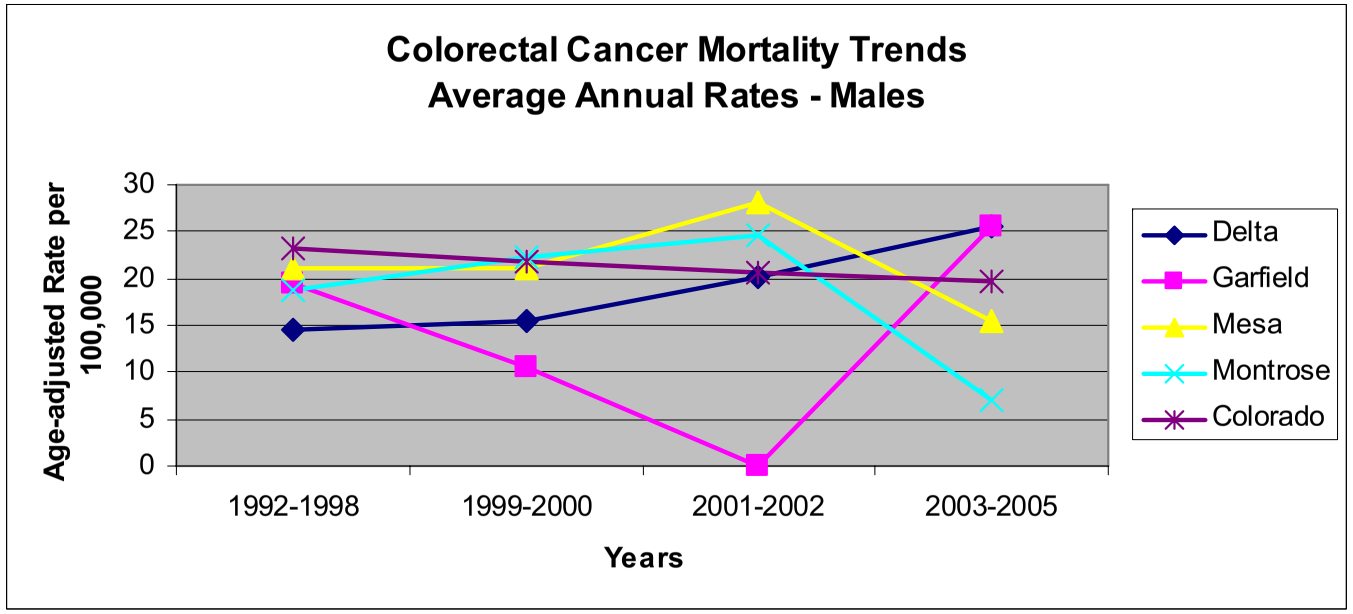
Figures 41a and 41b. Prostate cancer is the most frequently diagnosed cancer in men. In Colorado, 1 in 5 males is likely to develop prostate cancer during their lifetime. The only well-established risk factors for prostate cancer are age (>65 years), ethnicity (incidence rates are highest among African American men), and family history of the disease. Some studies suggest that a diet high in saturated fat may also be a risk factor.



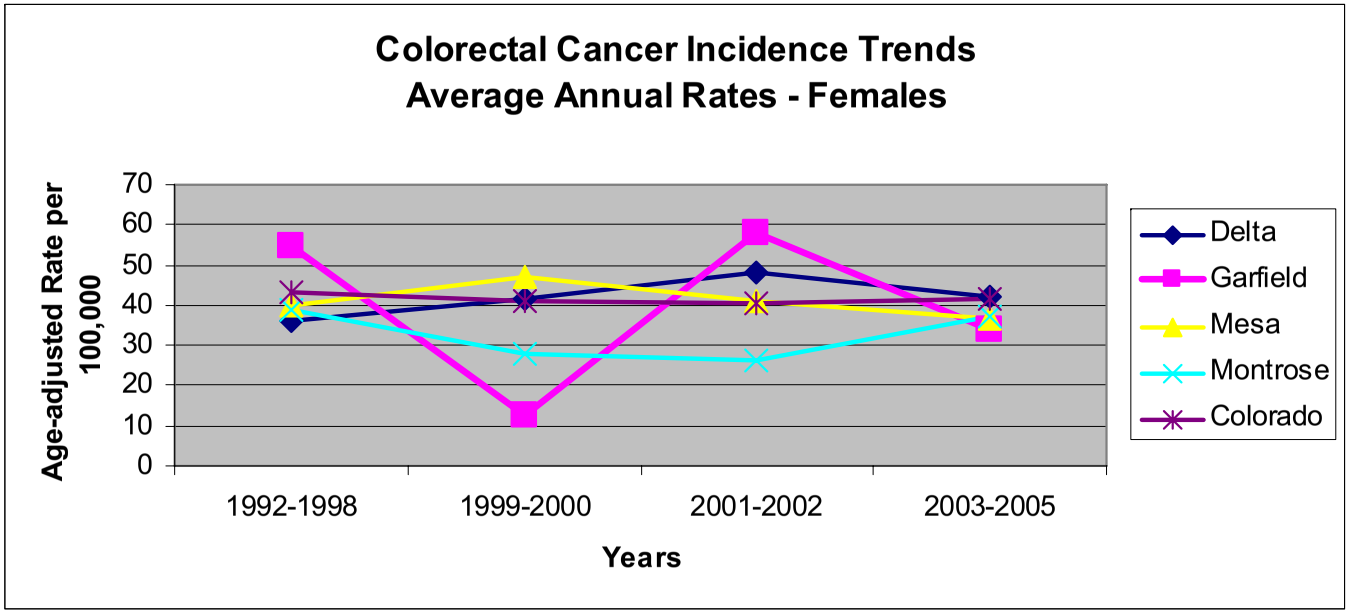


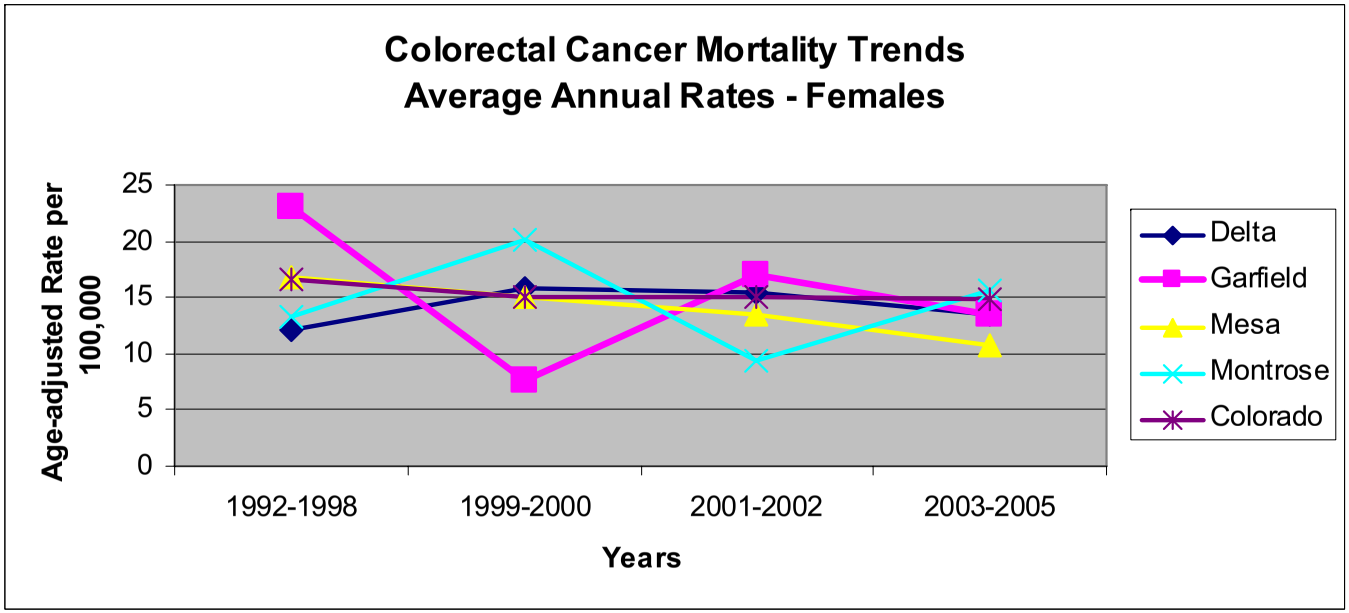
Figures 42a and 42b. Breast cancer is the most frequently diagnosed cancer in women. In Colorado, it is likely that 1 in 7 women develop breast cancer during their lifetime. Age is the most important risk factor for female breast cancer. Other risk factors include genetic background (inherited mutations in the BRCA1 and BRCA2 genes; a personal or family history of breast cancer), and reproductive factors such as a long menstrual history, never having children or having a first child after age 30, and recent use of oral contraceptives. Other factors such as obesity, postmenopausal hormone therapy, physical inactivity and alcohol use may play a role in the development of breast cancer.

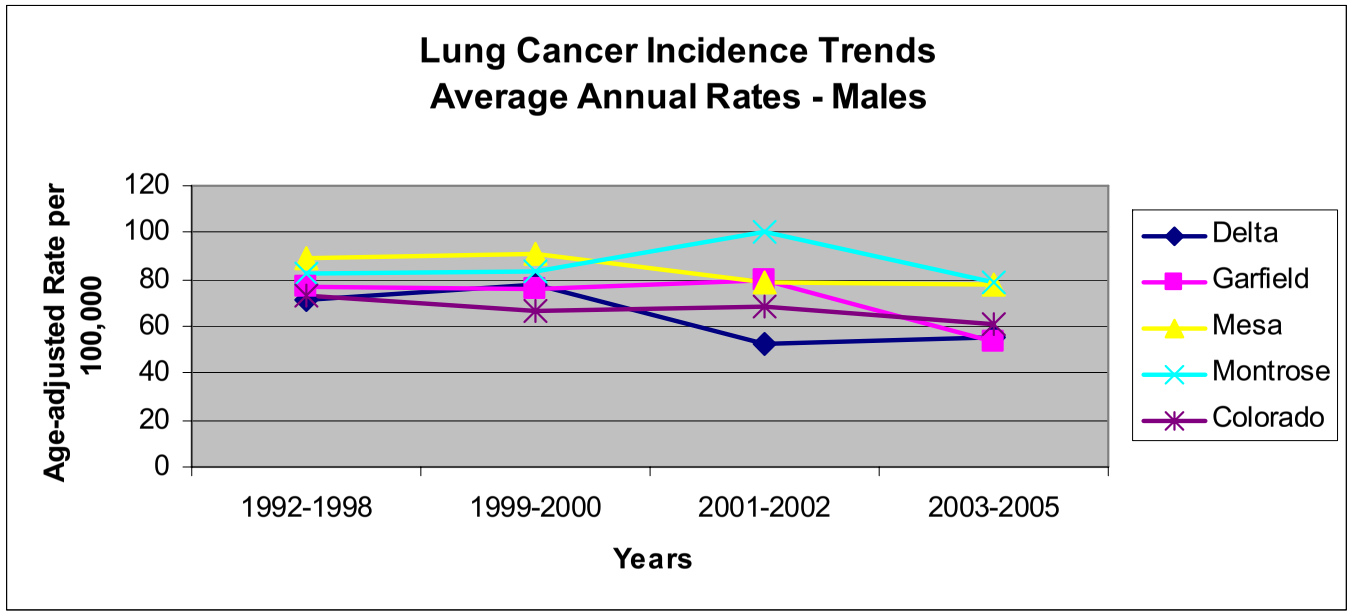


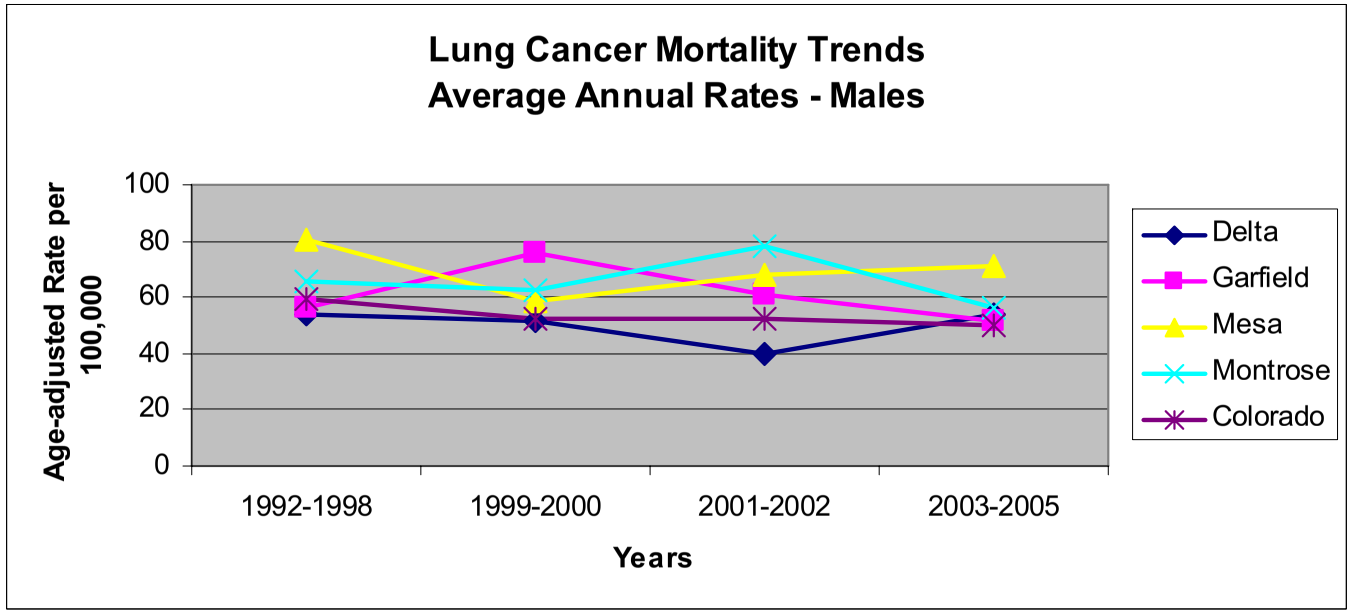


Figures 43a-d. Nationally, colorectal cancer is the third most common cancer in both men and women. In Colorado the lifetime risk for developing colorectal cancer is 1 in 14 for males and 1 in 18 for females. Risk factors for developing colorectal cancer include increasing age, certain genetic mutations or a personal or family history of colorectal cancer, polyps, or chronic inflammatory bowel disease. Other risk factors include obesity, physical inactivity, smoking, alcohol consumption, and a diet high in red or processed meat and low in fruits and vegetables.

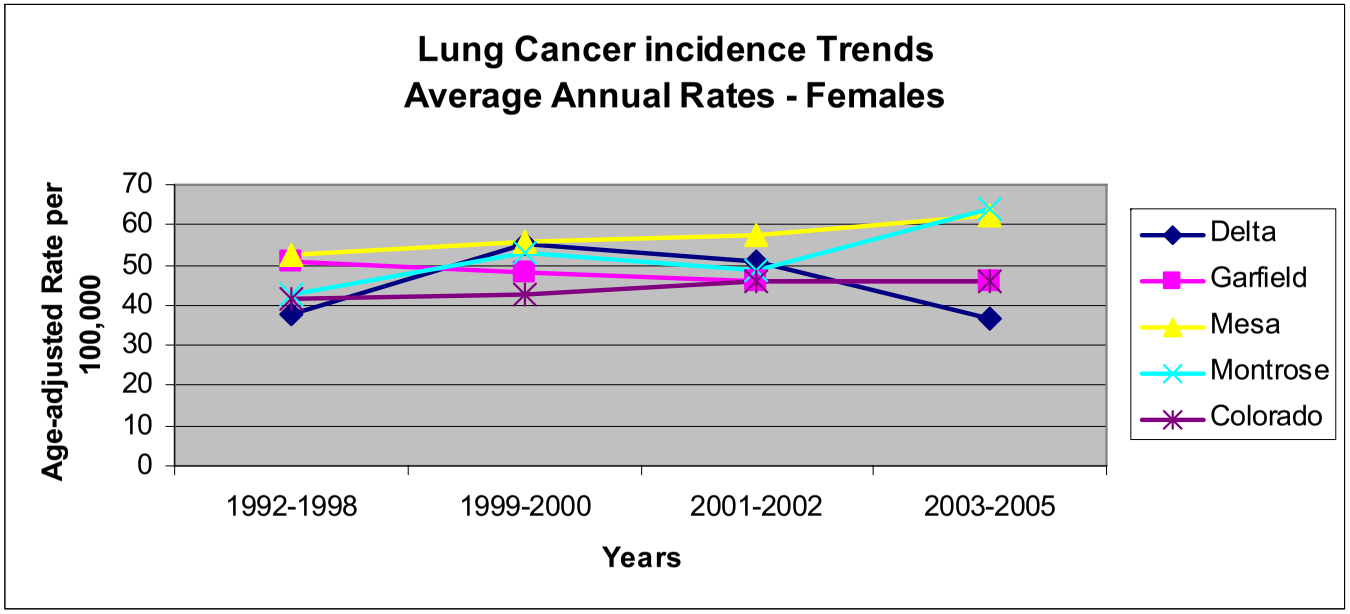

Colorectal Cancer Incidence Trends
Average Annual Rates - Females
Age-adjusted Rate per 100,000
70
60
50
40
30
20
10
0
1992-1998
1999-2000
2001-2002
2003-2005
Years
Delta
Garfield
Mesa
Montrose
Colorado

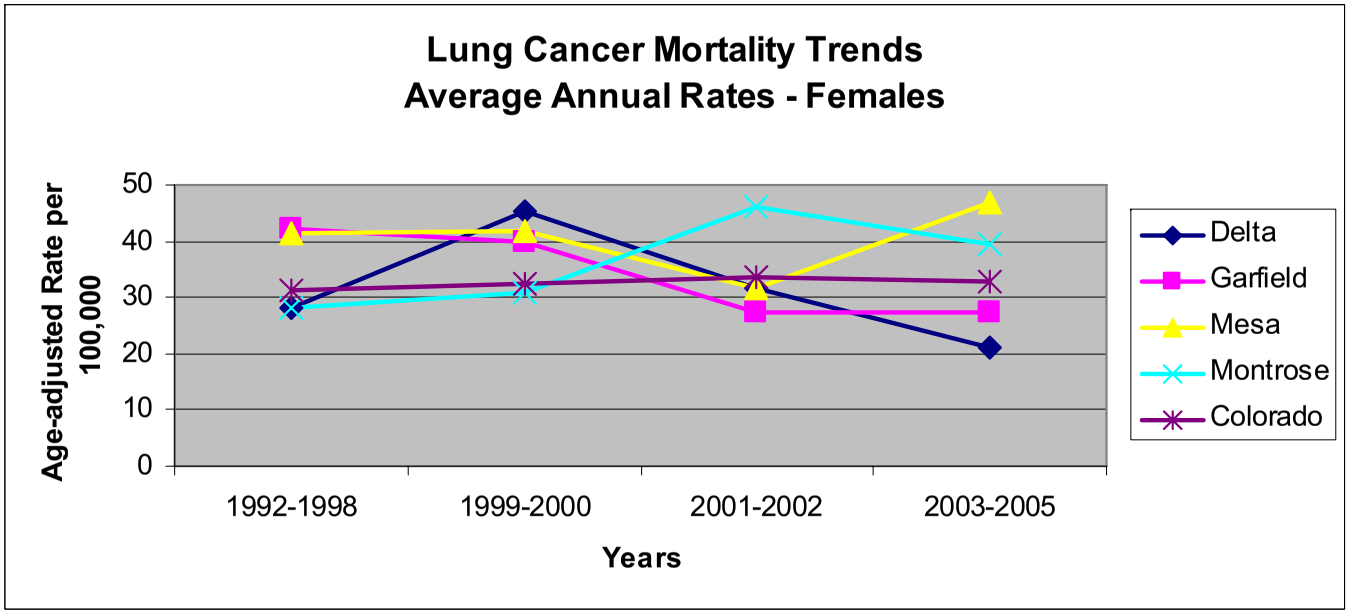

Colorectal Cancer Mortality Trends
Average Annual Rates - Females
Age-adjusted Rate per 100,000
25
20
15
10
5
0
1992-1998
1999-2000
2001-2002
2003-2005
Years
Delta
Garfield
Mesa
Montrose
Colorado

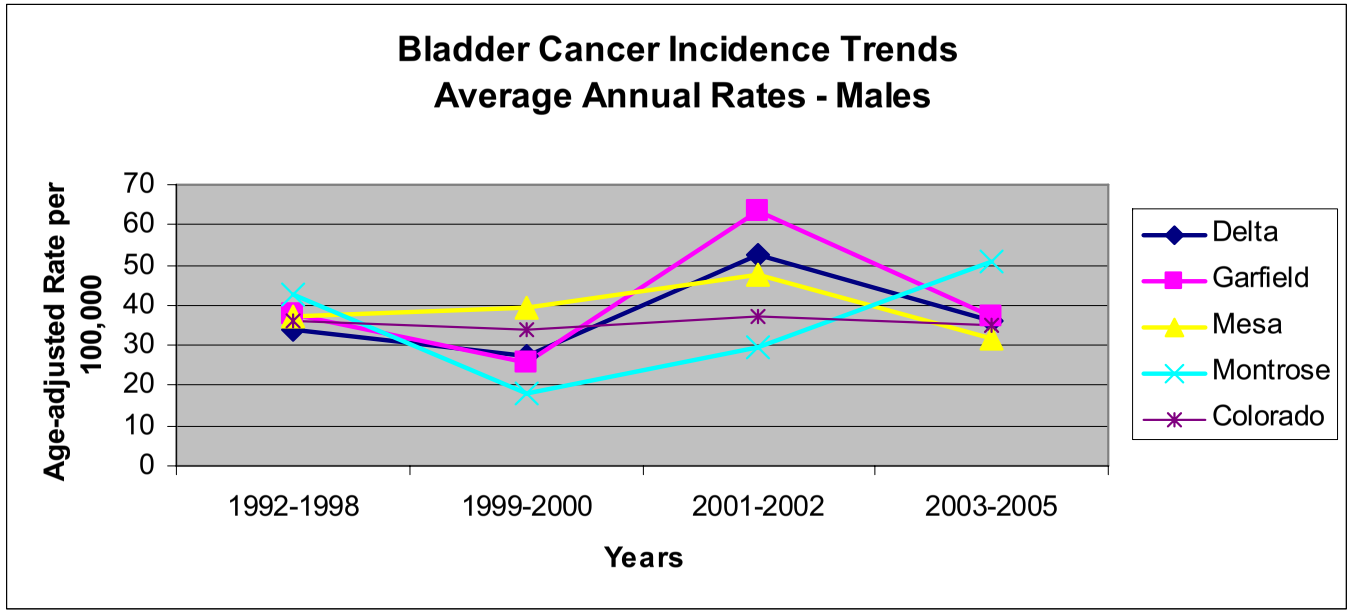


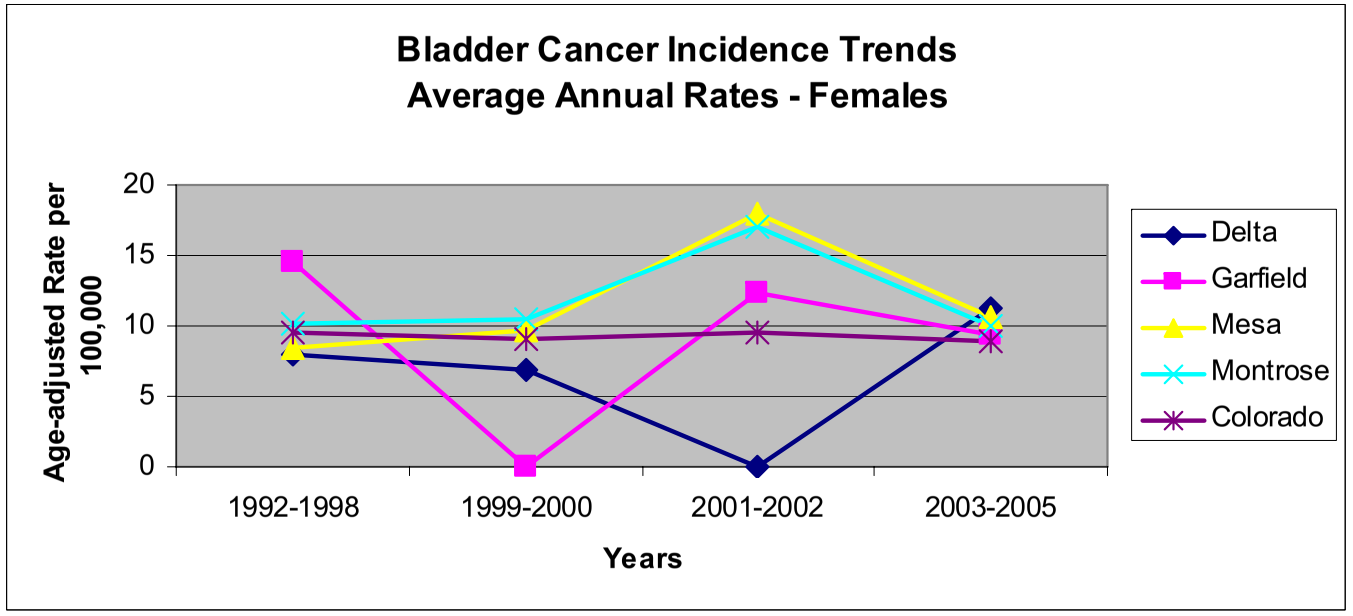


Figures 44a-d. Although the incidence rates for lung cancer are declining, it is still the second most frequently diagnosed cancer in both men and women, and accounts for the most cancer-related deaths. In Colorado, the lifetime risk of lung cancer is 1 in 10 for males and 1 in 15 for females. Cigarette smoking is by far the most important risk factor for developing lung cancer. Other risk factors include genetic background history of tuberculosis and occupational or environmental exposure to secondhand smoke, radon, asbestos, certain metals, organic chemicals, and other air pollutants, and radiation.

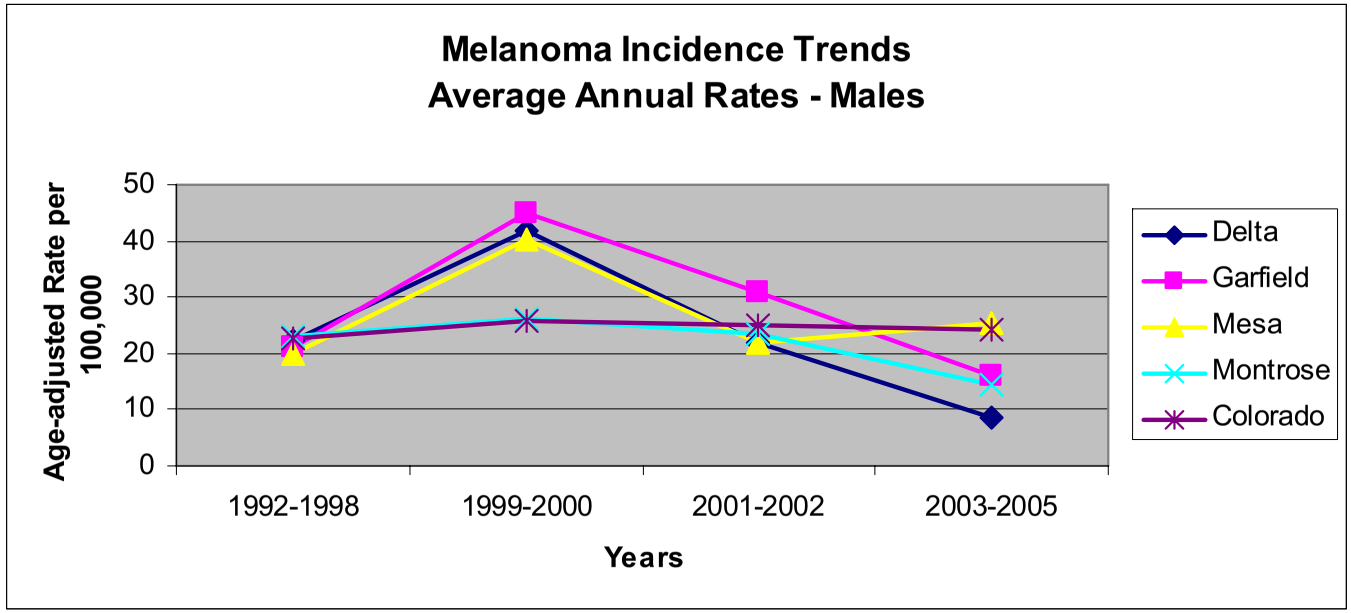

Lung Cancer incidence Trends
Average Annual Rates - Females
Age-adjusted Rate per 100,000
70
60
50
40
30
20
10
0
1992-1998
1999-2000
2001-2002
2003-2005
Years
Delta
Garfield
Mesa
Montrose
Colorado

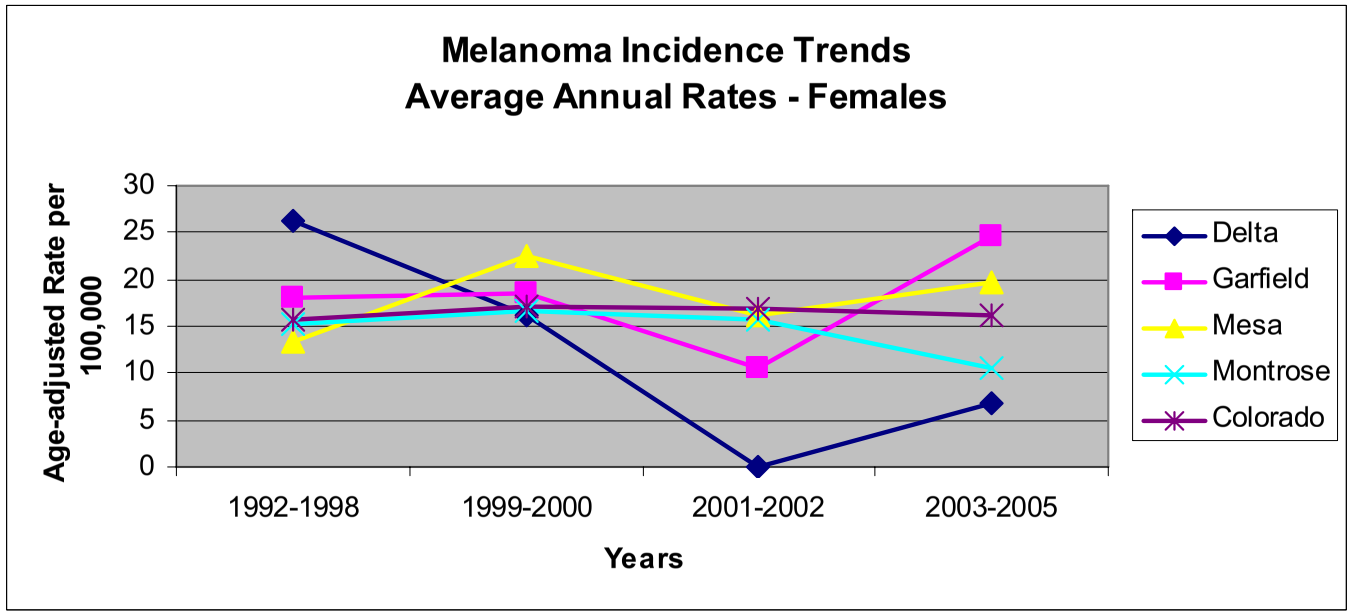

Lung Cancer Mortality Trends
Average Annual Rates - Females
Age-adjusted Rate per 100,000
50
40
30
20
10
0
1992-1998
1999-2000
2001-2002
2003-2005
Years
Delta
Garfield
Mesa
Montrose
Colorado



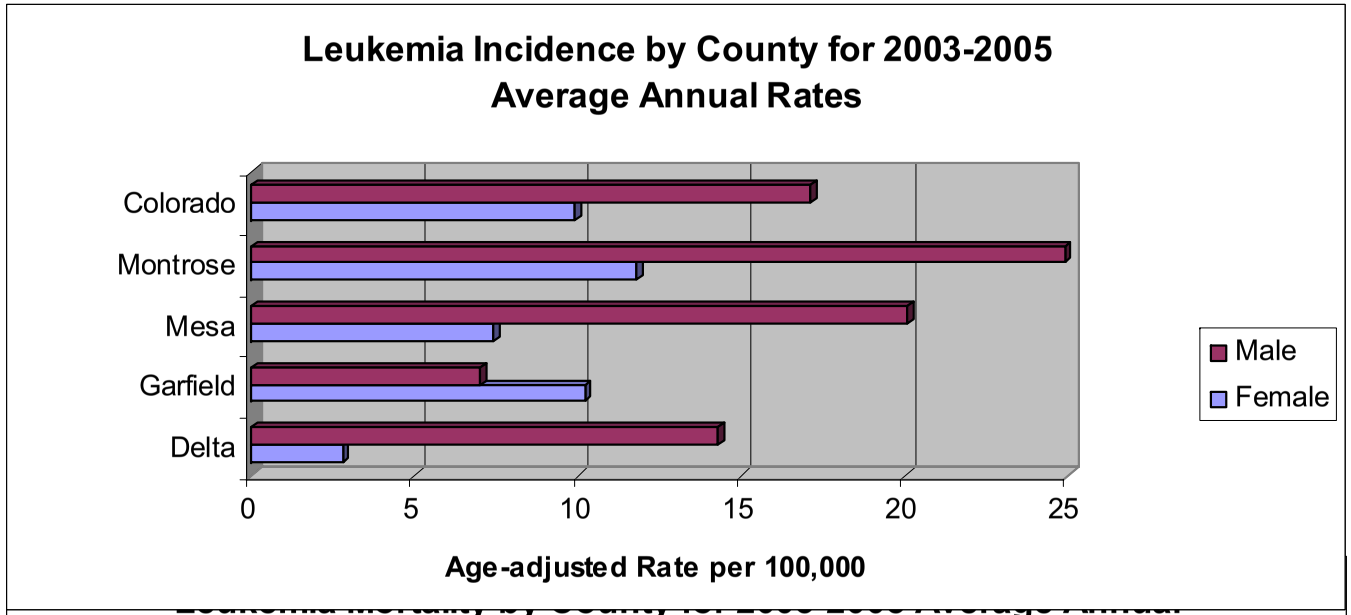


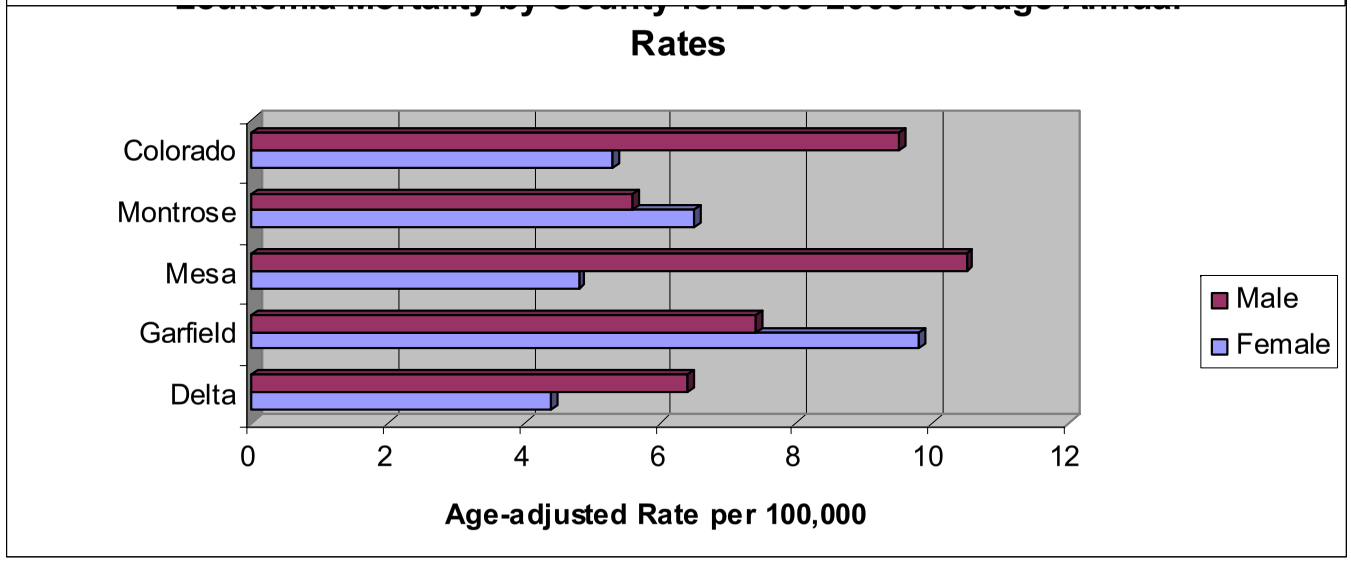
Figures 45a and 45b. Nationally, bladder cancer incidence rates are nearly four times higher in men than in women. In Colorado, the lifetime risk for bladder cancer is 1 in 20 for males and 1 in 76 for females. Smoking is the most important risk factor for developing bladder cancer. Workers in the dye, rubber or leather industries and individuals who live in communities that have high levels of arsenic in their drinking water are also at increased risk for developing bladder cancer.





Figures 46a and 46b. Melanoma is the most common, serious form of skin cancer, and occurs primarily (although not exclusively) in whites. The major risk factors for melanoma are personal or family history and the presence of large numbers or atypical moles. Other risk factors include a history of excessive sun or ultraviolet light exposure; sun sensitivity (light or red hair and light skin); diseases that suppress the immune system; and occupational exposure to coal tar, pitch, creosote, arsenic compounds, or radiation.





Figures 47a and 47b. Although leukemia is diagnosed 10 times more often in adults than in children, it is often thought of as primarily a childhood disease. The most common types of leukemia diagnosed in adults are acute myeloid leukemia and chronic lymphocytic leukemia. Leukemia occurs more frequently in males than in females. In Colorado, the lifetime risk of developing leukemia is 1 in 45 for males and 1 in 79 for females. Individuals with Down Syndrome and certain other genetic abnormalities have higher rates of leukemia. Cigarette smoking and exposure to radiation and to chemicals like benzene are also risk factors for leukemia.

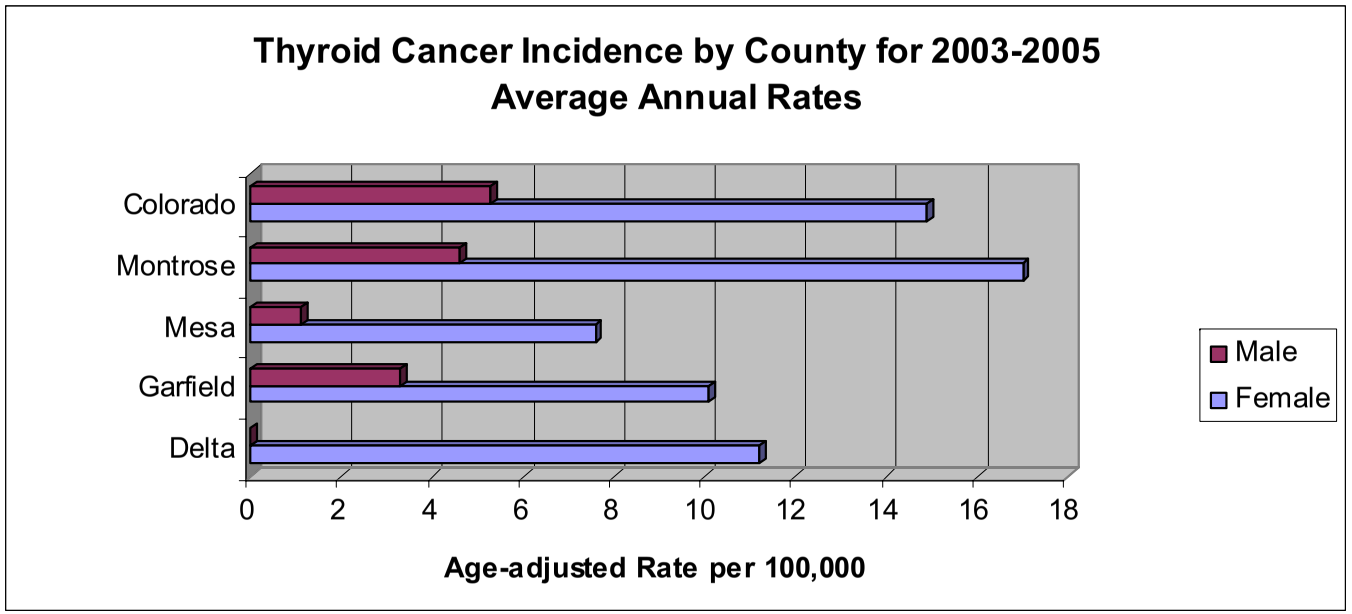


Figure 48. Nationally, thyroid cancers occur about 3 times more often in women than in men, and they are more frequent in younger adults. In Colorado, the lifetime risk of developing thyroid cancer is 1 in 204 for males and 1 in 92 for females. Major risk factors for developing thyroid cancer are a diet low in iodine, exposure to radiation, and certain inherited medical conditions.

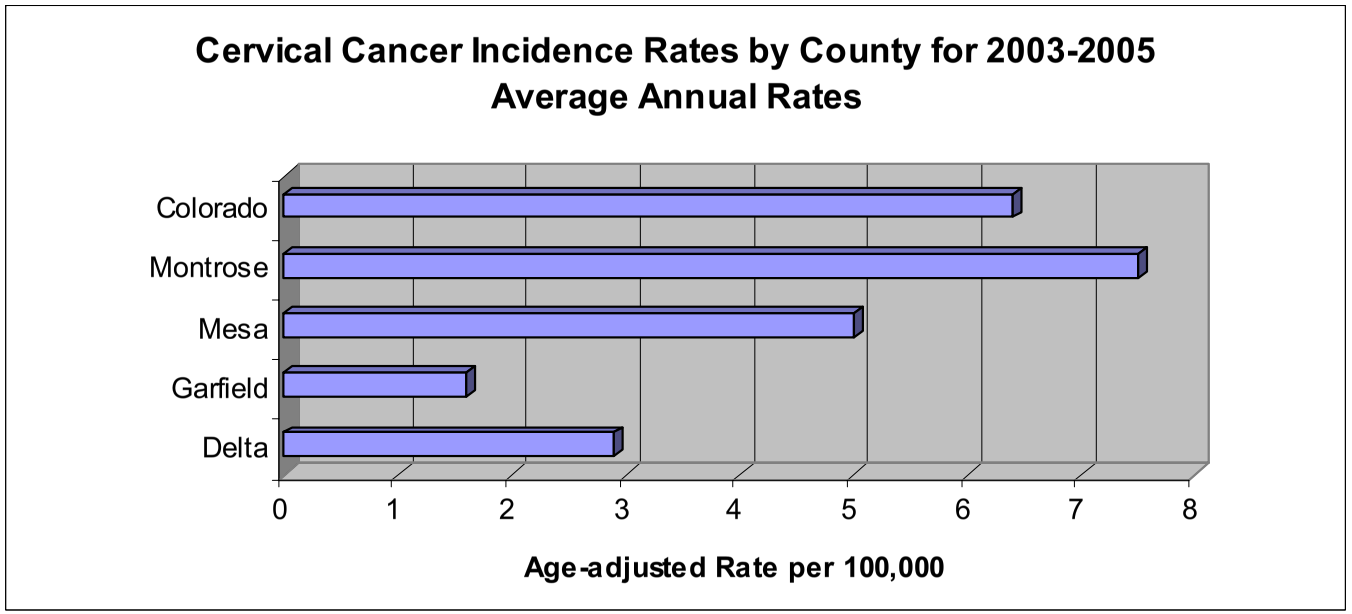


Figure 49. Incidence rates for cervical cancer have decreased significantly, and as Pap screening has become more common, cervical cancer is more often detected before it becomes invasive. In Colorado, 1 in 154 women develop invasive cervical cancer over their lifetime. The primary cause of cervical cancer is infection with human papillomavirus (HPV). The ability of the infection to progress to cancer is related to factors such as suppressed immunity, having many children, cigarette smoking, and nutrition. Long-term use of oral contraceptives is also associated with an increased risk of cervical cancer.