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ACKNOWLEDGEMENTS

This booklet was developed by the following staff members of the Texas Department of Health, Bureau of Disease Control and Epidemiology: Jeanne Martin, Ph.D., Nancy Weiss, M.P.H., Lucina Suarez, M.S. and Tricia Vowels. Special thanks goes to Linda Lloyd, M.S.W., M.B.A., Director of the Cancer Registry Division, Texas Department of Health and to Leslie Boss, Ph.D., of the National Cancer Institute for invaluable assistance in this project.

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INTRODUCTION

Cancer remains a serious health problem in Texas. In 1987, 25,327 Texans died from cancer and an estimated 51,000 Texans were newly diagnosed with cancer. Past trends suggest that these numbers will increase during the next decade. It is estimated that thirty percent, or more than five million Texans now living, will develop cancer sometime during their lifetime. Ultimately, three out of four families in Texas will have a family member develop cancer.

The direct health care costs for patients with cancer exceed 400 million dollars annually. The medical, emotional and economic costs of cancer are staggering. With the continued growth in population, the aging of the population, the increase in medical treatment expenses, and the maintenance of cultural and lifestyle behaviors conducive to cancer, these costs are expected to escalate.

We now have the knowledge to reduce significantly the cancer toll, but this knowledge must be translated into action. In particular, we have information that can lessen the morbidity and mortality from cancers of the lung, breast, cervix, and colon through reductions in smoking rates, increases in breast and cervical cancer screening, and changes in dietary habits. Cancer prevention and control efforts offer unique opportunities to increase years of productivity, improve the quality of life, and reduce health care costs.

The National Cancer Institute's goal of a 50% reduction in cancer mortality by the year 2000 is possible if current recommendations regarding smoking reduction, increases in breast and cervical cancer screening, diet changes, and state of the art treatment are effectively applied. The Texas Legislature has a crucial role in meeting this goal for Texas by providing funding for screening programs and incentives for lifestyle changes.

LUNG CANCER

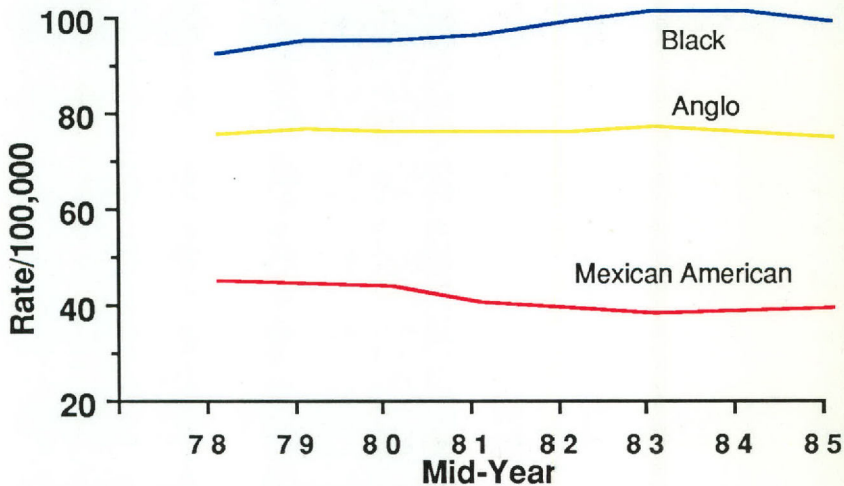
Leading Cause of Cancer Deaths in Texas

The American Cancer Society estimates 8,600 new cases of lung cancer and 7,900 lung cancer deaths in Texas in 1988.

In 1986, 6,883 Texans died from lung cancer: 4,735 males and 2,148 females.

Of these 6,883 Texans, 5,604 were Anglo, 806 were black and 473 were Mexican American.

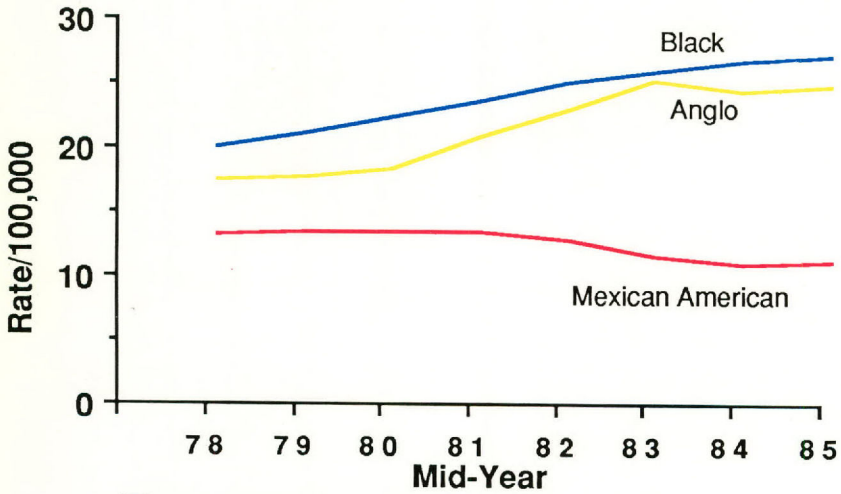
Race and Ethnic Differences and Trends in Age-Adjusted Lung Cancer Mortality Rates,* Texas Males, 1977-86



*Three year moving average

Lung cancer mortality rates for black males in Texas have increased over the past ten years while rates for Anglos have remained stable. Rates for Mexican American males have decreased slightly.

Race and Ethnic Differences and Trends in Age-Adjusted Lung Cancer Mortality Rates,* Texas Females, 1977-86



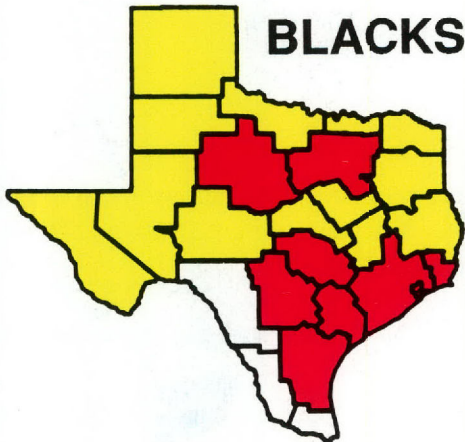
*Three year moving average

Lung cancer mortality rates have increased for Anglo and black females over the past ten years while rates for Mexican American females have declined slightly.

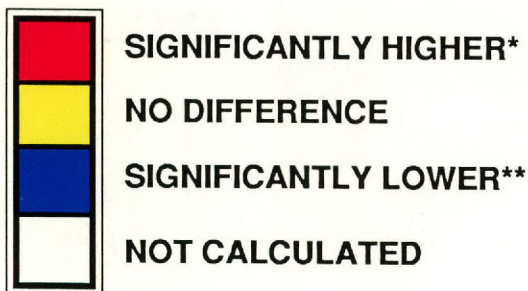
Regional Variation in Lung Cancer Mortality, Males, 1977-1986



Excess lung cancer mortality occurred among Anglo males in north-east Texas and the Gulf Coast area.

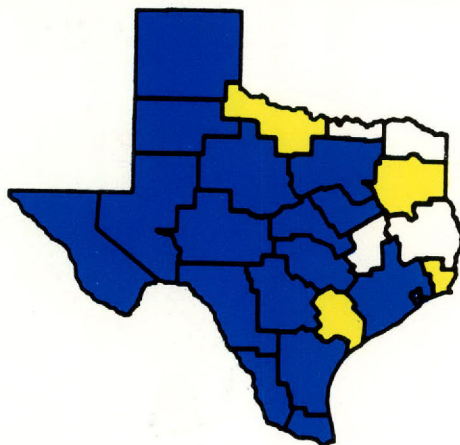


Black males had higher lung cancer rates in the central region of the state and the Gulf Coast area.



*And 10% or more above state rate
 **And 10% or more below state rate

MEXICAN AMERICANS

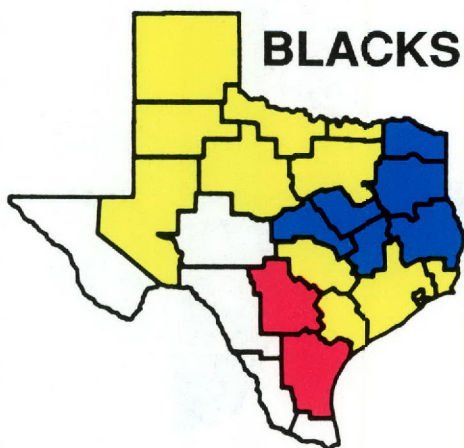


Lung cancer mortality rates for Mexican American males were generally lower in most areas of the state.

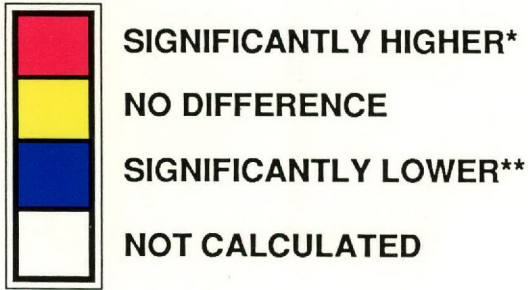
Regional Variation in Lung Cancer Mortality, Females, 1977-1986



Elevated lung cancer mortality rates were found for Anglo females in the major metropolitan areas of the state: El Paso, San Antonio, Houston, Beaumont and Dallas/Ft. Worth.

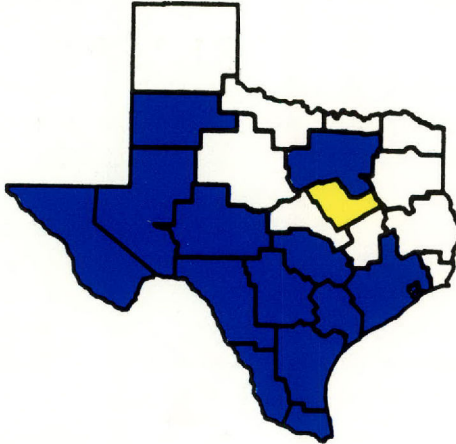


Black females had high rates in only two areas: the San Antonio area and the Coastal Bend area.



*And 10% or more above state rate
 **And 10% or more below state rate

MEXICAN AMERICANS



There were no areas where Mexican American females experienced a significant excess of lung cancer.

SCREENING

There are no effective screening techniques for early detection of lung cancer.

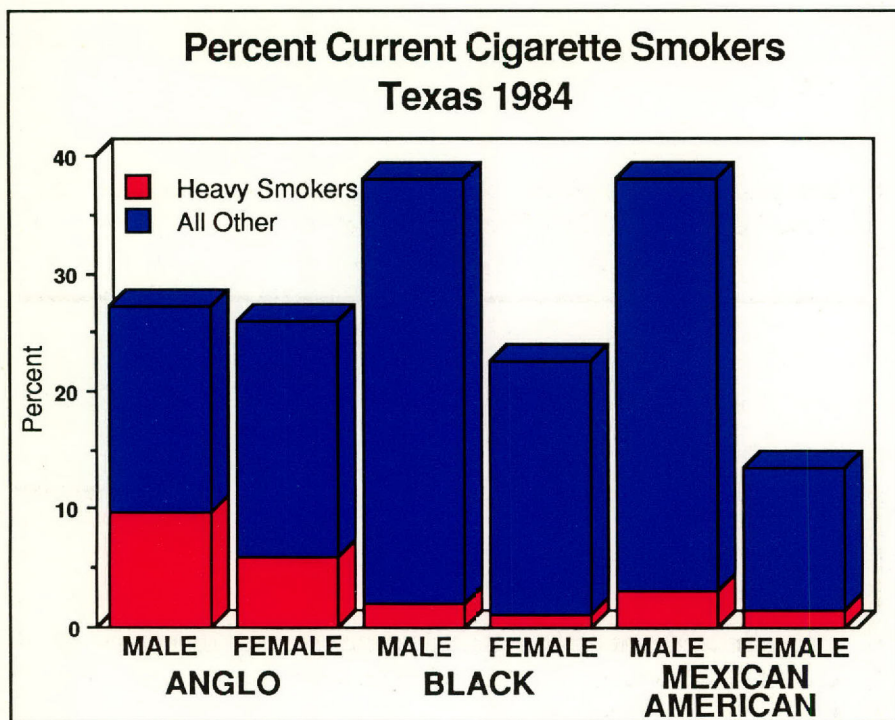
Symptoms of lung cancer often do not appear until the disease is too far advanced for effective treatment.

RISK FACTORS

It is estimated that 85% of all lung cancer deaths are caused by smoking; this means that 5,800 lung cancer deaths in Texas in 1986 were due to smoking.

Approximately 15% of male and 5% of female lung cancer deaths are due to environmental or occupational exposures such as asbestos.

Who Smokes Cigarettes in Texas?



Black and Mexican American males are more likely to smoke than Anglo males, although Anglos who smoke tend to be heavier smokers.

Health Care Costs in Texas Attributed to Smoking

\$2.9 Billion

Direct Health Care Costs*

- exceed 1.2 billion dollars or \$70 per person over 18 years of age

Indirect Health Care Costs**

- exceed 1.7 billion dollars or \$103 per person over 18 years of age

Cost Per Pack of Cigarettes



= \$1.55 Cost to Texas

*Expenditures for prevention, diagnosis and treatment.

**Cessation or reduction of productivity because of smoking-related death or disability.

RECOMMENDED ACTIONS

Restrict smoking in public places.

Passive smoking increases the risk of lung cancer for non-smokers.

Raise age for purchasing cigarettes to 18.

Among adults who smoke, approximately 95% began to smoke between the ages of 12 and 21.

Increase the cigarette excise tax and earmark funds for education and prevention programs.

An 8 to 16 cent tax increase would encourage one to two million young persons and 800,000 to 1.5 million adults to quit smoking or not to start.

Fund educational programs in the public school system on the hazards of tobacco use beginning with elementary school.

School based programs on smoking prevention can be effective in reducing smoking onset by about 50%. Priority should be given to funding educational programs targeted to high risk populations.

Reduce environmental and occupational exposures to carcinogenic substances.

Approximately 5% to 15% of lung cancers are estimated to be due to environmental and/or occupational exposures.

BREAST CANCER

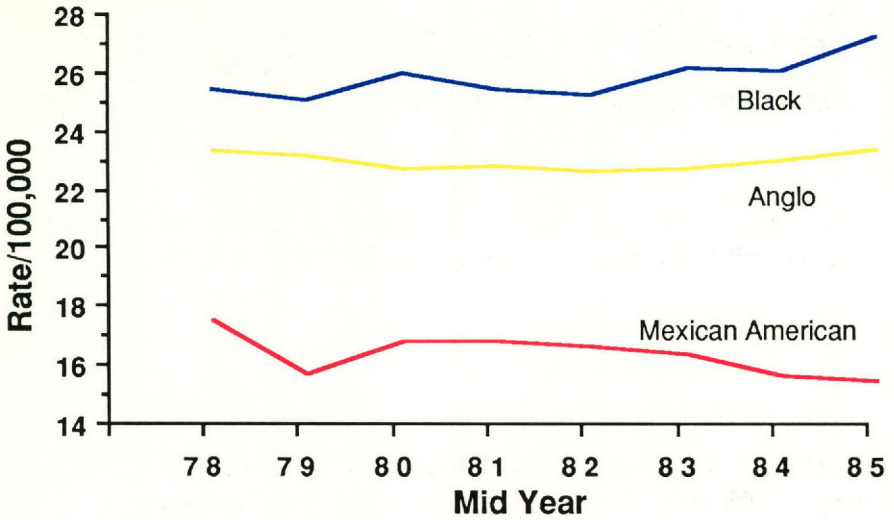
The Most Common Cancer Among Women

The American Cancer Society estimates 6,300 new cases of breast cancer and 1,900 breast cancer deaths in Texas in 1988.

In 1986, 2,014 Texas women died from breast cancer: 1,585 were Anglo, 245 were black and 184 were Mexican American.

In Texas, breast cancer mortality rates are highest among black women and lowest among Mexican Americans.

Race and Ethnic Differences and Trends in Age-Adjusted Breast Cancer Mortality Rates,* Texas Females, 1977-86



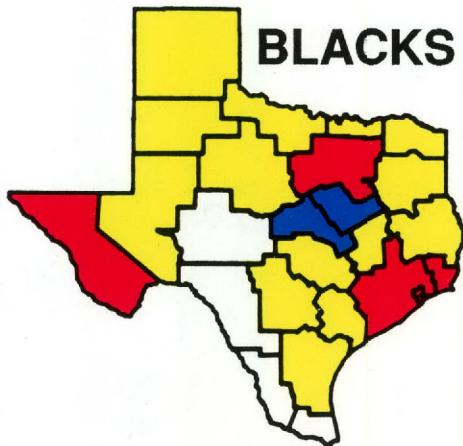
*Three year moving average

During the past decade, breast cancer mortality rates have declined slightly among Mexican Americans but have remained stable among blacks and Anglos.

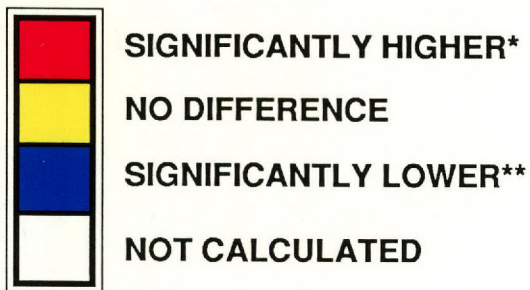
Regional Variation in Breast Cancer Mortality, Females, 1977-1986



Excess breast cancer mortality occurred among Anglo women in three areas of Texas: El Paso, San Antonio, and Houston/ Galveston.

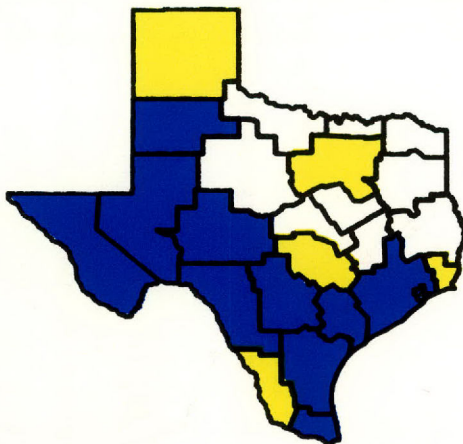


Black women experienced excess mortality from breast cancer in the El Paso, Houston/Galveston, Beaumont, and Dallas/Ft. Worth areas.



*And 10% or more above state rate
 **And 10% or more below state rate

MEXICAN AMERICANS



There were no areas where Mexican American women experienced a significant excess of breast cancer.

Mortality can be reduced using mammography and physical examination (both self-exam and physician-exam).

Regular mammography screening can save 600 lives per year in Texas.

Breast cancer survival in an early non-invasive stage approaches 100%.

For women with invasive or advanced disease, survival is 60%.

AMERICAN CANCER SOCIETY SCREENING GUIDELINES

<u>TEST OR PROCEDURE</u>	<u>AGE</u>	<u>FREQUENCY</u>
breast self-exam	20 or older	monthly
breast physical exam	between 20 and 40 after age 40	every three years every year
mammogram	35 to 39 40 to 49 50 or older	baseline every 1-2 years every year

RISK FACTORS

Family history of breast cancer

Prior history of benign fibrocystic breast disease

Early menstruation

No children or first child after age 35

Late initiation of sexual activity/no sexual activity

Late menopause

Obesity due to high fat intake

Daily alcohol consumption

RECOMMENDED ACTIONS

Reduce cost barriers to cancer detection services by providing screening to women at high risk.

Mandate coverage of mammography screening in HMO policies regulated by the State Board of Insurance.

Fund educational activities focusing on the importance of screening for the general public and primary care providers. Particular emphasis should be given to the black population in major metropolitan areas.

**Mammography Screening has
Proven Effective in Reducing
Deaths from Breast Cancer**

CERVICAL CANCER

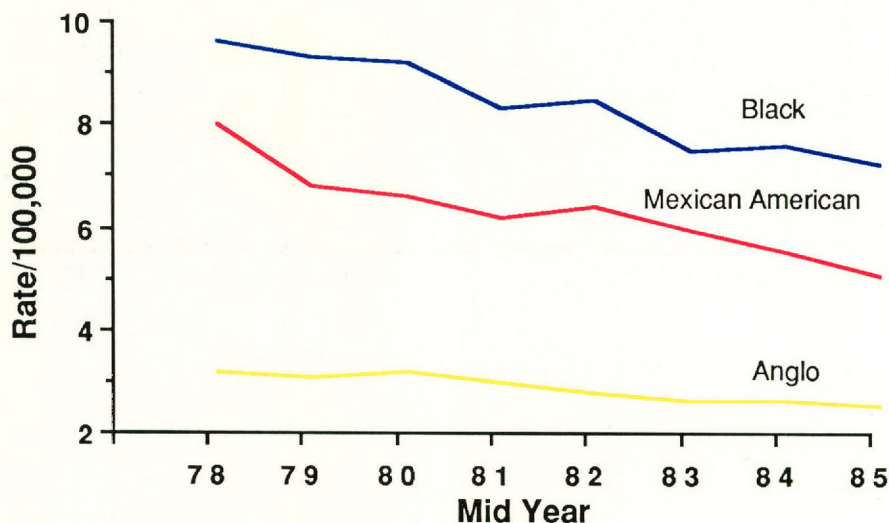
The Second Most Common Cancer in Women Between the Ages of 15 and 34

The American Cancer Society estimates 700 new cases of invasive cervical cancer and 350 cervical cancer deaths in Texas in 1988.

In 1986, 269 Texas women died from cervical cancer: 140 were Anglo, 65 were black and 64 were Mexican American.

Cervical cancer mortality rates are three times greater among black women and two times greater among Mexican American women than among Anglo women.

Race and Ethnic Differences and Trends in Age-Adjusted Cervical Cancer Mortality Rates,* Texas Females, 1977-86



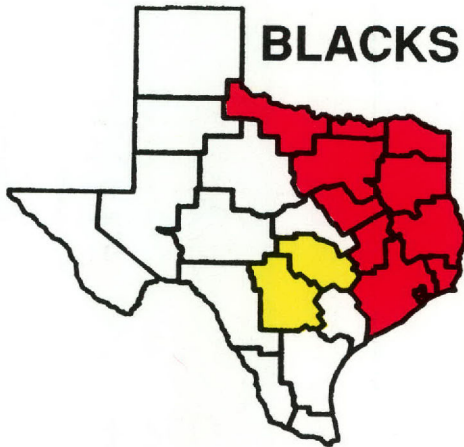
*Three year moving average

Over the past ten years, mortality from cervical cancer has declined steadily for all race and ethnic groups. This decline has been greatest among blacks and Mexican Americans.

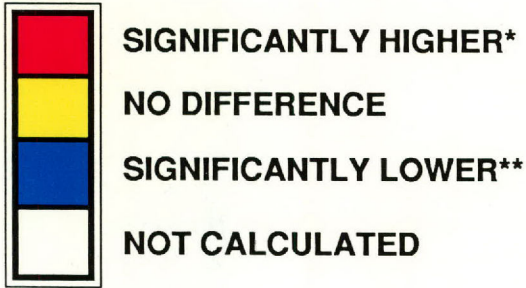
Regional Variation in Cervical Cancer Mortality, Females, 1977-1986



There were no regions of the state with significantly elevated rates of cervical cancer for Anglo women.

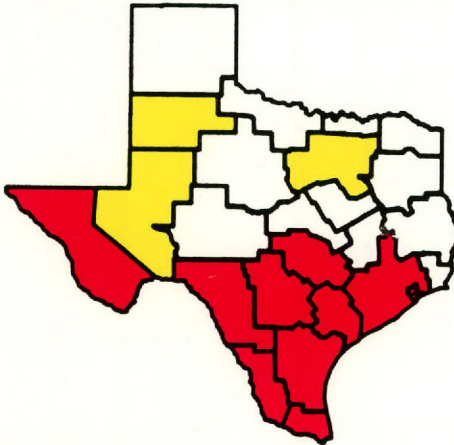


Black women had higher rates of cervical cancer in eastern areas.



*And 10% or more above state rate
 **And 10% or more below state rate

MEXICAN AMERICANS



Mexican American women had higher rates of cervical cancer in southern and western areas.

Routine screening can dramatically reduce deaths from cervical cancer.

Cervical cancer can be detected early through routine Pap smear screening.

If detected early at the precancerous in situ stage, the survival rate is virtually 100%.

Cervical cancer death rates have decreased more than 70% during the last 40 years, due primarily to the Pap test.

AMERICAN CANCER SOCIETY SCREENING GUIDELINES

<u>TEST OR PROCEDURE</u>	<u>AGE</u>	<u>FREQUENCY</u>
Pap test and pelvic exam	Any age sexually active or 18 years or older	Every year*

*After three or more consecutive normal annual examinations the Pap test may be performed less frequently at the physician's discretion.

RISK FACTORS

Women whose mothers took diethylstilbestrol (DES)

Early age at first intercourse

Venereal factors such as genital herpes and papilloma viruses

RECOMMENDED ACTIONS

Expand existing cervical cancer screening programs.

Place special emphasis on serving black women in East Texas and Mexican American women in South Texas because of their high rates of mortality from cervical cancer.

Expand Medicaid coverage to include pap smear screening for cervical cancer.

Currently, only women with medical problems or who come to clinics for family planning and/or prenatal care are covered. Thus, most older women who are at highest risk of developing cervical cancer are not eligible for screening under Medicaid.

Screening Saves Lives and Money

Breast and cervical cancer are two of the easiest cancers to detect and treat successfully.

COLON CANCER

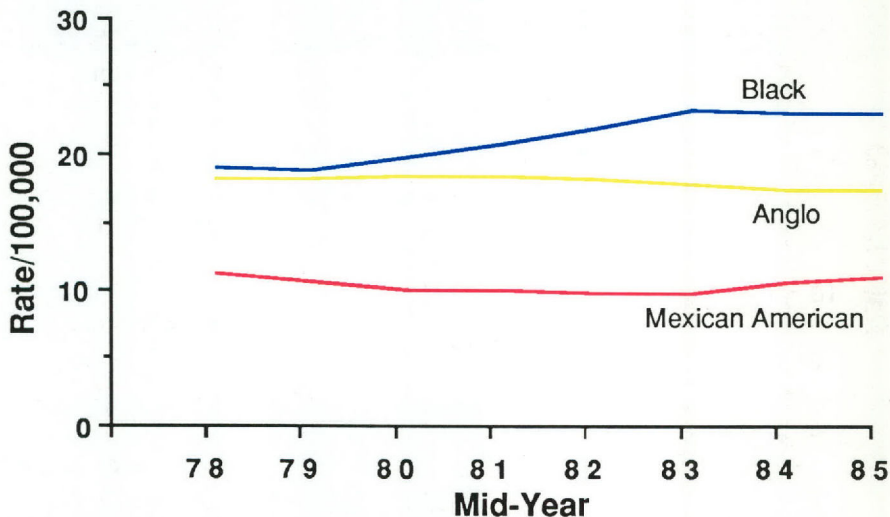
Second Leading Cause of Cancer Death

The American Cancer Society estimates 4,900 new cases of colon cancer and 2,400 colon cancer deaths in Texas in 1988.

In 1986, 2,145 Texans died from cancer of the colon: 1,101 males and 1,044 females.

Of these 2,145 Texans, 1,710 were Anglo, 276 were black and 159 were Mexican American.

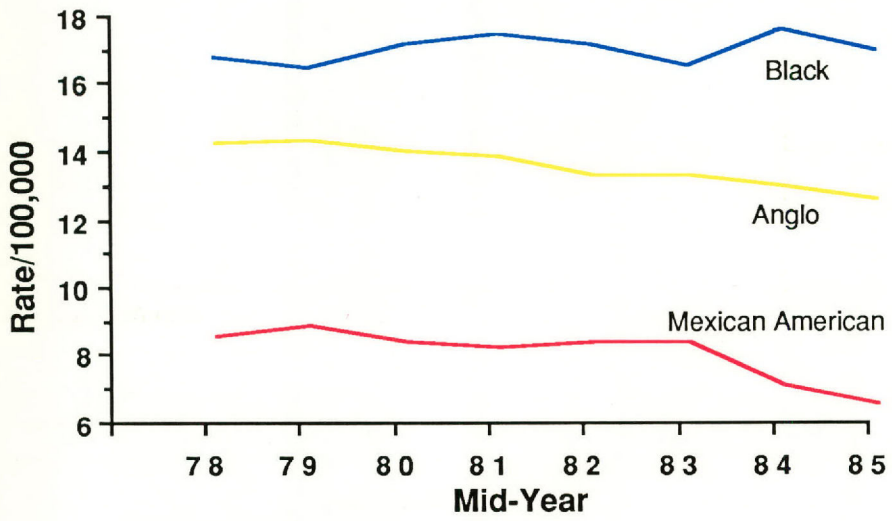
Race and Ethnic Differences and Trends in Age-Adjusted Colon Cancer Mortality Rates,* Texas Males, 1977-86



*Three year moving average

Colon cancer mortality rates in Texas have remained stable for Anglo and Mexican American males over the past decade. There has been a slight increase in rates for black males.

Race and Ethnic Differences and Trends in Age-Adjusted Colon Cancer Mortality Rates,* Texas Females, 1977-86



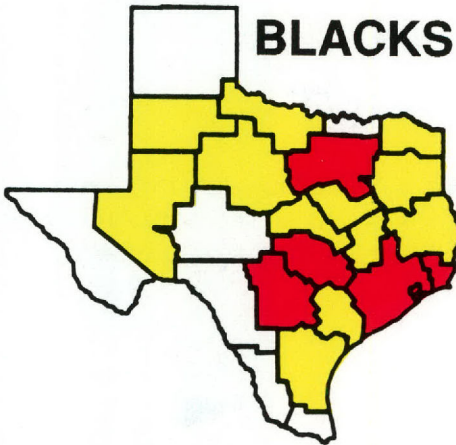
*Three year moving average

Mortality rates for colon cancer among females in Texas have declined slightly for Anglos and Mexican Americans but have been relatively stable over the past decade for blacks.

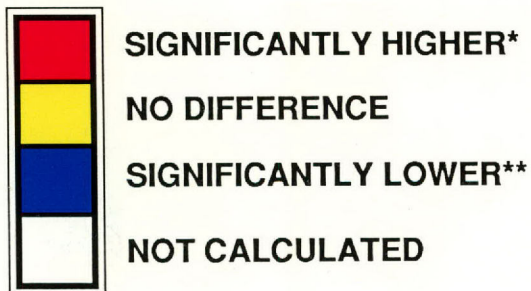
Regional Variation in Colon Cancer Mortality, Males, 1977-86



Excess rates of colon cancer were found for Anglo males in the San Antonio area and the Houston/Galveston area.

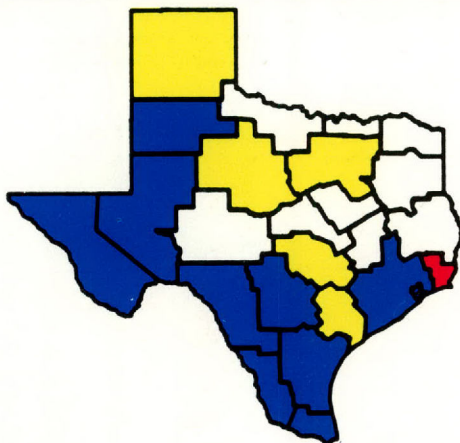


Black males had high rates in the following areas: San Antonio, Houston/Galveston, Beaumont, Austin and Dallas/Ft. Worth.



*And 10% or more above state rate
 **And 10% or more below state rate

MEXICAN AMERICANS

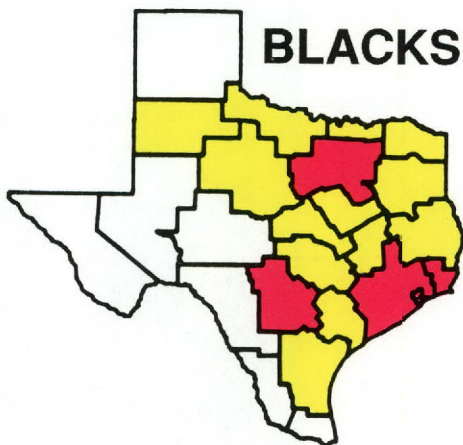


Mexican American males had high rates in the Beaumont area and generally lower rates in the southern and western regions of the state.

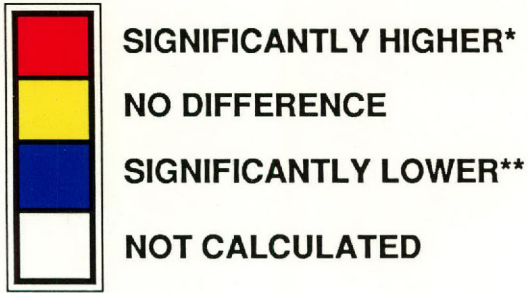
Regional Variation in Colon Cancer Mortality, Females, 1977-86



Excess colon cancer mortality rates were found for Anglo females in the El Paso area and the Bryan/College Station area.

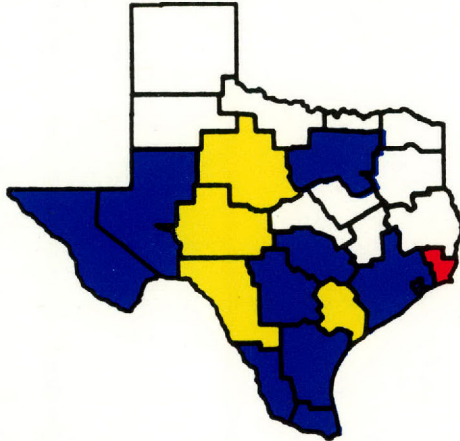


Black females had high rates in four areas: San Antonio, Dallas/Ft. Worth, Beaumont, and Houston/Galveston.



*And 10% or more above state rate
 **And 10% or more below state rate

MEXICAN AMERICANS



Female Mexican Americans had high rates in the Beaumont area but generally lower rates in the southern and western regions of Texas.

Diagnosis and treatment at an early stage of disease leads to better survival.

Screening results in increased detection of premalignant lesions and early stage colon cancers.

If colon cancer is diagnosed in the early stages, the five-year survival rate approaches 90%. However, over 50% of all colon cancer patients are diagnosed with more advanced disease.

AMERICAN CANCER SOCIETY SCREENING GUIDELINES

<u>TEST OR PROCEDURE</u>	<u>AGE</u>	<u>FREQUENCY</u>
Digital rectal examination	40 or older	every year
Stool blood slide test	50 or older	every year
Sigmoidoscopy	over 50	every year*

*After two negative exams one year apart, sigmoidoscopy should be performed every 3-5 years.

RISK FACTORS

Diet high in fat and low in fiber

Family history of colon or rectal cancer

Familial polyposis syndrome or ulcerative colitis

Past history of inflammatory disease and sporadic colorectal adenomas

Sedentary lifestyle

RECOMMENDED ACTIONS

Provide screening programs for colon cancer in regional and local health departments for high risk individuals.

Provide educational programs.

Programs should emphasize the importance of diet in reducing the risk of developing colon cancer. Particular emphasis should be placed on educating the black population as they have the highest risk of colon cancer in the state.

Provide incentives to the food industry for the promotion of good consumer nutrition.

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APPENDIX

Mortality rates presented in this report are based on the number of deaths per 100,000 persons and are age-adjusted, i.e., these rates take into account the age distribution of the population. Separate rates were calculated for Anglos, blacks and Mexican Americans. Mexican Americans were identified by Spanish surname in both death certificates and population data; all other whites were classified as Anglos.

The 24 geographic regions corresponding to political and planning regions defined by the Texas Councils of Government were used to show geographic variations in mortality rates. Rates could not be calculated for individual counties because the small populations in many counties, particularly when analyzing the data by sex, race and ethnicity, would have resulted in unstable rates.

For each sex, race and ethnic group, age-adjusted mortality rates were calculated for each region and compared with the state age-adjusted mortality rate. The state rate was based on deaths for all race and ethnic groups combined, whereas the regional rates were specific for race and ethnicity. For planning and targeting intervention programs, it is more useful to compare race- and ethnic-specific rates with a total state rate. The percentage excess or deficit (based on the ratio of the regional rate to the state rate) was used to identify regions with differing risks of lung, breast, cervical, and colon cancer. Regions with statistically significant ($P < .05$) differences of ten percent or greater were identified on the maps. Rates for regions with less than ten deaths in the ten-year period were not calculated because of instability.

The maps provide information useful for determining the best location for cancer prevention and control programs. However, additional information must also be considered such as the population density in an area with a cancer excess. For example, placing a screening program in an area that has a high risk for cervical cancer among blacks when there are very few blacks in the area may not be as effective in preventing deaths as placing a program in an area with only moderately elevated risk but a large black population.

Three-year moving averages were used to show changes in cancer rates over time. These moving averages were calculated by averaging three years of data, 1977 to 1979, 1978 to 1980, 1979 to 1981, etc. Midpoints of each three-year interval are shown on the graphs. Three-year averages are more appropriate when analyzing smaller populations where considerable fluctuations may occur in rates from one year to the next.

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Epidemiology Division
Austin, Texas