Volume III:
Cancer

Report of the Secretary's Task Force on Black & Minority Health

U.S. Department of Health and
Human Services

Volume III
Cancer

Report of the Secretary's Task Force on

Black & Minority Health

U.S. Department of Health and
Human Services

January 1986

SECRETARY'S TASK FORCE ON BLACK AND MINORITY HEALTH

MEMBERS

Thomas E. Malone, Ph.D., Chairperson

Katrina W. Johnson, Ph.D., Study Director

Wendy Baldwin, Ph.D
Betty Lou Dotson, J.D.
Manning Feinleib, M.D., Dr.P.H.
William T. Friedewald, M.D.
Robert Graham, M.D.
M. Gene Handelsman
Jane E. Henney, M.D.
Donald R. Hopkins, M.D.
Stephanie Lee-Miller
Jaime Manzano
J. Michael McGinnis, M.D.
Mark Novitch, M.D.
Clarice D. Reid, M.D.
Everett R. Rhoades, M.D.
William A. Robinson, M.D., M.P.H.
James L. Scott
Robert L. Trachtenberg
T. Franklin Williams, M.D.

ALTERNATES

Shirley P. Bagley, M.S.
Claudia Baquet, M.D., M.P.H.
Howard M. Bennett
Cheryl Damberg, M.P.H.
Mary Ann Danello, Ph.D.
Jacob Feldman, Ph.D.
Marilyn Gaston, M.D.
George Hardy, M.D.
John H. Kelso
James A. Kissko
Robert C. Kreuzburg, M.D.
Barbara J. Lake
Patricia L. Mackey, J.D.
Delores Parron, Ph.D.
Gerald H. Payne, M.D.
Caroline I. Reuter
Clay Simpson, Jr., Ph.D.
Ronald J. Wylie

TABLE OF CONTENTS

Introduction to the Task Force Report v

Members of the Subcommittee on Cancer ix

Report of the Subcommittee on Cancer in Minorities

PART I

Introduction 1

General Overview 4

Blacks 13

Hispanics 21

Asian/Pacific Islanders 24

American Indians 29

Tables:

Smoking and Cancer 35

Alcohol and Tobacco 45

Nutrition 49

Occupation 68

Bibliography 73

PART II

Cancer Statistics Review: Black, White, and Other Group Comparisons 105

INTRODUCTION TO THE TASK FORCE REPORT

Background

The Task Force on Black and Minority Health was established by Secretary of Health and Human Services Margaret M. Heckler in response to the striking differences in health status between many minority populations in the United States and the nonminority population.

In January 1984, when Secretary Heckler released the annual report of the Nation's health, Health, United States, 1983, she noted that the health and longevity of all Americans have continued to improve, but the prospects for living full and healthy lives were not shared equally by many minority Americans. Mrs. Heckler called attention to the longstanding and persistent burden of death, disease, and disability experienced by those of Black, Hispanic, Native American, and Asian/Pacific Islander heritage in the United States. Among the most striking differentials are the gap of more than 5 years in life expectancy between Blacks and Whites and the infant mortality rate, which for Blacks has continued to be twice that of Whites. While the differences are particularly evident for Blacks, a group for whom information is most accurate, they are clear for Hispanics, Native Americans, and some groups of Asian/Pacific Islanders as well.

By creating a special Secretarial Task Force to investigate this grave health discrepancy and by establishing an Office of Minority Health to implement the recommendations of the Task Force, Secretary Heckler has taken significant measures toward developing a coordinated strategy to improve the health status of all minority groups.

Dr. Thomas E. Malone, Deputy Director of the National Institutes of Health, was appointed to head the Task Force and 18 senior DHHS executives whose programs affect minority health were selected to serve as primary members of the Task Force. While many DHHS programs significantly benefit minority groups, the formation of this Task Force was unique in that it was the first time that attention was given to an integrated, comprehensive study of minority health concerns.

Charge

Secretary Heckler charged the Task Force with the following duties:

- Study the current health status of Blacks, Hispanics, Native Americans, and Asian/Pacific Islanders.
- Review their ability to gain access to and utilize the health care system.
- Assess factors contributing to the long-term disparities in health status between the minority and nonminority populations.

- Review existing DHHS research and service programs relative to minority health.

- Recommend strategies to redirect Federal resources and programs to narrow the health differences between minorities and nonminorities.

- Suggest strategies by which the public and private sectors can cooperate to bring about improvements in minority health.

Approach

After initial review of national data, the Task Force adopted a study approach based on the statistical technique of "excess deaths" to define the differences in minority health in relation to nonminority health. This method dramatically demonstrated the number of deaths among minorities that would not have occurred had mortality rates for minorities equalled those of nonminorities. The analysis of excess deaths revealed that six specific health areas accounted for more than 80 percent of the higher annual proportion of minority deaths. These areas are:

- Cardiovascular and cerebrovascular diseases
- Cancer
- Chemical dependency
- Diabetes
- Homicide, suicide, and unintentional injuries
- Infant mortality and low birthweight.

Subcommittees were formed to explore why and to what extent these health differences occur and what DHHS can do to reduce the disparity. The subcommittees examined the most recent scientific data available in their specific areas and the physiological, cultural, and societal factors that might contribute to health problems in minority populations.

The Task Force also investigated a number of issues that cut across specific health problem areas yet influence the overall health status of minority groups. Among those reviewed were demographic and social characteristics of Blacks, Hispanics, Native Americans, and Asian/Pacific Islanders; minority needs in health information and education; access to health care services by minorities; and an assessment of health professionals available to minority populations. Special analyses of mortality and morbidity data relevant to minority health also were developed for the use of Task Force. Reports on these issues appear in Volume II.

Resources

More than 40 scientific papers were commissioned to provide recent data and supplementary information to the Task Force and its subcommittees. Much material from the commissioned papers was incorporated into the subcommittee reports; others accompany the full text of the subcommittee reports.

An inventory of DHHS program efforts in minority health was compiled by the Task Force. It includes descriptions of health care, prevention, and research programs sponsored by DHHS that affect minority populations. This is the first such compilation demonstrating the extensive efforts oriented toward minority health within DHHS. An index listing agencies and program titles appears in Volume I. Volume VIII contains more detailed program descriptions as well as telephone numbers of the offices responsible for the administration of these programs.

To supplement its knowledge of minority health issues, the Task Force communicated with individuals and organizations outside the Federal system. Experts in special problem areas such as data analysis, nutrition, or intervention activities presented up-to-date information to the Task Force or the subcommittees. An Hispanic consultant group provided information on health issues affecting Hispanics. A summary of Hispanic health concerns appears in Volume VIII along with an annotated bibliography of selected Hispanic health issues. Papers developed by an Asian/Pacific Islander consultant group accompany the report of the Subcommittee on Data Development appearing in Volume II.

A nationwide survey of organizations and individuals concerned with minority health issues was conducted. The survey requested opinions about factors influencing health status of minorities, examples of successful programs and suggestions for ways DHHS might better address minority health needs. A summary of responses and a complete listing of the organizations participating in the survey is included in Volume VIII.

Task Force Report

Volume I, the Executive Summary, includes recommendations for department-wide activities to improve minority health status. The recommendations emphasize activities through which DHHS might redirect its resources toward narrowing the disparity between minorities and nonminorities and suggest opportunities for cooperation with nonfederal structures to bring about improvements in minority health. Volume I also contains summaries of the information and data compiled by the Task Force to account for the health status disparity.

Volumes II through VIII contain the complete text of the reports prepared by subcommittees and working groups. They provide extensive background information and data analyses that support the findings and intervention strategies proposed by the subcommittees. The reports are excellent reviews of research and should be regarded as state-of-the-art knowledge on problem areas in minority health. Many of the papers commissioned by the Task Force subcommittees accompany the subcommittee report. They should be extremely useful to those who wish to become familiar in greater depth with selected aspects of the issues that the Task Force analyzed.

The full Task Force report consists of the following volumes:

Volume I: Executive Summary

Volume II: Crosscutting Issues in Minority Health:
- Perspectives on National Health Data for Minorities
- Minority Access to Health Care
- Health Education and Information
- Minority and other Health Professionals Serving Minority Communities

Volume III: Cancer

Volume IV: Cardiovascular and Cerebrovascular Diseases

Volume V: Homicide, Suicide, and Unintentional Injuries

Volume VI: Infant Mortality and Low Birthweight

Volume VII: Chemical Dependency
Diabetes

Volume VIII: Hispanic Health Issues
Survey of the Non-Federal Community
Inventory of DHHS Program Efforts in Minority Health

SUBCOMMITTEE ON CANCER

Jane Henney, M.D., Chairperson
Deputy Director
National Cancer Institute

Claudia Baquet, M.D., M.P.H.
Program Director, Minority Field Program
Division of Cancer Prevention and Control
National Cancer Institute

Cheryl Damberg, M.P.H.
Research Fellow
Office of Disease Prevention and Health Promotion
Office of the Assistant Secretary for Health

Peter Greenwald, M.D.
Director, Division of Cancer Prevention and Control
National Cancer Institute

J. Michael McGinnis, M.D.
Assistant Surgeon General
Deputy Assistant Secretary for Health
Director, Office of Disease Prevention and Health Promotion
Office of the Assistant Secretary for Health

Earl Pollack, Sc.D.
Formerly, Chief, Biometry Branch
Division of Cancer Prevention and Control
National Cancer Institute

William Robinson, M.D., M.P.H.
Deputy Director, Bureau of Health Professions
Health Resources and Services Administration

T. Franklin Williams, M.D.
Director
National Institute on Aging

Staff Liaison:
Lemuel Clark, M.D.

Cancer In Minorities

Report of the Subcommittee on Cancer, Part I

National Cancer Institute
Cancer Control Science Program
Cancer Control Applications Branch
Division of Cancer, Prevention and Control

ACKNOWLEDGEMENTS

This report was coordinated by Dr. Claudia Baquet, Cancer Control Applications Branch, Division of Cancer Prevention and Control, National Cancer Institute. We gratefully acknowledge the following researchers for preparing technical papers that contributed to this report.

Margaret Hargreaves, Ph.D.
Department of Internal Medicine and Clinical Nutrition
Meharry Medical College
Nashville, Tennessee

Irving Kessler, M.D.
Department of Preventive Medicine and Epidemiology
University of Maryland Medical School
Baltimore, Maryland

Walter Stewart, Ph.D.
Department of Epidemiology
Johns Hopkins University
School of Hygiene and Public Health
Baltimore, Maryland

National Cancer Institute:

Claudia Baquet, M.D., M.P.H.
Thomas Glynn, Ph.D.
Thomas Kean, M.P.H.
Earl Pollack, Sc.D.
Knut Ringen, Dr.P.H.
Jerome Wilson, Ph.D.
John Young, Jr., Dr.P.H.

INTRODUCTION

Cancer is a disease with major public health impact. It is the second leading cause of death in the United States, surpassed only by cardiovascular disease. Although the group of illnesses termed "cancer" is of importance to the general population, cancer has a particularly severe impact on specific minority population groups, especially Blacks.

This report focuses on cancer mortality in minorities with emphasis on areas of excess mortality. However, analysis of the cancer problem today and projections about the future cannot be made on the basis of mortality data alone. Information on incidence and survival rates is also required, as mortality, incidence, and survival rates for cancer are interrelated. Changes in incidence and/or survival for a particular cancer over time can result in changes in the mortality rate for that cancer. In addition, a change in exposure to factors which predispose individuals to greater risk for a cancer will affect incidence and later mortality for that cancer.

Lung cancer mortality rates illustrate the interrelation of these factors. Tobacco is a known causative factor for lung cancer. An increase in cigarette smoking in the first half of the century resulted in a sharp rise in the incidence and mortality rates for lung cancer. Changes in cigarette smoking practices, particularly following the Surgeon General's report on smoking in 1964, have resulted in recent decreased incidence of lung cancer among some groups (notably white males) and an early indication that this trend of lower incidence will extend to other groups where the smoking prevalence rates are falling. Since lung cancer has a low survival rate, incidence trends are predictors of future mortality rates with an increase or decrease in incidence being followed, within a very short time, by a corresponding increase or decrease in the mortality rate. For groups where smoking prevalence is still increasing (notably women), we can expect rising incidence and mortality rates for lung cancer in the future. This holds true for other cancers--stomach, pancreatic, and esophogeal--for which survival rates are presently low. Another way to illustrate the interrelation of these factors is where an improvement in survival rates over time, particularly when incidence rates hold steady, will result in decreases in the mortality rate. One example is testicular cancer, where mortality rates fell sharply following a rise in survival rates in the mid-1970's.

The following report describes the cancer experience of U.S. Blacks and other ethnic minorities based on current, available data. Blacks are the major focus of this report for two reasons: (1) historically they have been the largest U.S. ethnic minority, and (2) more cancer-related data are available for Blacks than for other minority groups. Based on these data, Blacks have experienced dramatic increases in age-adjusted cancer incidence and mortality since the mid-1950's. Blacks develop and die of certain cancers at greater rates than non-minorities, even when matched for stage.

There is a need for continuing development of similar information on other ethnic minority groups, particularly among the rapidly increasing Hispanic and Asian populations. Preliminary data suggest an increased risk for certain cancers common to members of these groups, e.g., primary liver cell and nasopharyngeal cancers among Asians. As the numbers of persons at risk for these cancers

increase, observance of these types of cancer in the U.S. may also increase. These large groups contain subpopulations for which cancer experience differs. For Hispanics the subgroups include those of Mexican, Puerto Rican, Cuban, and other Latino descendants; for Asian/Pacific Islanders, subgroups are of Japanese, Chinese, Filipino, Hawaiian, and other descendants. Accurate registration of these subpopulations in the census and in cancer case registration is necessary, since existing data and analysis of those data are not adequate to clearly understand the current cancer experience of these groups.

Part I of this report presents highlights of available descriptive epidemiology for incidence, mortality, and survival experience for Blacks and, where possible, other minorities as well as comparisons to non-minorities when differences in cancer rates exist. Information on cancer-related risk factors and behaviors is presented which may explain in part the differences in cancer rates between the two groups. The General Overview section discusses epidemiological data, but focuses primarily on more detailed information relating to risk factors such as tobacco, occupation, and health behaviors including Pap smears and breast self-examinations.

Risk factors are discussed because they are critical to the understanding of exposures that may predispose a person to cancer development. Major risk factors--tobacco, alcohol, nutritional and dietary factors, and occupation--account for approximately 70 percent of cancer mortality and 69 percent of incidence. Environmental factors that increase risk for cancer may be endogenous, as in dietary and nutritional status, or exogenous, such as exposures in the workplace. It should be noted that an individual is exposed to a variety of environmental risk factors and a combination of risk factors accumulated throughout life. Effects of exposures and risk factors may not be immediately apparent because long latency periods or lag time exist between exposure and cancer development.

The concept of competing risks and co-morbidity are also important when considering cancer incidence and mortality. Tobacco use, a major risk factor for several cancers, is also a contributing factor in heart and pulmonary disease. Alcohol, a risk factor for cancer, may contribute to the high rate of accidents in American Indians, where mortality due to accidents is higher than from cancer. Cancer incidence and mortality data for groups where competing risks are prominent may be influenced by early death rates from other diseases, thus masking actual cancer rates. Additionally, the presence of multiple chronic diseases, e.g., hypertension and renal disease, may affect cancer survival negatively.

Socioeconomic status (SES) is an important factor in considering cancer incidence and survival and, therefore, mortality. Socioeconomic status has an impact on such factors as educational attainment; access, availability, quality and utilization of health care including state-of-the-art cancer care; occupation; and nutrition, immune status, and response to cancer treatment. Blacks, in particular, are overrepresented in lower socioeconomic groups, have lower educational attainment, and are subject to discriminatory practices in employment, including the greater likelihood of work assignments to worksites where they are exposed to hazardous materials. These adverse problems affect other minority population segments as well.

The data included in this report were derived from numerous sources and individual studies. The data cover a variety of denominators, time periods and groupings, including cancer rates by sex, both sexes combined, all sites combined, etc. Although data will be consistent within studies, they may not be consistent across studies and, therefore, exact comparability may not be possible between all racial/ethnic groups.

This report is divided in two parts. Part I is a narrative discussion of risk factors and cancer epidemiology in major racial/ethnic minority groups. The narrative is followed by a bibliography of available literature on subjects of relevance to this report to which readers are directed for further information. Part II is a compendium of cancer statistics: Blacks, non-minorities, and other group comparisons. It contains charts, tables and graphic presentations, and provides further information on cancer incidence, mortality, and survival in minorities and non-minorities.

A report prepared by the National Cancer Institute, "Demographic and Health Services Patterns" discusses (1) the demographic characteristics of the major minority groups: Blacks, Hispanics, American Indians, and Asian/Pacific Islanders, and (2) health service patterns in minority populations. This report can be obtained from the National Cancer Institute, Division of Cancer Prevention and Control, Blair Building, Room 4A01, Bethesda, Maryland 20892-4200.

GENERAL OVERVIEW

Patterns of cancer distribution among U.S. population groups vary according to racial and ethnic background. These patterns challenge investigators and health providers to provide explanations for the large differences in cancer incidence, mortality, and survival among minority and non-minority Americans. In examining these differences, this report looks at the available epidemiological and statistical information regarding incidence, mortality, and survival; information relating to prominent factors that affect risk for cancer development; and available observations on knowledge, attitudes, and practices regarding cancer. In short, differences in cancer experience and possible contributing factors to these differences between minorities and non-minorities are discussed.

Most of the statistical information relating to cancer incidence and survival rates is derived from the Surveillance, Epidemiology, and End Results (SEER) program of the National Cancer Institute. Mortality data are derived from the National Center for Health Statistics.

The SEER program obtains cancer patient incidence and survival information from 11 population-based cancer registeries that cover more than 12 percent of the U.S. population. Within the racial and ethnic groups in the United States, SEER data cover 12 percent of non-minorities, 12 percent of Blacks, 27 percent of American Indians, 32 percent of Chinese, 47 percent of Japanese, 38 percent of Filipinos, and 12 percent of Hispanics. The 11 areas covered by SEER are six states (Connecticut, New Jersey, Iowa, New Mexico, Utah, and Hawaii), four metropolitan areas (Atlanta, Detroit, San Francisco, and Seattle), and the Commonwealth of Puerto Rico.

Because numbers for minority populations are small, particularly when examining cancer experience by site and stage at diagnosis, SEER data must be utilized and interpreted with caution, particularly for comparisons between groups. Where statistically significant comparisons can be made, they have been. Where data or comparisons should be viewed with caution, this has been noted.

Blacks are the largest U.S. minority and the one for which most data are available. For this reason, this report focuses mainly on Blacks. However, where relevant, reliable information is available for other minority groups (Hispanics, Asian/Pacific Islanders, and American Indians). These are presented.

EPIDEMIOLOGY

Blacks have the highest overall age-adjusted rates of cancer incidence and cancer mortality of any U.S. population group. The overall 5-year relative survival for cancer for Blacks was 12 percentage points below that of non-minorities (1973-81). Of the 25 primary cancer sites for which survival data were available, Blacks had lower survival rates for all but three cancer sites--ovary, brain, and multiple myeloma, all cancers with relatively low incidence and low survival in all population groups. In general, survival rates for other racial/ethnic minority groups are lower than for non-minorities also. It can be hypothesized, supported by much of the scientific literature, that the differences in cancer survival among Blacks and non-minorities involve

social and/or environmental factors. As discussed in the section on Black Americans, preliminary data indicate that differences in survival status between Blacks and non-minorities seem to be substantially based on socioeconomic status and the overrepresentation of a race/ethnic group in the lower categories of socioeconomic status. Socioeconomic status affects access to health services, nutritional status, immune status and function, educational level and employment status, and cancer prevention attitudes, awareness, and practices. In turn, all of these affect survival and ultimately mortality.

RISK FACTORS

Lower socioeconomic status, then, may be correlated with poorer survival for cancer. It also is seen to be a factor in increased incidence of certain types of cancer. These include lung, esophagus, stomach, and cervix. Other major risk factors for cancer have been identified and will be discussed here. These include tobacco, nutritional/dietary factors, occupational exposures, and combined tobacco-alcohol consumption.

Scientific evidence accumulated over the last two decades indicates that factors in the social and natural environments either cause the majority of cancers or promote their development. This does not mean that host factors, genetic or otherwise, are unimportant to the biology of neoplastic diseases because most people who are similarly exposed to external risk factors do not develop cancer. Host factors, such as nutritional and immune status, clearly influence the biological response. It is estimated that the genesis of that biological response may be triggered by environmental factors in approximately 80 percent of the cases. These factors, because they are environmental, in principle are preventable.

The risk factors of greatest concern at this stage of scientific knowledge are listed below:

- Tobacco. Smoking today causes more cancer than any other risk factor. When combined with excess alcohol consumption, the risk from tobacco is significantly enhanced. Smokeless tobacco use has also been associated with causation of certain cancers.

- Nutrition. The relationship of diet to cancer is gaining rapidly in importance. Nutritional and dietary factors may promote certain types as well as protect against certain types of cancer.

- Occupational exposures. Exposures in the workplace carry significant cancer risks. However, these risks are thought to be concentrated in the "blue collar" population segments and, therefore, are potentially of greater significance to minorities because of historic patterns in employment practices.

Although these risk factors are, for the most part, discussed separately in this section and the following sections relating to specific minority groups, this separation is not an accurate representation of reality. Indeed, more often than not, these risk factors occur in combination, and with detrimental results, such as the following:

- Tobacco use is higher in blue collar workers. When it is combined with agents in the workplace (such as asbestos) that interact with tobacco, it creates additive or synergistic risks for lung and other cancers.

- Alcohol is a powerful solvent and may enhance body absorption of carcinogens such as polycyclic aromatic hydrocarbons.

- Alcohol abuse may result in nutritional deficiencies that aggravate cancer incidence and deter survival following treatment.

The interaction of many risk factors for cancer has two major implications: (1) By initiating actions to prevent one factor, a number of other factors will also be affected (the multiplier effect); but (2) it is difficult to address each factor in isolation if the aim is to create effective cancer prevention.

TOBACCO

Cigarette smoking is responsible for 30 percent of all cancer deaths. Nearly 90 percent of all lung cancers are caused by cigarette smoking. Cigarette smoking also is a contributing factor in laryngeal, oral, esophageal, bladder, pancreatic, kidney, and cervical cancers. Blacks have higher incidence rates for the tobacco-related cancers of the lung, esophagus, pancreas, and stomach. Survival for these particular cancers is poor, regardless of racial or ethnic groups.

Smoking-related cancers seem to be particularly high among Blacks. Blacks have higher prevalence rates for smoking than non-minorities and develop a proportionately greater number of smoking-related cancers. Research shows that, although more likely to be smokers, a smaller percentage of Blacks than non-minorities are heavy smokers, and evidence pointing to the fact that cigarette smoking is more easily modified among light smokers offers hope that prevention efforts among Blacks might reduce this high prevalence rate. In addition, although Blacks are less likely than non-minorities to be former smokers, more Blacks than non-minorities indicate an interest in stopping smoking. This finding of greater desire to stop smoking among Blacks is based on a small sample. If accurate, however, it suggests that smoking cessation efforts aimed at Blacks might have good potential to be effective.

Although Hispanics have lower rates of lung cancer and are generally believed to have lower rates of smoking than Blacks or non-minorities, one review of recent surveys suggests that smoking prevalence among Hispanic males is at least as high as that of non-minority males. (Hispanic female smoking rates are considerably lower than those of white females.) These findings suggest that Hispanic rates for tobacco-related cancers may increase in the future and that special attention to cessation and prevention efforts aimed at this group is needed.

It is now established that smokeless tobacco use causes cancer. There is evidence that use of smokeless tobacco products is growing, particularly among young Americans. According to one regional study, American Indians may be the highest users of smokeless tobacco. Although other minority groups appear to be somewhat lower users of smokeless tobacco than non-minorities,

vigilance is required to ensure that they do not adopt higher levels of use in the face of increased commerical enticements.*

ALCOHOL

Alcohol is estimated to be responsible for 3 percent of all cancer deaths. Alcohol has been demonstrated in epidemiological studies to be an etiological factor in cancers of the mouth, larynx, tongue, and esophagus.

Alcohol abuse appears to be correlated more with SES than with race. When social class was controlled in one study, the quantity and frequency of alcohol consumption among Blacks and non-minorities were found to be comparable. One survey, however, observed a general difference between Black and non-minority women, with Black women more likely than non-minorities to be either abstainers or heavy drinkers. Similarly, Hispanics appear to be concentrated at the extremes of the drinking scale distribution (i.e., more heavy drinkers and abstainers than frequent light drinkers).

The exact way in which alcohol promotes cancer is unknown, but possible mechanisms have been proposed by a number of investigators. These include:

- Local effects of alcohol on the upper gastrointestinal tract due to direct contact with the agent.
- Direct effect of carcinogens present in alcoholic beverages.
- Induction of enzyme activities by alcohol in microsomes of the liver, intestine, and lungs.
- Alcohol-induced liver injuries.
- Nutritional disturbances involving vitamins A, B, B_1, B_6, E, and C, folic acid, iron, or minerals associated with chronic alcohol abuse.

ALCOHOL AND TOBACCO

Alcohol combined with tobacco use presents a risk for cancer. Epidemiologic data indicate that the combination of chronic alcohol consumption and tobacco use substantially increases the risks of cancers of the oral cavity, esophagus, and pharynx, though probably not of the lung. The cancer sites for which tobacco and alcohol jointly are major determinants occur with greater frequency in Blacks than non-minorities.

---

*Readers are referred to the following recent literature:

- Health Implications of Smokeless Tobacco Use. National Institutes of Health, Concensus Development Conference Statement, Bethesda, MD. Jan 1986.
- IARC Monograph on the Evaluation Of The Carcinogenic Biology Of Chemicals To Humans: Tobacco Habits Other Than Smoking, Betel-quid And Areca-nut Chewings And Some Related Nitrosamines. Vol. 37, Lyon, Sept 1985.
- Winn, D: Tobacco Chewing and Snuff Dipping: An Association With Human Cancer. In: N-nitroso Compounds: Occurrence, Biological Effects and Relevance to Human Cancer. (O'Neill, I.K. et al, eds.) IARC Scientific Publications No. 57. International Agency for Research on Cancer, Lyon, 1984.

Evidence points to an association between cigarette smoking and alcohol consumption in general. It appears that the level of consumption of either substance increases with the increased use of the other. Although several theories exist, there is uncertainty regarding alcohol's role, the modifying effects of tobacco, and the dose-response relationships among the two agents in cancer causation.

NUTRITION

Dietary factors are thought to account for 35 percent of all cancer deaths. The most important factors associated with cancer causation are total dietary fat, alcohol, and N-nitroso compounds. Dietary factors which appear to have a protective effect against cancer include fiber, vitamins such as A and C, and minerals such as selenium and zinc.

Several mechanisms relating to cancer have been proposed, but the exact nature of causation is not known. Studies have associated specific foods and nutritional factors with risk to specific cancers, with some variance in the strength of supporting data. The list below summarizes, by cancer site, dietary and other risk factors found in nutritional studies related to specific cancers.

- Esophageal: high alcohol intake, hot beverages, poor nutritional status, smoking.
- Stomach: N-nitroso compounds; pickled, spiced, and smoked foods; low socioeconomic status; smoking.
- Breast: total and saturated fat, cholesterol, fried foods, obesity.
- Endometrium: obesity, high fat consumption, hypertension, diabetes mellitus.
- Prostate: "Western" diet, e.g., high fat consumption.

Found to be generally protective for cancers are fresh fruits and vegetables, fiber, vitamin A, and vitamin C.

Research in the area of nutrition, diet, and cancer is important, but it is difficult to conduct studies that yield conclusive results because of many methodologic problems. Rigorous studies in the population groups that are the subject of this report are lacking or nonexistent.

OCCUPATION

Occupational exposures are believed to account for 4 percent of overall U.S. cancer deaths. Most epidemiological studies of occupational factors associated with cancer risk have been studies of non-minority males. Limited information is available on occupational factors associated with cancer in Blacks, and because of major differences historically in social and employment patterns, it would be improper to extrapolate from risks identified in non-minority workers to those expected among Black workers.

Blacks entered the industrial workforce in large numbers in response to improved employment opportunities during and following World War II. This trend accompanied a migration of Blacks from the South to the industrial, urban Northeast and mid-West, and later the western part of the nation. Studies of these migratory populations to Ohio suggest that rising cancer rates, especially for lung cancer, were associated with the migration and, hence, industrial employment. At the same time, it was thought that the adverse conditions of early life predisposed these workers to the effects of the carcinogenic exposures experienced in the industrial workplaces.

Minorities are more likely to be excluded from selected industries and jobs, are more likely to start work at a lower entry level job (usually unskilled), and are less likely to be promoted to jobs demanding more skills. At least for Black workers these employment practices have resulted in quite different exposure profiles, both in terms of a complete work history and exposures incurred within a single industry. As a result, even if risks for the same occupational or exposure group are assessed, a comparison between non-minority and Black workers is likely to be confounded by different exposure experiences that precede and follow the specific industry or occupation of interest.

Findings of cohort mortality studies reporting risks by race and occupation or exposure within race subgroups indicate that differences in risk are apparent between non-minorities and minorities for selected occupations. One study of steel industry workers suggests that the higher lung cancer risk among Blacks has resulted from a higher concentration of Blacks in high-risk jobs. Other occupations where studies have found higher cancer rates among minorities include dye manufacturing and the rubber industry.

KNOWLEDGE, ATTITUDES, AND PRACTICES

The available scientific literature about cancer-related knowledge, attitudes, and practices (KAP) among minorities is scant. Sample sizes in the two existing national studies on Blacks and non-minorities are too small to provide meaningful comparisons, and studies of Blacks and non-minorities in specific locales may identify differences that are peculiar to a specific geographic area. These potential problems should be considered in interpreting the points discussed below.

In general, Blacks and Hispanics tend to know less about cancer than non-minorities, although the differences vary depending on specific cancers, screening, tests, etc. One national survey (EVAXX, Inc.) reported that Blacks tend to underestimate the prevalence of cancer and that their knowledge of warning signs is lower than that of non-minorities. The National Breast Cancer Survey indicated that Blacks are closer to non-minorities in their knowledge of breast self-examination (BSE) than they are to Hispanics, almost 25 percent of whom had never heard of BSE. A telephone survey of Illinois residents found Blacks to be less aware than non-minorities of specific cancer tests, including the Pap smear, BSE, proctoscopy, and prostate palpation.

The EVAXX survey found that Blacks also tend to be more pessimistic than non-minorities about their chances for survival should they develop cancer. Blacks tend to be more fatalistic and less likely to believe that early detection

makes a difference and that existing treatments are effective. A substantial proportion of Blacks (25 to 50 percent in some cases) accept many of the common myths (e.g., bruises cause cancer) as fact.

Hispanics in the National Breast Cancer Survey's purposive sample perceived themselves as more likely to contract cancer some day than did non-minorities. Hispanics also tended to believe that breast cancer would affect sexual and social relationships much more than non-minorities or Blacks. On the other hand, more Blacks in the national sample believed that breast cancer would affect their ability to do strenuous housework than non-minorities did.

The Illinois telephone survey found that, despite virtually equal access to general physical examinations, Blacks were likely to obtain fewer screening tests, which suggests potential differences in quality of care even when access is equal.

Generally, findings from these surveys suggest that differentials in KAPs seem to exist between minorities and the general population, but that these differentials are not uniform across minority groups or across specific cancer topics.

The exact relationship of differences in KAPs between minorities and the general population and their subsequent effect on cancer incidence, morbidity, and mortality rates is suggestive but speculative. For example, the marked difference in cancer survival between Blacks and non-minorities is well established. Available data on KAPs suggest similar differences. However, it is not known if participation in regular gynecologic screening by Blacks at the same rate as non-minorities would eliminate the current survival differences. Further, it is not specifically known which of the differences in KAP measures have any real impact on cancer rates. For example, does the belief among some Blacks that breast cancer affects their ability to do strenuous housework also affect their utilization of breast self-examination and mammography and, in turn, does this result in poorer survival from breast cancer? These interactions across KAP measures are likely to be highly variable, and their full complexity is not well explored.

Current levels of KAP are related to demographic differences, both between minorities and the general population and within each minority group itself. A study of participation in Pap smear screening by Blacks in Buffalo, New York, found an inverse relationship between age and participation in Pap testing, a finding consistent with many earlier studies. Education was clearly related to Pap testing behavior, but two common measures of socioeconomic status, source of income and occupation, were not related to either number or recency of Pap testing.

There is a strong connection between social status and KAPs. For example, to the extent that minorities are overrepresented in low SES groups, they will evidence KAP consistent with that condition. It has been shown that low SES individuals are generally less knowledgeable about disease and health status, are often hard to recruit to screening and other health service programs, and often delay seeking medical care in the presence of symptoms. On the other hand, cultural influences also have been shown to influence the beliefs and acceptance of preventive services. Basic issues about health KAP of various minorities are beginning to emerge and call into question some of the stereotyping that

may have occurred in the past. For example, are low-income Blacks more like low-income non-minorities in their health and cancer-related KAP than they are like middle- or upper-income Blacks?

DEMOGRAPHY

This section discusses the demographic characteristics of Blacks, Hispanics, Asian/Pacific Islanders, and American Indians. Demographic profiles include population characteristics such as regional distribution, median age, family size, median family income, and education.

Although Blacks represent the largest U.S. ethnic minority group, the most dramatic increases in population are for Asian/Pacific Islanders.

Similarities in regional distribution between Blacks, Hispanics, and Asian/Pacific Islanders, with the majority residing in central cities, are in contrast to the American Indian/Alaska Native population, who reside primarily in 11 of the 28 reservation states.

For American Indians, the birth rate is almost twice that of all U.S. racial/ethnic groups, except Hispanics, and life expectancy is 6 years less. Birth rates for Blacks are also increasing. In contrast to American Indians, however, Blacks are living longer, narrowing the gap between life expectancy for non-minorities and Blacks.

Among American Indians, the median age of 22.4 is lower than the median age of all U.S. racial/ethnic groups, except Puerto Ricans and Mexican Americans, and the average number of persons per family for American Indians is 4.6 compared 4o 3.8 for all groups. A higher proportion of Black families have a significantly lower median income which falls below the poverty level.

Asian/Pacific Islanders show the most substantial increase in educational attainment compared to non-minorities but represent higher percentages in service occupations compared to non-minorities. Unemployment rates are lower for Asians (4.7 percent) in comparison to the U.S. unemployment rate of 6.5 percent in 1980 and higher for Blacks (approximately 14% in 1980), revealing double the unemployment rate for non-minorities.

HEALTH SERVICES PATTERNS

The crucial question in examining health services patterns is whether improvements in the health care system would have a major impact in reducing morbidity and mortality in special populations. It is unclear whether the differences in health outcomes and access to health information and health services are due to factors other than race or ethnic backgrounds. The key issue concerns the role that the health services system may play in eliminating differences in mortality and morbidity rates among non-minorities and Blacks, Hispanics, and other minority populations.

Blacks experience higher rates of morbidity and mortality than non-minorities from major illnesses such as cancer. Because Blacks and other minorities have higher rates of unemployment, they tend to have less continuous and/or more limited health insurance coverage. This inhibits health

services utilization. Also, lower income individuals are less likely to have a private physician as a usual source of medical care and are less likely to receive preventive health care screening.

BLACKS

In 1980, the Black population in the United States was 26.5 million, an increase of 17.3 percent over 1970. Blacks comprised about 12 percent of the total U.S. population in 1980. Blacks have the highest overall age-adjusted cancer rates for both incidence and mortality of any U.S. population.

For cancer incidence, the SEER (Surveillance, Epidemiology, and End Results) data, 1973-81, show a 10 percent excess incidence of cancer among Black Americans compared to non-minority Americans. Excess incidence is particularly pronounced among Black males. The incidence rate is 25 percent higher among Black males compared to non-minority males. Cancer rates among Black females are 4 percent lower than those for non-minority females. The overall trend in incidence for all cancers combined suggests an increase for the total population. The rate of increase for Blacks, however, is much higher. Between 1973-77 and 1978-81, non-minorities showed a 2 percent increase while the increase for Blacks was 7 percent. The greatest increase was among Black males, with a 10 percent increase; while non-minority males had a 4.3 percent increase, non-minority females experienced a slight (0.4 percent) decrease and Black females had a 3.3 percent increase.

Blacks also experience excess cancer mortality. The overall cancer mortality rate among Black and non-minority females is about the same, but Black males had an 11 percent excess compared to non-minority males according to the SEER data through 1981. Black males had the largest increase (8 percent) in cancer mortality between 1973-77 and 1978-81. Non-minority women have the lowest increase (2 percent). Until the early 1950's, reported U.S. cancer mortality rates for Blacks were lower than those for non-minorities among both males and females. However, over the past three decades, cancer deaths among Black males have risen even faster than those for non-minority males; rates for Black females have remained steady; and rates for non-minority females have declined slightly. From 1955 to the present, the highest U.S. mortality rates have occurred among Black males, followed by non-minority males, Black females, and non-minority females.

Although the rise in cancer mortality rates for U.S. males from 1915 to 1975 may be partially a result of improved reporting for causes of death, many experts feel that it also represents a true increase in the number of cancer deaths. During this period, there also has been a continuing decrease in mortality for all races by other causes such as heart disease and infectious diseases. Exposures to carcinogenic agents including smoking and tobacco use has also increased.

Another factor contributing to the increase in cancer mortality among both non-minority and Black males may be due in part to a shift to occupations that entail greater exposures to carcinogenic agents. This has been clearly demonstrated for Black workers in certain occupational categories including those assigned to coke ovens in the U.S. steel industry. Also during the 1940's, a large rural to urban migration began among Blacks brought about increased individual exposures to environmental factors now known to be associated with cancer.

EXCESS MORTALITY AND INCIDENCE

Sites of excess mortality in the Black population include lung, esophagus, stomach, pancreas, prostate, cervix, and corpus uteri. Mortality and incidence data for these sites are discussed below by site.

Lung

Black males experienced a 45 percent excess death rate compared to non-minority males. The death rate among Black and non-minority females is about the same. A large increase in the lung cancer death rate occurred among all females between 1973-77 and 1978-81. High lung cancer mortality rates for Blacks are matched by excess incidence, which is expected to rise even more in the future. It is estimated that there will be a 31.8 percent increase in lung cancer incidence among Black males compared to a 20.7 percent increase in non-minority males from 1980 to 1990. Among women, it is estimated there will be a 98.6 percent increase in lung cancer incidence among Black females compared to an 86 percent increase among non-minority females between 1980 and 1990. Similar increases in mortality rates for lung cancer can be anticipated.

Cigarette smoking is a major cause of lung cancer, with fully 90 percent of lung cancer deaths being related to cigarette smoking. Survey data indicate that the prevalence of smoking is greater among Blacks than non-minorities. Most of this difference is due to the high smoking rates of Black males rather than Black females. Other factors predisposing an individual at increased risk for lung cancer include lower socioeconomic status and residing in an urban rather than a rural setting. Occupational exposure to a variety of elements including asbestos, polycyclic hydrocarbons, and chromium is an additional risk. One dietary factor associated with lung cancer incidence is a low level of vitamin A intake.

Esophagus

For cancer of the esophagus, excess mortality is pronounced among Blacks, particularly among Black males. For this group, mortality is 3 times higher than for non-minority males. Mortality rates among Black women are 2.5 times higher than for non-minority women. Age-adjusted incidence rates for esophageal cancer are correspondingly high: 3.5 times higher for Black men compared to non-minority men, and almost 3 times higher in Black women than non-minority women. Urban Blacks appear to be more likely to develop esophageal cancer than rural Blacks.

Major risk factors for cancer of the esophagus include alcohol intake and tobacco use (both smoking and chewing). One study of Washington, D.C. Blacks identified the major factor responsible for excess deaths from esophageal cancer to be alcoholic beverage consumption and nutritional deficiencies. While it is not possible to generalize the findings of this small, localized study based on death certificates, it does support the general concept of alcohol consumption as a major factor in increasing the risk for esophageal cancer.

Both cigarette smoking and alcohol consumption have been shown to be etiologic factors in cancer of the esophagus. In combination the two represent an additional risk. The exact role of these factors and the dose-response relationship between the two are not known. Regardless of this lack of infor-

mation on the specific nature of the interaction, epidemiologic data indicate that the combination of chronic alcohol and tobacco consumption substantially increases the risk of cancer of the esophagus.

Other factors associated with increased risk for cancer of the esophagus include exposure to radiation and to asbestos. A possible dietary factor is consumption of hot food and drink or thermal irritation.

Prostate

Prostate cancer is the most common cancer among U.S. males. Mortality and incidence rates for prostate cancer are higher among Blacks than non-minorities. Death from prostate cancer is two times higher among Black males than among non-minority males. The death rates increased by 11.8 percent among Blacks and only 4.2 percent among non-minorities between 1973-77 and 1978-81. Incidence data show that Black males have a 60 percent excess incidence of prostate cancer compared to non-minority males in the United States. The reported incidence and mortality from prostatic cancer among Black males has risen sharply over the past 3 decades. Between 1973-77 and 1978-81, there has been a 10 percent increase in these incidence rates for both Black and non-minority males. Age-specific incidence and mortality rates for prostate cancer are higher in all age groups for Blacks than non-minorities.

The causes of prostate cancer are unknown, but incidence varies according to familial aggregation and whether an individual has ever married. High consumption of fat may play a role in the risk of developing this cancer. Some studies have suggested that the hormone testosterone may also play a role in the development of prostatic cancer. At least one occupational hazard, cadmium, has been suggested as a risk factor. Because the causes of prostate cancer are unclear, the reasons for this excess among Black males are equally unclear.

Stomach

Mortality from stomach cancer is more than 1.5 times greater among Blacks than non-minorities. Mortality rates for both groups have decreased during the time period 1973-77 and 1978-81, with non-minorities experiencing an 11 percent decrease in death from stomach cancer, while the decrease for Blacks was lower, only 6 percent. Stomach cancer incidence is almost twice as high among Blacks compared to non-minorities. Moreover, between 1973-77 and 1978-81, the incidence decreased by 6, 7, and 4.5 percent among non-minority males, non-minority females, and Black females, respectively. Incidence, however, did not decrease during this time period for Black males, who instead showed a 3.4 percent increase in the incidence of stomach cancer.

Lower socioeconomic status has been correlated strongly with increased rates of stomach cancer. As in many other cancers, tobacco and alcohol use have been implicated in stomach cancer, as has dietary intake of salty foods. N-nitroso compounds, as found in foods, the environment, and the workplace (asbestos) have been implicated. Foods rich in ascorbic acid seem to be protective against stomach cancer.

Cervix

Both mortality and incidence rates for cervical cancer are 2.5 times higher among Black females than non-minority females. Between 1973-77 and 1978-81, cervical cancer incidence rates for both groups increased about 20 percent. Mortality rates in this period went down for non-minorities but not for Blacks. Non-minority females showed a 20 percent decrease in cervical cancer deaths between 1973-77 and 1978-81, while Black females experienced a 27 percent increase during this same period.

Cervical cancer is one of the most extensively studied cancers and yet no clear causes have been found. A number of risk factors have been suggested, including recent data linking papilloma virus as a possible cause of this disease. The major risk factors suggested for all women are multiple sex partners and early age at first intercourse.

Corpus Uteri

Black females experienced a 33 percent excess death rate from cancers of the corpus uteri compared to non-minority females. Over the period 1973-81, non-minority females showed a 10.5 percent increase in death from cancer of the corpus uteri and Black females showed a 3.4 percent increase. Blacks have lower incidence than non-minorities.

Cancer incidence for corpus uteri has been associated with higher socio-economic status and nulliparity along with early menarche and older age at menopause. Additional risk factors include diabetes mellitus, obesity, and hypertension.

EXCESS INCIDENCE

Increased incidence among Blacks has been noted for the following cancers: multiple myeloma, pancreatic cancer, and laryngeal cancer, as well as where noted in discussions of cancer for which excess mortality rates are known to exist.

Multiple Myeloma

The incidence of multiple myeloma is more than twice as high for Blacks than for non-minorities. The incidence for Black males is 9.6 per 100,000 and for Black women it is 6.7. The rate for non-minority males is 4.3 and for non-minority females it is 3.0.

Several preliminary studies have linked occupational exposures, ionizing radiation, immune competence, and genetic susceptibility with increased risk for the development of multiple myeloma. At the present time, none of the studies offer any conclusive evidence for the causes of multiple myeloma. Risk factors associated with race and gender have yet to be identified.

Pancreas

The incidence of pancreatic cancer among Blacks is 1.5 times higher than for non-minorities. During 1973-77 and 1978-81, Black males showed an increase in the incidence of pancreatic cancer. This type of cancer is more common among males than females, among older persons, and among those who are not married. Excess risk has been found among cigarette smokers and some studies have linked diabetes mellitus with the risk of developing pancreatic cancer.

Larynx

The incidence rate is 1.5 times higher for cancer of the larynx among Black males and 1.3 times higher among Black females compared to non-minority males and females, respectively. The greatest increase in incidence between 1973-81 was found for non-minority females (23 percent) followed by Black females (11.1 percent) and Black males (8.7 percent). Only a slight increase occurred among non-minority males (1.2 percent). Risk factors include combined tobacco and alcohol use.

SURVIVAL EXPERIENCE

Survival Experience for Blacks

According to data derived from the Surveillance, Epidemiology, and End Results (SEER) program of the National Cancer Institute, the 5-year overall relative survival rate for 1976-81 was 50 percent for non-minorities and 38 percent for Blacks--a difference of 12 percentage points. There are striking differences in Black/non-minority survival for cancers of certain sites from 1976-81, as shown below.

5-Year Relative Survival

Cancer Site	Black	Non-minority	Difference Black/Non-minority
Breast	63%	75%	12%
Prostate	61	71	10
Corpus Uteri	55	86	31
Bladder	54	74	20
Rectum	37	49	12

Of the 25 primary cancer sites for which survival data were available, Blacks had higher 5-year relative survival rates for three sites (1973-81)--ovary, brain, and multiple myeloma--all relatively low incident cancers with only small percentage point advantages in Blacks.

When comparing survival rates for 18 selected cancer sites between 1973-75 and 1976-81, 5-year relative survival improved in Blacks for all sites but three; survival for cancer of the pancreas and cancer of the breast remained the same; and survival for corpus uteri cancer decreased by 4 percentage points.

Survival by Stage

Black/non-minority survival within primary cancer stage for selected cancer sites is of interest, although the sample of Blacks for many sites is too small in certain stage categories to present reliable information from which to draw conclusions. For all stages combined, Black patients had significantly lower survival than non-minorities for several cancer sites. However, these differences tend to decrease within individual stage categories for a number of cancer sites. This is due to the greater distribution of lower stages (less advanced cancers) in non-minority patients. Highlights of Black survival by stage are reviewed below.

- Survival for uterine corpus cancer showed the greatest difference in stage-specific survival between the Blacks and non-minorities. The stage I disease difference (92 percent non-minorities versus 75 percent Blacks) was statistically significant. The distribution of Black patients in other stage categories was too small to make reliable conclusions.

- Black patients had better survival rates than non-minorities for ovarian cancer for all stages combined and also within each stage category.

- The breast cancer survival difference (Blacks, 63 percent; non-minorities, 75 percent) was statistically significant. This was related to the large number of Blacks who had lymph node involvement or direct extension of tumor to adjacent tissue at the time of diagnosis (stage III B).

- The difference in 5-year relative survival for Blacks and non-minorities, for all stages combined (Blacks, 37 percent; non-minorities, 49 percent) for rectal cancer was statistically significant. The same is true for the Black and non-minority survival difference for all stages combined for colon cancer (Black, 47 percent; non-minority, 53 percent) and bladder cancer (Black, 54 percent; non-minority, 74 percent).

FACTORS CONTRIBUTING TO POORER SURVIVAL IN BLACKS

Among the primary factors in survival to be considered are: socioeconomic status, stage at diagnosis (late), delay in detection and treatment, treatment differences, and biologic/constitutional factors.

Much of the scientific literature to date supports a hypothesis that the differences in cancer survival between non-minorities and Blacks are attributable to social or environmental factors rather than inherent genetic or biologic deficits. Emerging theory suggests that distribution of resources (for example, health services behavior) can affect cancer outcome, e.g., survival. The Black/non-minority difference does not seem to be based on race/ethnic origin but rather on socioeconomic status and the overrepresentation of a race/ethnic group in the lower categories of socioeconomic status.

Socioeconomic status has major ramifications, including accessibility, availability, utilization, distribution, and delivery of health services. These health services include state-of-the-art cancer screening, detection, treatment, and rehabilitation services; nutritional status and dietary patterns; immune

status and function; education level/attitude and awareness of cancer preventive concepts/behaviors; and acceptance of cancer as a real and potential threat.

Cancer patient survival studies indicate that when adjustments are made for stage at diagnosis, survival differences decrease for certain cancers between Blacks and non-minorities, but when adjustments for socioeconomic status are made, the gap between the two groups is further reduced. Further support for the hypothesis that socioeconomic status affects cancer survival is shown in studies where non-minority patients' survival was examined according to socio-economic status. These studies found the survival experience of indigent patients to be worse than that of non-indigent patients when type of cancer care was held constant.

A study of Black and non-minority cancer patients from a VA hospital showed that there was no difference (except for bladder cancer) in survival between the two groups because they received the same type of cancer care.

For cancers of the bladder and corpus uteri, blacks experience significantly lower survival rates than whites and have higher distributions of more aggressive histologic types of cancer.

KNOWLEDGE, ATTITUDES, AND PRACTICES

The body of knowledge about Blacks' cancer-related knowledge, attitudes, and practices (KAP) is scant. Those studies that have been conducted generally involve such small samples that they should be viewed with caution, but may still provide an indication of potential cancer-related KAP among Blacks and the relation of these to those of non-minorities.

In general, Blacks tend to know less about cancer than non-minorities although differences vary depending on specific cancers, tests, etc. One study reports that Blacks tend to underestimate the prevalence of cancer and that their knowledge of warning signs is lower than non-minorities. In addition, Blacks were reported to be more pessimistic than non-minorities about their chances for survival should they get cancer. They also tend to be more fatalistic and are less likely to believe that early detection makes a difference and that existing treatments are effective. A substantial proportion of Blacks (25 to 50 percent in some cases) were reported to accept many of the common myths (e.g., bruises cause cancer) as fact. This study also found that Blacks are less likely to report seeing a physician in response to symptoms than are non-minorities.

Information for one specific cancer-related behavior, cigarette smoking, is of special interest. The prevalence of cigarette smoking is greater among Blacks than among non-minorities. This difference is due largely to the high smoking rates of Black males rather than Black females. Although they are more likely to be smokers, Blacks are less likely than non-minorities to be heavy smokers (25 or more cigarettes per day). While non-minorities are more likely than Blacks to be former smokers, one 1980 survey found that more Blacks than non-minorities were interested in stopping smoking.

CONCLUSION

Blacks experience greater incidence rates than non-minorities for cancers of the esophagus, pancreas, stomach, cervix, prostate, and larynx. Excess mortality exists for cancers of the following sites: esophagus, stomach, lung, cervix, corpus uteri, bladder, and prostate. Poorer survival occurs for many cancers and is marked for cancer of the breast, corpus uteri, bladder, prostate, and rectum. Excess incidence and mortality is particularly pronounced among Black males.

Where there is excess mortality or incidence in Blacks, many cancers are related to similar risk factors including tobacco, tobacco and alcohol combined, occupation, and dietary patterns and nutritional status. These risk factors are also significant for other illnesses including cardiovascular, cerebrovascular, pulmonary, and other diseases.

Certain exposures in the workplace impact significant cancer risk. However, these risks are thought to be concentrated in the "blue collar" population segments and are, therefore, potentially more significant to Blacks because of historic patterns in employment practices. Due to past employment practices and socioeconomic factors in general, Black workers are disproportionately represented in unskilled positions that may have the greatest exposure potential to carcinogens.

A number of the cancers that occur at greater rates in Blacks are uniformly fatal regardless of ethnic group. However, Blacks generally present at later stages for cancer diagnosis than non-minorities. Once diagnosed, Blacks delay as much as 3 to 12 months before seeking definitive treatment.

SEER data indicate that the overall 5-year relative survival rate for 1976-81 was 50 percent for non-minorities and 38 percent for Blacks, a 12 percentage point difference. Of the 25 primary cancer sites for which survival data are available, Blacks had better (only by a few percentage points) 5-year relative survival for three sites (1973-81)--ovary, brain, and multiple myeloma --all relatively low incident cancers.

Factors to be considered as contributing to poor cancer survival in Blacks include socioeconomic status, later stage at diagnosis, delay in detection and treatment, treatment differences, and biologic/constitutional factors.

In general, Blacks tend to know less about cancer than non-minorities although differences vary depending on specific cancers, screening test, etc. One study reports that Blacks tend to underestimate the prevalence of cancer and that their knowledge of warning signs is lower. Blacks were also reported to be more pessimistic than whites about their chances for survival should they develop cancer. Many Blacks were reported to accept common myths about cancer as fact.

HISPANICS

In 1980, the 14.6 million U.S. Hispanics (an increase of 61 percent over 1970) represented 6.4 percent of the total population. When discussing the cancer experience in Hispanics, it is important to remember that the Hispanic population within the United States is diverse. Sixty percent of the 1980 Hispanic category were of Mexican descent (9 million). The remainder of the Hispanic population was represented by 2 million of Puerto Rican origin, fewer than 1 million of Cuban origin, and 3 million originating in other Hispanic areas of the Caribbean or Central or South America. Although these groups are frequently aggregated in statistical analyses, specific differences exist among the groups in terms of socioeconomic status, cancer experience, and cultural heritage. Further analysis of existing data is necessary to accurately present the cancer experience of subgroups. If population growth among Hispanics continues as expected, cancer among members of this population will become of even greater importance in health planning efforts.

Cancer-related statistics are available from SEER data for three Hispanic subpopulations--Hispanics in Puerto Rico, San Francisco, and New Mexico. Thus, the Hispanic cancer rates in this report are not representative of the various U.S. Hispanic populations nor their geographic distribution. This should be kept in mind when interpreting comparisons with U.S. groups. Overall age-adjusted incidence rates for Hispanics from New Mexico and Puerto Rico are lower than for Blacks or non-minorities. SEER age-adjusted incidence data for 1978-81 indicate that Hispanics have an overall age-adjusted cancer incidence rate of 246.2 per 100,000 compared to 335 for non-minorities and 372.5 for Blacks. Overall incidence rates for New Mexico and Puerto Rico are considerably lower than those for non-minorities. However, an overall upward trend in incidence appears for New Mexico males and Puerto Rico males and females.

EXCESS INCIDENCE (Mortality data on Hispanics are not available.)

Specific sites of excess incidence among Hispanics are the stomach, esophagus, pancreas, and cervix. Stomach cancer incidence in Hispanics is twice that of non-minorities. While stomach cancer is higher for most minority groups, a downward trend exists for all U.S. groups except New Mexico Hispanic females and American Indian males. Stomach cancer incidence has been correlated with diets high in smoked, pickled, and spiced foods, especially those high in N-nitroso compounds. Tobacco use also has been implicated in stomach cancer development.

While the incidence of prostate cancer is slightly higher among New Mexico Hispanic males than among non-minorities (2 percent) in the U.S. population, it is lower than New Mexico Anglos. Although the excess incidence is not great, it represents a 40 percent increase over earlier figures, four times the increase among non-minorities during the same period. Puerto Rican males, with lower rates than non-minorities, showed an upward trend that was slightly higher than that of non-minority males. Although the causes of prostate cancer are unknown, suggested risk factors include environmental influences such as diets high in fat and low in green or yellow vegetables, the hormone testosterone, and occupational exposures in the rubber industry.

Incidence of esophageal cancer is 20 percent higher among New Mexico Hispanic females. Studies suggest a link between the development of esophageal cancer and smoking and alcohol consumption with these two having a synergistic effect. Other suggested risk factors include poor nutritional status and drinking hot beverages.

New Mexico Hispanics have rates of cancer of the pancreas that are higher than those of non-minorities. Excess risk for this cancer has been found among cigarette smokers.

Cervical cancer is twice as high among Hispanics in New Mexico and Puerto Rico as non-minorities. The incidence among Hispanics is, however, lower than that for Blacks, American Indians, and Chinese-Americans. Recent studies have suggested the papilloma virus as a possible cause of cervical cancer. Major risk factors are multiple sex partners and early age of first intercourse.

SURVIVAL

Survival data on Hispanics are derived mostly from New Mexico and San Francisco Hispanics. The overall 5-year relative survival rate in Hispanic males is almost identical to that of non-minorities. Hispanic females have somewhat lower survival rates than non-minority females. Survival data are similar for Hispanics and non-minorities for all but three sites. These are bladder cancer and Hodgkin's disease, where survival is poorer among Hispanics, and ovarian cancer, where survival is poorer among non-minorities.

Data were not available from Puerto Rico when this report was prepared. A preliminary study of Puerto Rico's survival data suggests that survival experience for this population is smiliar to that of U.S. Blacks, which is 12 percentage points below non-minorities, but further analysis of these data are required.

KNOWLEDGE, ATTITUDES, AND PRACTICES

Information on cancer-related knowledge, attitudes, and practices among Hispanics is limited. Smoking rates among Hispanics are considered to be lower than for Blacks or non-minorities, but a review of recent surveys suggests that prevalence among Hispanic males is as high as that of non-minority males. Also, recent marketing efforts in the Southwest aimed at encouraging tobacco use may result in increased smoking among Hispanics.

In general, Hispanics tend to know less about cancer than do non-minorities. One small purposive sample (417) of Hispanic women within a larger survey on breast cancer found the Hispanic women to be less informed than non-minorities about breast cancer. Hispanic females were much less aware than non-minorities of family history as a risk factor for breast cancer. Only 25 percent of Hispanic females had heard of breast self-examination. Hispanics in this purposive sample perceived themselves as being more likely to believe that breast cancer would affect sexual and social relationships. Information from this small sample cannot be generalized to the Hispanic population.

CONCLUSIONS

The Hispanic population in the United States is diverse and includes individuals of Puerto Rican, Mexican, and Cuban descent as well as individuals from the Caribbean or South America. The cancer experience among these groups varies widely.

SEER data are available for Hispanics in Puerto Rico and New Mexico. Overall age-adjusted incidence rates for Hispanics are lower than those for Blacks or non-minorities. However, an overall upward trend in incidence appears for New Mexico males and Puerto Rico males and females. Specific sites of excess incidence among Hispanics are the stomach, prostate, esophagus, pancreas, and cervix.

Mortality data are not available for Hispanics. Hispanics have particularly high incidence of stomach cancer. The rate for stomach cancer is higher for Hispanics than for Blacks and almost double that for non-minorities. Cervical cancer is twice as high among Hispanics as non-minorities. The incidence among Hispanics is, however, lower than that for Blacks, American Indians, and Chinese-Americans.

The overall 5-year relative survival rate of Hispanic males is almost identical to that of non-minorities. Hispanic females have somewhat lower survival rates than non-minority females. Survival data are similar for Hispanics and non-minorities for all sites except bladder cancer and Hodgkin's disease, where survival is poorer for Hispanics, and ovarian cancer, where it is poorer for non-minorities.

ASIAN/PACIFIC ISLANDERS

According to the 1980 census, the Asian/Pacific Islander population was 3.5 million in size, more than double that of the 1970 census. If the present upward trend continues, an even greater increase in this population is expected by 1990. This population growth may have implications for future U.S rates of certain types of cancer known to be prevalent among Asians, including refugees, thus impacting the health care system and requirements for future health surveillance and planning.

The U.S. Asian/Pacific Islander population is diverse, with several subgroups existing within this larger population. These groups may have different cultures, languages, and different cancer experiences. Subpopulations are identified primarily by country of origin, but length of residence in the U.S. and whether native or foreign born are also important factors in the diversity of the Asian/Pacific Islander populations. In terms of country of origin, Chinese-Americans are the largest subpopulation among Asians, followed by Filipinos and Japanese. Overall, three-fifths of the Asian/Pacific Islander population are foreign born. The proportion of foreign born is relatively small among Japanese and higher for Chinese and Filipinos.

This section will focus primarily on four subpopulations with the larger group of Asian/Pacific Islander for which certain data on cancer experience are available. These are Americans of Chinese, Japanese, Filipino, and Hawaiian descent. Although rates for Hawaiians are provided here, these should be interpreted with caution because the small population base from which they are drawn may artifically inflate rates.

Cancer incidence varies widely among the four Asian/Pacific Islander subpopulations for which statistics are available. Hawaiians have an overall age-adjusted cancer incidence rate of 357.9 per 100,000 (second highest of any American population), lower than Blacks at 372.5 per 100,000 and higher than non-minorities at 335 per 100,000. Three Asian American groups have incidence rates at least 100 points below those of Hawaiians. The rate for Chinese is 252.9, for Japanese it is 247.8, and for Filipinos it is 222.4. These three groups also have lower incidence than that of non-minorities. Among Chinese and Japanese, rates for males are higher than those for females, with Chinese rates being 293.8 for males and 230.3 for females while those for Japanese are 225.5 for males and 210.1 for females. There is, however, an upward trend in incidence rates for both sexes of the Chinese population with a 3.2 percent increase for males and a 0.4 percent increase for females, and for Japanese males where the increase is 2.2 percent for the period 1973-81.

EXCESS MORTALITY AND INCIDENCE

Among Asian/Pacific Islanders, excess mortality is found among Japanese-Americans for stomach cancer and Chinese-Americans for cancer of the cervix and for nasopharyngeal cancer. Hawaiians have excess mortality for cancers of the breast and lung.

The mortality rate for stomach cancer among Japanese-Americans is higher than for any other Asian group. The standard rate ratio for stomach cancer in Japanese-Americans is the highest of any other Asian group for this type of cancer.

Stomach cancer mortality for Japanese-Americans is higher for both sexes than the rates for non-minorities. These mirror the excess incidence rates found among Japanese of both sexes, where incidence is 2.5 times higher for Japanese males and 3.8 times higher for females than for non-minority males and females. A general downward trend in incidence for most minority groups, including the Japanese, has been noted. Stomach cancer has been correlated with smoking tobacco and with consumption of smoked, pickled, and spiced foods, especially those high in nitrate.

Migratory studies of Japanese point to environmental influences, in this case primarily dietary practices, in three major cancer sites: stomach, breast, and colon. Stomach cancer incidence and mortality rates in Japan are quite high. Incidence rates for Japanese living in Hawaii are lower than for those in Japan, and lower still for Japanese living on the U.S. mainland. For breast and colon cancers, incidence is higher among Japanese living on the U.S. mainland than for those in Hawaii or Japan. Again, incidence among Japanese in Hawaii is between that of those on the mainland or in Japan, in this case higher than in Japan and lower than on the mainland. Dietary practices are believed to influence the differences among the three groups, with incidence falling for stomach cancer and rising for breast and colon cancers as migrating Japanese adopt a "western" diet.

Chinese-Americans have excess mortality rates for cervical cancer. The mortality rate for this group is three times that of non-minorities. In terms of age-adjusted incidence, Chinese Americans have a cervical cancer rate of 11.2 compared to 8.8 for non-minorities. Japanese females are the only U.S. minority group that does not have cervical cancer incidence rates above that of non-minorities. However, both Chinese and Japanese females exhibit a trend toward higher rates. The cause of cervical cancer is still unknown, but major risk factors include multiple sex partners and early age at first intercouse. Recently, the papilloma virus has been suggested as a possible cause.

Chinese-Americans have unusually high incidence and mortality rates for nasopharyngeal cancer, which is an extremely rare cancer. One literature review of all countries for which cancer registries exist found an average incidence rate of less than 1 per 100,000. Nasopharyngeal cancer age-adjusted incidence rates greater than 5 per 100,000 were reported only for these areas or populations: San Francisco Bay Area Chinese (19.1 for males, 7.1 for females), Singapore Chinese (18.7 for males, 7.1 for females), and Hawaii Chinese (10.3 for males, 5.1 for females). Although data for China and Taiwan were not available for review, rates of nasopharyngeal cancer are known to be high in those countries as well.

Research into the high rate of nasopharyngeal cancer points to both genetic and environmental factors. Chinese have been known to have a genetic susceptibility to this kind of cancer. In addition, they have a high rate of exposure

to chemical agents formed from ingestants that are popularly consumed in the folk diet. The Epstein-Barr virus may also be linked with nasopharyngeal cancer.

Hawaiians indicate a high overall cancer mortality rate (200.5). Since this is based on a small number and may be artifically inflated, these figures should be viewed with caution. They are provided here to indicate possible areas of excess mortality and incidence among Hawaiians. As in cancer incidence, the mortality rate is second only to the 208.5 mortality rate of Blacks, and above the 163.6 rate of non-minorities. Sites of excess incidence and mortality are breast cancer and lung cancer (both male and female). The high cancer rates of Hawaiians are closer to those of Blacks and non-minorities than to those of Chinese, Japanese, or Filipinos.

Lung cancer is associated with cigarette smoking, while breast cancer has been correlated with family history of breast cancer, age at first birth, previous breast benign disease, and age at menarche. A high fat diet also has been linked with breast cancer.

INCIDENCE AMONG JAPANESE AND CHINESE

As stated earlier, the three Asian populations have lower incidence for cancers of all sites than non-minorities. This section will discuss incidence of various major cancers among Japanese and Chinese, groups for which this information is most available.

For prostate cancer, Japanese and Chinese have incidence rates that are about 70 percent lower than the rate in non-minorities. There is, however, an upward trend in incidence among Japanese.

Chinese-Americans have an increased incidence of about 17 percent over non-minorities in multiple myeloma. Although there is no conclusive evidence for the cause of multiple myeloma, preliminary studies have linked occupational exposure, ionizing radiation, immune competence, and genetic susceptibility with increasing risk for this cancer.

Incidence of esophageal cancer is higher for Japanese males and Chinese males and females than for non-minorities. The rate for Japanese males is 2.5 times higher, for Chinese males it is 1.8 times higher, and for Chinese females it is 1.6 times higher. Most studies into the causes of esophageal cancer suggest that the major risk factors are smoking and alcohol consumption, with the use of both having a synergistic effect. Consumption of hot beverages has been associated with esophageal cancer. In Japan, a strong direct relationship was found between esophageal cancer and high intake of tea-cooked rice gruel.

Pancreatic cancer incidence is about 20 percent higher among Chinese females than among non-minorities, and an upward trend in incidence exists for Chinese of both sexes. Japanese, particularly Japanese females, show considerably lower incidence than non-minorities. Excess risk for pancreatic cancer has been found among cigarette smokers and some studies have suggested a link with diabetes mellitus.

Blacks and non-minorities have the highest incidence rates for cancer of the larynx. However, there is a trend toward higher rates for all minorities except Chinese males. Within this rising trend, the most dramatic increases are in Asians, with Chinese females showing an increase of 250 percent and Japanese males showing an increase of 157 percent.

Other sites of increased incidence rates for Asians, discussed along with mortality rates above, are stomach cancer for Japanese males and females and cervical and nasopharyngeal cancer in Chinese.

SURVIVAL

Survival data, presented here by major Asian/Pacific Islander subpopulations, varies--according to sample size--in its ability to express differences between the population noted and the U.S. non-minority population. Overall survival rates for each group are presented here, as are site-specific survival rates when statistically reliable data (standard error <10 percent) exists.

The total number of Chinese-American cancer cases in the SEER registry is small (3,048 during 1973-79), and site-specific survival rates are therefore often unreliable and will not be examined here. Five-year relative survival for all sites was 35 percent in males and 50 percent in females compared to 40 percent and 55 percent in non-minorities during the 1973-79 time period.

Japanese-American cancer cases totaled 5,030 in 1973-79. Survival experience of this group was generally higher than for other groups. Overall 5-year relative survival was 40 percent for males and 59 percent for females. The 5-year survival rates for both sexes was the highest of 8 ethnic groups in the period 1973-79 for cancers of the stomach, colon, and breast (27, 59, and 84 percent respectively). Survival among Japanese was also higher than for non-minorities for cancers of the lung and bronchus (14 percent), prostate (74 percent), cervix (70 percent), and ovary (39 percent). Japanese males also had greater survival for bladder cancer with a 5-year relative survival of 79 percent compared to 73 percent for non-minority males.

Filipino-American cancer cases totalled 2,355 during 1973-79. The site-specific relative survival rates vary widely with some rates being the lowest of 8 ethnic groups and others being much higher. Overall 5-year relative survival was 34 percent for males and 56 percent for females. For stomach cancer, 5-year relative survival was identical to that in Blacks and non-minorities, and survival from prostate cancer was higher in Filipinos with 70 percent compared to 56 percent for Blacks and 66 percent for non-minorities. Survival for cervix and corpus uteri cancers were 70 percent and 85 percent respectively. Filipinos had the lowest survival of all ethnic groups for colon cancer (35 percent) and the highest for ovarian cancer (55 percent).

Survival rates for Hawaiians vary widely and are, again, to be viewed with caution as they are based on a small number of cases. Overall survival was 30 percent for males and 52 percent for females. Hawaiians experienced comparatively high survival rates for lung, breast, prostate, and cervix cancer and comparatively lower survival rates for ovarian (38 percent) and corpus cancers (76 percent.)

KNOWLEDGE, ATTITUDES, AND PRACTICES

Documented information on Asian/Pacific Islander knowledge, attitudes, and practices relating to cancer in general or to the particular cancers where excess rates exist could not be located during the preparation of this report.

CONCLUSION

Cancer incidence varies widely among Americans of Chinese, Japanese, Filipino, and Hawaiian descent. Hawaiians have an overall age-adjusted cancer incidence rate that is second highest of any American population, below Blacks and above non-minorities. The rates for Chinese, Japanese, and Filipinos are below non-minorities. There is, however, an upward trend in incidence rates for both sexes of the Chinese population and for Japanese males.

Excess mortality among Asian/Pacific Islanders is found among Japanese-Americans for stomach cancer. Chinese-Americans have excess rates for cancer of the cervix and for nasopharyngeal cancer. Hawaiians have excess mortality for cancers of the breast and lung. The high cancer rates of Hawaiians are closer to those of Blacks and non-minorities than to those of Chinese, Japanese, or Filipinos.

Survival data vary, according to sample size, in their ability to express differences between the population noted and the U.S. non-minority population. SEER registry data (1973-79) indicate that for Chinese-Americans the 5-year relative survival for all sites was 35 percent in males and 50 percent in females compared to 40 percent and 55 percent in non-minorities.

Among Japanese-Americans the overall 5-year relative survival was 40 percent for males and 59 percent for females. The 5-year relative survival rates for both sexes were the highest of 8 ethnic groups for cancers of the stomach, colon, and breast. Survival rates among Japanese were also higher than non-minorities for cancers of the lung and bronchus, prostate, cervix, and ovary. Japanese males had greater survival than non-minority males for bladder cancer.

Filipino-American site-specific relative survival rates vary widely with some rates being the lowest of 8 ethnic groups and others being much higher. Filipinos had the lowest survival of all ethnic groups for colon cancer and the highest for ovarian cancer. (It should be noted that standard errors for 5-year relative survival for colon and ovarian cancers was 10-20% of the rate.)

Survival rates for Hawaiians also show large variations. Hawaiians have comparatively high survival rates for lung, breast, prostate, and cervix cancers and comparatively low rates for ovarian and corpus cancers.

AMERICAN INDIANS

Existing data on the cancer experience of the U.S. American Indian/ Alaska Native population are presented here. These data are limited, however, in that they are drawn from the small sample of American Indians in the SEER program or from a sample of American Indians residing in reservation states. The data should be used with caution in interpreting the cancer experience of American Indians and in comparing this with the experience of other groups.

American Indians and Alaska Natives have the lowest rates of overall cancer incidence and mortality of all U.S. populations (including non-minorities). SEER data indicate that the cancer incidence rates for American Indians in New Mexico, both males and females, are about half that of the non-minority majority. Cause of death data indicate that cancer, the second leading cause of death for the U.S. population as a whole, is the third most common cause of death (preceded by accidents and heart disease) among American Indians and Alaska Natives. In 1975, the age-adjusted mortality for cancers was 39 percent lower for Indians than for the general U.S. population.

American Indians generally experience low survival rates according to 1973-79 SEER data. Overall 5-year relative survival for males was 26 percent compared with 40 percent for non-minority males, and 39 percent for females compared with 55 percent for non-minority females.

RATE COMPARISONS: AMERICAN INDIANS RESIDING IN RESERVATION STATES

One researcher, whose findings are the basis for the following discussion, points out that in reservation states relative frequency of various types of cancer differs widely in American Indians. They have rates below non-minorities for the most common cancers--lung, colon, breast, and prostate cancer--and much higher rates for cancers of the cervix, gallbladder, and kidney.

The Standard Mortality Ratio (SMR) for all American Indians in the 28 reservation states shows the level of excess mortality in cancer sites to be: cervix--229, gallbladder--435, and kidney--154. SMR deficits are: lung--43, colon--49, breast--53, and prostate--81.*

Rates vary among American Indians. Those populations having substantially non-Indian ancestry and living off reservations (here principally tribes in Oklahoma) have mortality for most sites that is between the national average and the rates of tribes in the Southwestern states living on the reservation and of mostly Indian heritage.

Differences in overall cancer mortality for American Indians and non-minorities is believed to be due more to environmental and cultural factors than to genetic factors. Examples of cancer sites for which American Indians have rates differing from the non-minority population illustrate this.

---

*Standard Mortality Ratios (SMR's) show proportionate relationship of observed to expected deaths based on the standardized national rates in non-minorities; over 100 indicates an excess mortality, while less than 100 indicates a deficit.

For example, the lung cancer SMR is 43 for all Indians in reservation states. However, Oklahoma Indians have an SMR of 89, while Southwestern tribes have a much lower SMR of 9. The mean lung cancer mortality among Oklahoma tribes is 9 times greater than that of Southwestern tribes. Environmental and cultural factors, in this case heavy smoking among Oklahoma Indians but not among Southwestern tribes, undoubtedly play a role in this discrepancy.

Indians of the Southwest, who seldom smoke extensively, have low rates of squamous cell bronchogenic carcinoma, a common type of lung cancer and the one most commonly associated with heavy smoking. Their rates of less common lung cancers (not associated with smoking) are in keeping with national averages. Among Oklahoma Indians, where lung cancer SMR is higher, both cigarette smoking and lung cancer mortality more closely mirror the national average.

One particular type of bronchogenic carcinoma (small cell, undifferentiated) is higher among one group of Indians--Navajo uranium miners--pointing to the possible contribution of occupational exposure to cancer incidence and mortality.

For colon cancer, the overall SMR for American Indians is 49. Again, the SMR is higher for Oklahoma tribes (71) than for those in the Southwest (17). Here, dietary factors are likely to play a role in cancer incidence, since most Southwestern tribes consume large amounts of beans and, therefore, fiber when compared with Oklahoma Indians.

In breast cancer, where mortality is lower for Indians than non-minorities, factors associated with decreased incidence such as pregnancy, multiparity, and lower socioeconomic status are more common among Indians than among non-minorities.

In cancer of the gallbladder, where American Indians show excess mortality, it is Indians of the Southwest who have the greater SMR (636) when compared with Oklahoma Indians (227). The excess incidence of cancer of the gallbladder is generally attributed to the Indians' high rate of cholelithiasis. This high rate probably has a genetic basis.

American Indians also have excess mortality from cancer of the cervix. Factors associated with high rates of cervical cancer (including lower socioeconomic status and multiple pregnancies) are found as a risk factor in most Indian populations. The papilloma virus has been implicated as a risk factor in cervical cancer.

ALASKA NATIVES

Alaska Natives are reported to have increased incidence of cancer of the gallbladder and excess mortality from primary liver cell cancer.

KNOWLEDGE, ATTITUDES, AND PRACTICES

Research on cancer-related knowledge, attitudes, and practices among American Indians was not available for inclusion in this report.

CONCLUSIONS

Limited data are available to describe the cancer experience among American Indians. Interpretation of the data and comparisons with other groups should be made with caution. American Indians, as a group, are younger in age than the majority population. American Indians have a shorter life expectancy and as a result many times do not reach the age to develop cancer. Cause of death data indicate that cancer, the second leading cause of death for the U.S. population as a whole, is the third most common cause of death, preceded by accidents and heart disease among American Indians and Alaska Natives.

American Indians are considered to be a low-risk population for cancer when compared with the general population. However, according to 1973-79 SEER data, American Indians have low survival rates. Overall 5-year relative survival for males was 26 percent compared with 40 percent for non-minority males, and 39 percent for females compared with 55 percent for non-minority females.

According to one study, the relative frequency of various types of cancer differs widely in American Indians. They have cancer rates below non-minorities for lung, colon, breast, and prostate and much higher rates for cancers of the cervix, gallbladder, and kidney.

It is believed that differences in overall cancer mortality for American Indians and non-minorities is due more to environmental and cultural factors than to genetic factors. American Indians have a high rate of obsesity and have high rates of diseases associated with alcohol and tobacco use. These risk factors could lead to higher cancer rates in the future.

Table A

Numbers and Standarized Mortality Ratios (SMR's) for the 10 Leading Cancer Sites among the Amerind of the 26 Reservation States, 1974-1976

Site	Male SMR	Female SMR	Total		
			Observed (No.)	Expected (No.)	SMR
Lung	39	66	153	352.1	43
Colon	51	47	89	181.8	49
Breast	--	53	78	148.0	53
Stomach	89	113	76	78.1	97
Pancreas	71	98	74	90.9	81
Cervix	--	229	66	28.8	229
Gallbladder	--	432	54	12.4	435
Prostate	57	--	53	93.5	57
Kidney and renal pelvis	145	171	52	33.8	154
Liver	101	138	29	25.3	115
All cancer deaths	55	89	1,202	1,736.9	69

Items listed in order of frequency. Data from Indian Health Service (supplied by Mr. Mozart I. Spector, Director, Office of Program Statistics.)
SMR=(observed/expected) x 100

Table B

Numbers and Standardized Mortality Ratios (SMR's) for Cancer of the Lung, Colon, and Gallbladder, 1974-1976, Compared by Sex, for the Tribes of the Southwest and of Oklahoma

	Southwest			Oklahoma		
Site	Observed (No.)	Expected (No.)	SMR	Observed (No.)	Expected (No.)	SMR
Lung						
Male	5	105.8	5	47	55.1	85
Female	6	21.2	29	12	11.0	109
TOTAL	11	127.0	9	59	66.1	89
Colon						
Male	7	34.0	21	15	17.7	85
Female	4	31.4	13	9	16.3	55
	11	65.4	17	24	34.0	71
Gallbladder						
Male	8	1.2	667	2	0.6	333
	20	3.2	625	3	1.6	188
	28	4.4	636	5	2.2	227

From Indian Health Service (IHS) data supplied by Mr. Mozart I. Spector, Director, Office of Program Statistics. The 1975 IHS Indian population base for the Southwest (Arizona, California, Colorado, Nevada, New Mexico, and Utah) = 223,437; for Oklahoma = 116.394 (U.S. Department of HEW, 1978a).

TABLES

- Smoking and Cancer
- Alcohol and Tobacco
- Nutrition
- Occupation

Table 1

Age-Adjusted (1970 U.S. Standard) Death Rates per 100,000

Population for Lung Cancer in the United States, 1969-1981

Year of Death	White Males	Black Males
1969	55.55	63.68
1970	57.39	65.54
1971	59.11	66.70
1972	60.86	73.35
1973	61.58	74.76
1974	63.16	78.10
1975	64.16	79.29
1976	65.69	81.56
1977	66.82	87.34
1978	68.18	88.31
1979	68.76	89.22
1980	70.03	92.70
1981	69.86	94.93
AAPC*	1.91	3.36

*AAPC=average annual percent change from 1969 to 1981.

Source: National Cancer Institute.

Table 2

Age-Adjusted (1970 U.S. Standard) Death Rates per 100,000

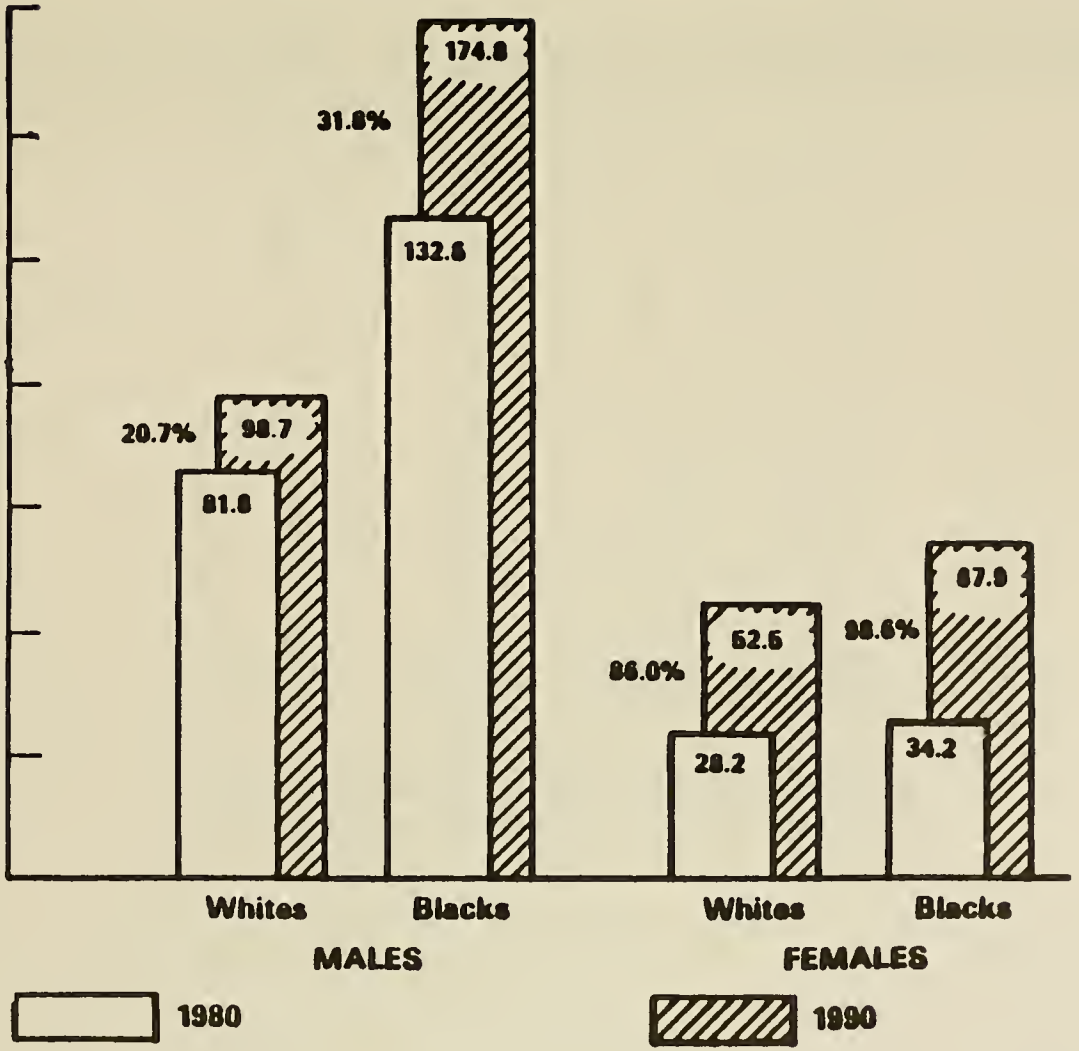
Population for Lung Cancer in the United States, 1969-1981

Year of Death	White Females	Black Females
1969	10.30	10.56
1970	11.01	11.54
1971	11.94	12.50
1972	12.76	12.44
1973	13.28	13.53
1974	14.34	14.17
1975	15.27	14.80
1976	16.51	15.78
1977	17.37	17.25
1978	18.72	17.78
1979	19.46	19.11
1980	20.96	21.41
1981	21.69	21.74
AAPC*	6.19	5.92

*AAPC=average annual percent change from 1969 to 1981.

Source: National Cancer Institute.

ESTIMATES OF LUNG CANCER INCIDENCE PER 100,000 PERSONS (BASED ON SEER DATA)



TRENDS IN SURVIVAL BY SITE OF CANCER, BY RACE
Cases Diagnosed in 1960-63, in 1970-73 and in 1973-80

	WHITE			BLACK		
Site	1960-63[1] Relative 5-year Survival (%)	1970-73[1] Relative 5-year Survival (%)	1973-80[2] Relative 5-year Survival (%)	1960-63[1] Relative 5-year Survival (%)	1970-73[1] Relative 5-year Survival (%)	1973-80[2] Relative 5-year Survival (%)
Prostate	50	63	68	35	55	58
Kidney	37	46	50	38	44	52
Uterine Corpus	73	81	88	31	44	58
Bladder	53	61	73	24	36	48
Colon/Rectum	41	48	50	31	35	42
Uterine Cervix	58	64	68	47	61	62
Breast	63	68	74	46	51	62
Ovary	32	36	37	32	32	39
Brain and Central Nervous	18	20	21	19	19	23
Lung and Bronchus	8	10	12	5	7	10
Stomach	11	13	14	8	13	14
Esophagus	4	4	5	1	4	3
Hodgkin's Disease	40	67	70	*	*	70
Lymphocytic Leukemia-Acute	4	28	43	*	*	*
Leukemia	14	22	32	*	*	27
Non-Hodgkin's Lymphoma	31	41	46	*	*	46
Larynx	53	62	67	*	*	57
Melanoma of Skin	60	68	79	*	*	*
Testis	63	72	82	*	*	67
Thyroid	83	86	92	*	*	89

Source: Biometry Branch, National Cancer Institute

[1]Rates are based on data from a series of hospital registries and one population-based registry.

[2]Rates are from the SEER Program and include patients diagnosed through 1980 and follow-up on all patients through 1981. They are based on data from population-based registries in Connecticut, New Mexico, Utah, Iowa, Hawaii, Atlanta, Detroit, Seattle-Puget Sound, and San Francisco-Oakland.

*Rates could not be calculated because of insufficient number of cases.

Table 5

Current Cigarette Smokers Among Males 20 Years of Age and Over, by Race; United States, 1965, 1976, 1980

Race	Current Smoker		
	1965	1976	1980
All Males	52.1	41.6	37.9
White Males	51.3	41.0	37.1
Black Males	59.6	50.1	44.9

Source: National Health Interview Survey.

Table 6

Current Cigarette Smokers Among Females 20 Years of Age and Over, by Race; United States, 1965, 1976, 1980

Race	Current Smoker		
	1965	1976	1980
All Females	34.2	32.5	29.8
White Females	34.5	32.4	30.0
Black Females	32.7	34.7	30.6

Source: National Health Interview Survey.

Table 7

Cigarettes Smoked per Day by Male Current Smokers 20 Years of Age and Over, by Race; United States, 1965, 1976, 1980

Race	Cigarettes Smoked per Day					
	Less than 24			25 or more		
	1965	1976	1980	1965	1976	1980
All Males	75.8	69.3	65.9	24.1	30.7	34.2
White Males	74.0	66.7	62.7	26.0	33.3	37.3
Black Males	91.4	89.3	86.3	8.6	10.8	13.8

Source: National Health Interview Survey.

Table 8

Cigarettes Smoked per Day by Female Current Smokers 20 Years of Age and Over, by Race; United States, 1965, 1976, 1980

Race	Cigarettes Smoked per Day					
	Less than 24			More than 25		
	1965	1976	1980	1965	1976	1980
All Females	87.0	81.0	76.7	13.0	19.0	23.2
White Females	86.1	79.2	74.8	13.9	20.9	25.2
Black Females	95.3	94.5	91.5	4.6	5.6	8.6

Source: National Health Interview Survey.

Table 9

Former Cigarette Smokers Among Males 20 Years of Age and Over, by Race; United States, 1965, 1976, 1980

Race	Former Smoker		
	1965	1976	1980
All Males	20.3	29.6	30.5
White Males	21.2	30.7	31.9
Black Males	12.6	20.2	20.6

Source: National Health Interview Survey.

Table 10

Former Cigarette Smokers Among Females 20 Years of Age and Over, by Race; United States, 1965, 1976, 1980

Race	Former Smoker		
	1965	1976	1980
All Females	8.2	13.9	15.7
White Females	8.5	14.6	16.3
Black Females	5.9	10.2	11.8

Source: National Health Interview Survey.

Table 11. Cancer Death and Proportion Attributable to Alcohol Consumption by Site and Sex, 1974

ICDA code and site	Total for males	Proportion attributable to alcohol	Number attributable to alcohol	Total for females	Proportion attributable to alcohol	Number attributable to alcohol
140 149 Buccal cavity and pharynx	5,686	0.50	2,843	2,282	0.40	913
150 Esophagus	4,917	0.75	3,688	1,735	0.75	1,301
155 Liver	1,600	0.30	480	865	0.30	260
161 Larynx	2,826	0.50	1,413	436	0.40	174
Total (all sites)	199,194	0.04	8,424	166,338	0.02	2,648

Source: Rothman (1980)

Table 12. Relationship of Average Daily Smoking and Drinking Habits Before the Diagnosis of the Index Primary Cancer

Risk Factors*		Men				Women			
		Single Primary		Multiple Primaries		Single Primary		Multiple Primaries	
Tobacco	Alcohol	No.	%†	No.	%†	No.	%†	No.	%†
Low	Low	45	9	--	--	63	37	3	21
Low	High	28	6	1	3	12	7	2	14
High	Low	110	22	5	13	30	18	2	14
High	High	273	54	28	72	51	30	7	50
Unknown		53	10	5	13	15	9	--	--
Total		509	100	39	100	171	100	14	100

*Tobacco: Low = 0-19 equivalents/day; high = 20 or more equivalents/day. Alcohol: Low = 0-2 equivalents/day; high = 3 or more equivalents/day. Data on smoking were translated into cigarette equivalents as follows: 1 cigar = 5 cigarettes; 1 pipe = 2.5 cigarettes. Alcohol consumption was translated into units of absolute alcohol as follows: 1 unit (approximately 12 cc absolute alcohol) = 1 ounce liquor or spirits = 4 ounces wine = 8 ounces beer.

†Percentage distribution does not total 100 because of rounding.

Source: Schottenfeld, et al. (1974)

Results of Selected Prospective Studies on the Relationship Between Alcohol Consumption and Cancer*

Investigator and Date of Publication	Population and Years of Observation	Size of Study Group		Total Deaths	Deaths from All Cancers	Number of Deaths from Specific Cancers									
						MOUTH 145[c]	PHARYNX 149[a]	LARYNX 161[a]	LUNG 162[a]	ESOPHAGUS 150[b]	STOMACH 151[b]	COLON 153[b]	RECTUM 154[b]	LIVER 155[b]	PANCREAS 156
Sundby, 1967	Alcoholics treated in Oslo, 1925–62	1,722	Observed	1,061	204	4[a]	9[a]	5[a]	19[a]	40[a]	45	9	12	6	5
			Expected	496 9	96 6	0 5	0 7	0 8	5 4	3 4	36 8	8 2	4 2	3 1	3 1
Schmidt and De Lint, 1972	Alcoholics treated in Toronto, 1951–63	8,478	Observed	738	87[a]	6[a]		7[a]	30[a]	7[a]	7	8	—	—	—
			Expected	346 23	68 11	1 75		0.78	14 21	1.35	8 32	9.65	—	—	—
Nicholls et al, 1974	Abnormal drinkers in 4 mental hospitals in London, 1953–67	835	Observed	309[a]	50[a]	20[a]					6	4	3	2	1
			Expected	112 7	29 30	11 43					—	—	—	—	—
Hakulinen et al, 1974	Alcohol misusers in Finland (males), 1965–68	Chronic Alcoholic 205,000	Observed	—		—	—	—	200[a]	101[a]	—	82	—	66[a]	—
			Expected	—	—	—	—	—	99 2	59.7	—	66 8	—	44 3	—
	Alcoholic males 30+ in Helsinki, 1967–70	4,370	Observed	—	81[a]	—	3[a]	3	33[a]	4[a]	6	3	—	2	4
			Expected	—	63 3	—	0 53	2 16	20 17	0 98	7 99	1 63	—	0 77	2 21
Hirayama, 1975[f]	Daily users of alcohol in sample of male population in Japan, 1966–73	(265,118)	—	(21,187)	(5,580)	—	—	—	—	—	—	—	—	—	—
			Standard Mortality Rate		1 07[a]	3 53[a]	1 51	1 40	1 28[a]	1.82[a]	0 97	1.22	0 82	1 22	1 06
Monson and Lyon, 1975	Alcoholics in Massachusetts mental hospitals, 1930–71	1,382	Observed	894	105	13		6	10	8	15	7	4	4	3
			Expected	—	137 3	3 9		1 9	14.1	2.8	14 8	11 2	5 7	4 2	5 1
Lemon et al, 1964	Seventh Day Adventists in California, 1955–59	47,866	Observed	3,456	606	3		—	39	10	47	97		64	
			Expected	4,919	800	16		—	11	50	66	121		63	
Enstrom, 1975	Mormons in California, (35+) 1970–72	—	Observed	4,036	810	22		—	145	12	40	79	27	16	54
			Expected	6,439 4	1,138 9	30 7		—	240 5	21.1	52 9	109 2	34	19 9	62 9
Lyon et al, 1976	Mormon Non-Mormon ratio (males), 1968–70	—	—		0 9	—	—	0 42	0 61	0.42	0.78	0 86	—	—	0 99

*From Albert Tuyns Alcohol and cancer Paper prepared for National Institute on Alcohol Abuse and Alcoholism under Contract No. HSM 42-73-116, 1977.
[f]Excessive alcohol cancer-related mortality also found in mediastinum and thyroid cancer and leukemia were excessive in whiskey drinkers
[a]Significant at the 0 05 level
[b]Significant at the 0 01 level
[c]Significant at the 0 001 level
[d]Three digit categories in the Eighth Revision, *International Classification of Diseases*, Adapted 1965 (ICDA).

Table 14. Age-adjusted annual incidence rates for selected cancer sites in various population groups in the United States

Place	Population	Tongue	Mouth	Oropharynx	Hypopharynx	Esophagus	Liver	Larynx	Total for all cancer sites	Proportion of all cancers (%)
California										
Alameda	White	3.0	3.7	2.2	1.1	3.6	2.2	7.9	23.70	8.5
	Black	2.2	4.1	2.2	1.5	13.2	4.3	12.9	40.40	12.3
Bay Area	White	3.2	4.2	2.6	1.5	4.0	2.8	7.5	25.80	8.6
	Black	2.1	4.8	3.3	1.5	15.2	4.2	11.8	42.90	12.5
Connecticut		2.8	4.3	2.1	1.5	5.7	2.0	7.8	26.20	9.2
Iowa		1.4	2.6	1.1	1.2	3.0	1.6	5.8	16.70	6.7
Detroit	White	2.7	3.3	2.0	1.2	4.0	2.6	7.5	23.30	8.7
	Black	3.3	3.3	2.1	1.1	14.1	4.5	7.7	36.10	11.3
New Mexico	Spanish	0.4	0.7	0.4	0.2	2.2	3.0	2.7	9.60	6.1
	Other white	2.2	2.8	1.4	0.3	3.0	3.1	5.8	18.60	6.7
New York State		2.2	3.2	1.3	0.8	4.5	1.9	5.9	19.80	8.0
Puerto Rico		7.5	7.8	4.3	4.4	14.8	3.3	6.4	48.50	27.9
Utah		2.1	2.5	0.9	0.4	1.8	0.9	4.4	13.00	6.1

Source: Thuyns (1979)

Table 15

Percentage distribution of persons aged 1-74 years
by race, poverty level, and frequency of different food groups

	Frequency of intake per day (# of times)	Black		White	
		Below Poverty	Above Poverty	Below Poverty	Above Poverty
MILK					
Whole	Less than 1	52	48	42	38
	1 - 2	34	39	38	39
	3 or more	13	14	20	22
Skim	Less than 1	97	96	91	95
	1 - 2	3	3	7	5
	3 or more	0	0	2	1
MEAT & FISH					
Meat & Poultry	Less than 1	16	18	14	26
	1 - 2	80	78	84	72
	3 or more	4	4	2	1
Fish & Shellfish	Less than 1	99	99	99	99
	1 - 2	1	1	1	1
	3 or more	0	0	0	0
MEAT ALTERNATES					
Eggs	Less than 1	78	76	86	77
	1 - 2	21	25	14	23
	3 or more	0	0	0	0
Cheese	Less than 1	94	95	87	91
	1 - 2	5	5	13	9
	3 or more	0	0	0	0
Legumes Seeds & Nuts	Less than 1	90	86	91	81
	1 - 2	9	14	8	19
	3 or more	0	0	0	0
FRUITS & VEGETABLES					
All	Less than 1	16	22	7	17
	1 - 2	65	65	69	66
	3 or more	18	13	24	17
Vit. A Rich	Less than 1	90	94	95	97
	1 - 2	11	6	4	3
	3 or more	0	0	0	0
Vit. C Rich	Less than 1	64	66	61	71
	1 - 2	35	32	38	29
	3 or more	1	1	1	0

Table 15 (continued)

	Frequency of intake per day (# of times)	Black		White	
		Below Poverty	Above Poverty	Below Poverty	Above Poverty
BREADS & CEREALS					
Breads	Less than 1	14	13	12	14
	1 - 2	56	55	67	59
	3 or more	31	33	20	28
FATS & OILS					
Fats	Less than 1	44	48	28	36
	1 - 2	51	46	61	53
	3 or more	5	7	12	10
SWEETS					
Desserts	Less than 1	62	62	58	64
	1 - 2	36	37	40	34
	3 or more	2	1	2	1
Candy	Less than 1	76	69	84	79
	1 - 2	22	29	16	21
	3 or more	2	3	1	1
Beverages, Sweetened	Less than 1	51	53	66	67
	1 - 2	40	40	30	28
	3 or more	8	7	5	5
OTHER BEVERAGES					
Beverages, Sweetened Artifically	Less than 1	97	98	95	97
	1 - 2	3	2	4	3
	3 or more	0	0	0	0
Coffee & Tea	Less than 1	57	64	37	44
	1 - 2	35	30	34	36
	3 or more	8	7	29	20
SNACK FOODS					
Salty Snacks	Less than 1	85	78	89	91
	1 - 2	15	20	11	9
	3 or more	1	0	0	0

Source: DHEW Publication No. (PHS) 79-1658

Table 16

Mean percent of standard and percent of population below standard for nutrient intake and biochemical measures of nutritional status, by race

	Mean percent of standard (S.E)		Percent of population below standard (S.E)	
	Black	White	Black	White
Protein intake	150(2.1)	166(1.9)	26.8(1.5)	19.0(0.7)
Total serum protein	114(0.4)	110(0.3)	2.8(0.4)	6.9(0.6)
Serum albumin	125(0.3)	128(0.3)	0.6(0.1)	0.4(0.1)
Vitamin A intake	109(3.3)	111(2.7)	68.7(1.2)	65.2(0.9)
Serum vitamin A	248(3.5)	274(2.5)	0.4(0.1)	0.2(0.1)
Thiamine intake	100(2.1)	106(1.0)	60.6(1.6)	54.8(0.8)
Urinary thiamine/ creatinine ratio	457(96.8)	895(32.5)	28.5(1.6)	13.7(0.6)
Riboflavin intake	112(1.9)	137(1.2)	50.8(1.2)	33.7(0.7)
Urinary riboflavin/ creatinine ratio	499(58.8)	768(28.7)	7.6(0.9)	2.5(0.3)

Source: Kerr, G.R. et al. Amer J. Clin. Nutr. 35: 294-307, 1982

Table 17

Mean caloric and nutrient intakes of persons aged 1-74 years as a percent of standard according to income level and race (black and white only)

	Black		White	
	Below Poverty	Above Poverty	Below Poverty	Above Poverty
Calories	83.6	86.4	102.0	93.2
Protein	142.4	147.3	161.6	161.6
Calcium	135.3	142.2	184.5	193.0
Iron	82.8	85.8	82.2	96.2
Vitamin C	155.7	170.8	143.7	183.3
Thiamine	169.0	169.0	161.5	162.6
Riboflavin	169.3	167.4	161.5	188.4

Source: DHEW Publication No. (PHS) 79-1657; Series 11, No. 209

Table 18

Mean values for biochemical measures of nutritional status
for persons aged 3-74 years according to race and poverty level

	Black						White					
	Below Poverty			Above Poverty			Below Poverty			Above Poverty		
	No	Mean	SE	No	Mean	SE	No	Mean	SE	No	Mean	SE
Hemoglobin (gm/dl)	904	13.1	0.05	1262	13.11	0.06	1885	14.0	0.02	12742	14.1	0.03
Hematocri (%)	904	39.4	0.12	1262	39.6	0.19	1885	41.1	0.05	12742	41.3	0.09
White blood cell ct. ($\times 10^9$ /L)	885	6.7	0.10	1234	6.5	0.09	1881	7.6	0.05	12681	7.4	0.03
Serum iron (mg/dl)	841	91.1	1.61	1191	94.3	1.49	1796	97.7	1.03	12209	101.1	0.40
Serum TIBC (mg/dl)	691	380.9	3.24	1045	374.9	2.20	1576	378.3	5.55	11058	374.5	1.34
Transferin sat. (%)	691	24.1	0.38	1042	25.7	0.37	1574	26.4	0.29	11037	27.4	0.16
Serum zinc (mg/dl)	652	82.7	0.83	972	85.2	0.64	1584	85.1	0.52	10729	87.0	0.32
Serum copper (mg/dl)	627	140.3	1.76	966	134.2	1.27	1562	125.0	0.82	10665	121.4	0.46
Serum vit. C (mg/dl)	720	0.9	0.03	1067	1.0	0.02	1670	1.0	0.03	11437	1.1	0.01
Serum albumin (g/dl)	734	4.6	0.02	1079	4.7	0.01	1628	4.7	0.01	11127	4.8	0.01
Serum vit. A (mg/dl)	184	31.0	0.61	174	33.8	0.56	335	33.1	0.63	1678	33.9	0.30
Red blood cell ct. ($\times 10^{12}$ /L)	890	4.6	0.02	1236	4.6	0.02	1878	4.7	0.01	12658	4.7	0.01

Source: DHHS Publication No. (PHS) 83-1682

Table 19

Mean caloric and nutrient intakes and percent adequacy
for persons aged 10-16 and 60 and over
by income level and race (black, white and Hispanic)

			Blacks		Hispanic		Whites	
		#	Below	Above	Below	Above	Below	Above
Calories								
10-16 yrs	MI		1863.30	2426.40	2219.50	2383.20	2232.40	2498.90
	PA		71.60	90.10	94.60	89.70	86.50	94.00
60 yrs & over	MI		1299.70	1483.80	1710.40	1562.90	1670.20	1794.90
	PA		59.80	66.10	81.90	77.20	81.50	84.00
Protein								
10-16 yrs	MI		69.48	93.00	81.74	88.95	80.79	97.37
	PA		129.70	169.40	173.30	164.50	154.60	184.80
60 yrs & over	MI		54.40	63.70	73.10	64.80	67.07	75.03
	PA		77.80	87.80	108.90	98.60	101.80	108.90
Calcium								
10-16 yrs	MI		709.95	941.40	655.19	1034.00	995.30	1190.90
	PA		98.00	144.20	100.30	143.00	152.60	182.80
60 yrs & over	MI		508.04	511.80	528.89	681.77	737.18	691.19
	PA		126.90	127.20	131.70	167.30	183.60	172.00
Iron								
10-16 yrs	MI		10.72	13.26	14.35	13.30	12.14	13.40
	PA		66.90	82.30	97.10	92.10	77.40	89.50
60 yrs & over	MI		8.89	9.57	12.29	9.88	10.72	12.39
	PA		88.50	95.30	122.50	97.10	106.40	123.60
Vitamin A								
10-16 yrs	MI		4935.00	895.20	2760.86	3764.50	3847.00	4658.80
	PA		167.70	189.80	95.40	129.00	133.90	176.80
60 yrs & over	MI		5551.19	5343.10	3400.77	2781.00	4411.90	5457.17
	PA		158.00	152.40	96.60	78.80	125.50	176.30
Thiamine								
10-16 yrs	MI		1.12	1.37	1.49	1.68	1.25	1.32
	PA		108.30	123.80	159.40	159.90	120.80	123.90
60 yrs & over	MI		0.84	0.93	1.12	1.22	1.05	1.00
	PA		94.80	100.70	128.90	143.30	124.70	113.30
Riboflavin								
10-16 yrs	MI		1.81	1.99	1.80	2.24	2.04	2.32
	PA		128.00	134.90	139.00	153.60	128.90	158.90
60 yrs & over	MI		1.49	1.22	1.52	1.60	1.60	1.58
	PA		123.90	101.10	133.20	142.60	140.30	137.40
Preformed Niacin								
10-16 yrs	MI		13.45	17.41	15.42	15.67	14.42	18.35
	PA		-	-	-	-	-	-
60 yrs & over	MI		13.23	12.95	21.46	11.36	14.12	19.23
	PA		-	-	-	-	-	-
Vitamin C								
10-16 yrs	MI		57.36	65.63	74.70	74.80	62.63	76.54
	PA		190.10	218.30	248.30	248.70	208.10	254.62
60 yrs & over	MI		59.45	58.01	64.15	47.92	62.10	67.54
	PA		197.60	193.00	213.20	159.10	206.60	224.60

Source: DHEW Publication No. (HSM) 72-8133. (TSNS - V)

(MI = mean intake; PA = percentage adequacy; # = poverty level)

Table 20

Percent of persons having deficient or low values for biochemical measures of nutritional status by ethnic group and income

	Blacks						Hispanics						Whites					
	Below Poverty			Above Poverty			Below Poverty			Above Poverty			Below Poverty			Above Poverty		
	No	Def	Low	No	Def	Low	No	Def	Low	No	Def	Low	No	Def	Low	No	Def	Low
Hemoglobin	8590	7.6	29.8	3446	3.5	23.4	1896	8.3	12.3	2910	2.3	15.4	3822	1.8	13.8	12127	1.0	8.3
Albumin	4126	2.0 #	11.1	2006	0.2 #	2.8	1553	2.3 #	10.6	2060	0.0	1.0	2561	0.5 #	3.5	8730	0.2 #	2.3
Protein	4298	3.5 #	6.0	2158	0.2 #	0.7	1580	5.4 #	5.8	2106	0.2 #	0.5	2621	3.0 #	5.3	8999	0.4 #	1.9
Vitamin A	6225	0.8	8.2	1970	0.6	5.5	1712	4.0	29.1	2051	0.2	2.1	2952	0.6	5.1	7224	1.1	6.4
Vitamin C	5909	2.5	8.5	1849	0.3	2.6	1526	2.9	4.9	1831	0.3	1.6	3025	2.3	6.5	7815	0.5	2.5
Riboflavin	4026	5.2	21.9	2176	1.2	12.5	1736	3.0	16.6	2338	0.7	6.0	2439	2.0	8.5	8847	0.9	6.0
Thiamine	3791	1.7	9.5	1886	1.4	7.8	1719	0.7	5.4	1878	0.6	4.8	2358	1.4	5.8	6527	0.6	3.6
Iodine	3715	0.5	1.8	1775	0.4	2.1	1838	0.0	0.2	1035	0.1	1.6	2118	0.9	2.1	5831	0.3	1.1

- Based on values for persons over sixteen years of age Def - deficient

Source: DHEW Publication No. (HSM) 72-8132

Table 21

Percent of persons with a poverty income ratio less than one having deficient or low values for biochemical measures of nutritional status by ethnic group and income

	Blacks						Hispanics						Whites					
	Below Poverty			Above Poverty			Below Poverty			Above Poverty			Below Poverty			Above Poverty		
	No	Def	Low	No	Def	Low	No	Def	Low	No	Def	Low	No	Def	Low	No	Def	Low
Hemoglobin	5152	7.7	29.5	1012	4.4	25.7	1165	5.5	11.9	856	2.0	14.6	1325	2.3	14.6	1842	1.5	9.3
Albumin	2575	2.2 #	10.4	593	0.0	3.7	951	1.2 #	10.7	633	0.0	1.3	970	0.6 #	3.4	1346	0.3 #	3.3
Protein	2665	3.6 #	5.5	646	0.0	0.9	972	4.8 #	5.3	643	0.2 #	0.6	982	2.6 #	4.1	1395	0.4 #	1.9
Vitamin A	3562	0.9	9.5	578	1.4	5.5	1050	5.4	30.2	612	0.0	1.9	1015	1.0	5.7	1071	0.8	5.2
Vitamin C	3307	2.4	6.9	535	0.7	1.9	913	2.8	5.0	536	0.4	1.7	1080	3.0	6.7	1171	0.5	2.8
Riboflavin	2695	5.4	23.2	664	1.4	13.0	1078	3.0	18.4	700	0.9	6.7	922	2.9	8.7	1368	1.1	6.7
Thiamine	2517	1.7	9.6	563	1.1	7.6	1059	0.8	5.4	533	0.5	6.3	905	1.2	5.2	1006	0.8	3.2
Iodine	2555	0.6	2.1	524	0.0	1.9	1144	0.0	0.2	329	0.0	1.8	828	1.9	3.3	983	0.4	1.2

Source: DHEW Publication No. (HSM) 72-8132 (TSNS - IV)

(Def - deficient)

Table 22

Percentage of days intake per individual of energy and energy nutrient, vitamins and minerals, total respondents for 1979-80 and 1977-78 (USDA)

		Milk & Milk Products	Meat, Poultry, Fish	Eggs, Legumes	Grain Products	Fruits, Vegetables	Fats, Sweets, Beverages
Sources of Energy and Energy Nutrients							
Food Energy	1979-80	15	26	7	27	13	12
	1977-78	15	26	6	30	12	11
Protein	1979-80	19	43	10	19	8	1
	1977-78	18	44	8	22	7	1
Fats	1979-80	19	39	9	15	8	10
	1977-78	19	40	8	17	8	8
Carbohydrate	1979-80	11	6	4	42	21	16
	1977-78	11	5	3	45	19	17
Vitamins							
Vitamin A Value	1979-80	20	10	8	17	37	8
	1977-78	20	11	8	18	37	6
Thiamine	1979-80	12	22	5	42	18	1
	1977-78	11	21	5	45	17	1
Riboflavin	1979-80	30	23	7	28	10	2
	1977-78	29	22	7	31	9	2
Preformed Niacin	1979-80	3	39	4	34	14	6
	1977-78	3	41	3	35	13	5
Vitamin B6	1979-80	13	36	9	19	21	2
	1977-78	13	38	7	21	20	1
Vitamin C	1979-80	10	6	2	10	66	6
	1977-78	10	5	1	10	64	10

Table 22 (continued)

		Milk & Milk Products	Meat, Poultry, Fish	Eggs, Legumes	Grain Products	Fruits, Vegetables	Fats, Sweets, Beverages
Minerals							
Calcium	1979-80	47	8	7	23	11	4
	1977-78	46	7	6	26	11	4
Iron	1979-80	4	31	11	35	14	5
	1977-78	4	31	9	37	14	5
Magnesium	1979-80	20	16	10	21	21	12
	1977-78	20	17	8	24	19	12
Phosphorus	1979-80	30	26	10	20	10	4
	1977-78	28	26	9	23	10	4

Source: USDA Human Nutrition Service, Preliminary Reports, No. 11 and 13

Table 23

Amount of Food disappeared per capita by civilians in 1960 and 1980 (USDA)

	Amount of Food 1960	Amount of Food 1980	1980 values as Percent of 1960 values
MEAT			
Beef	85.0 (a)	103.4	121
Veal	6.1	1.8	30
Lamb & mutton	4.8	1.5	31
Pork	77.7	73.4	95
Total	173.7	180.0	104
Edible offals	10.2	9.6	94
FISH			
Fresh & frozen	5.7	7.9	139
Canned	4.0	4.5	113
Cured	0.6	0.3	50
Total	10.3	12.7	123
POULTRY			
Chicken	27.8	50.0	180
Turkey	6.2	10.5	169
Total	34.0	60.5	178
MEAT ALTERNATES			
Eggs	334.4 (b)	272.4	81
Cheese	8.4	17.6	210
Peanuts (kernel)	4.9	6.1	124
Tree nuts	4.5	1.7	38
Dry edible beans	7.3	3.6	49
Dry field peas	0.6	0.4	67
Total	360.1	301.8	84
MILK			
Milk fat	24.5	19.9	81
Milk solid	43.4	36.6	84
Cheese	8.4	17.6	210
Condensed & evap.	13.7	3.8	28
Dry whole	0.3	0.3	100
Dry nonfat	6.2	3.2	52
Frozen dairy	18.3	17.3	95
All dairy milk equivalent	653.4	541.7	83
FATS & OILS			
Butter	7.5	4.5	60
Lard	7.5	2.4	32
Margarine	9.3	11.3	122
Shortening	12.6	18.3	145
Other edible	11.5	22.4 (c)	198
Total	45.3	57.2 (c)	126

Table 23 (continued)

	Amount of Food 1960	Amount of Food 1980	1980 values as Percent of 1960 values
FRUITS & VEGETABLES			
FRUIT			
Citrus	33.7	28.7	85
Apples	18.3	16.7	91
Other	41.9	42.0	100
Total Fresh (d)	93.9	87.4	93
Canned fruit	22.6	17.4	77
Canned juices	12.9	16.9	131
Frozen juices	5.9	9.9	168
Frozen noncitrus (fruits & juices)	3.5	3.0	86
Dried	3.1	2.9	94
Melons	25.8	18.6	72
Total	261.6	233.5	89
VEGETABLES			
Fresh	105.7	108.3	102
Canned (rice, potatoes)	44.7	52.0	116
Frozen	7.0	10.4	149
Frozen potato products	2.7	16.9	626
Potatoes	101.3	79.9	79
Sweet Potatoes	7.1	4.4	62
Corn (inch grain)	47.5	109.0	229
Total	316.0	380.9	121
BREADS & CEREALS			
Wheat (grain)	164.7	159.3	97
Wheat flour	118.0	117.0	99
Rye	1.4	0.9	64
Rice	6.1	9.3	152
Oats	7.5	6.5	87
Barley	1.6	1.7	106
Total	199.3	194.7	98
SWEETS			
Total cane & beet sugar	97.6	83.6	86
BEVERAGES			
Coffee	15.8	10.4	66
Tea	0.6	0.7	117
Cocoa	3.6	3.2	89
Total	20.0	14.3	92
CONDIMENTS			
Spices & flavouring	1.0 (e)	1.6	160

(a) refers to pounds unless footnoted
(b) refers to number of eggs
(c) 1979 figure, 1980 not available
(d) variable frequently
(e) 1000 pounds

Table 24

Amount of Food Groups disappeared per capita by civilians in 1960 and 1980 (USDA)

	Amount of Food		1980 values as Percent of
	1960	1980	1960 value
Milk	653.4	541.7	83
Cheese	8.4	17.6	210
Meat & Poultry			
Meats	173.7	180.0	104
Edible offals	10.2	9.6	94
Poultry	34.0	60.5	178
Total	217.9	259.1	119
Fish	10.3	12.7	123
Meat Alternates	360.1	301.8	84
Fruits and Vegetables			
Fruits Fresh	93.9	87.4	93
Citrus Fresh	33.7	28.7	85
Citrus Frozen	2.4	6.9	288
Total Fresh	130.0	123.0	95
Vegetables Fresh	105.7	108.3	102
Sweet Potatoes	7.1	4.4	62
Total	112.8	112.7	100
Breads & Cereals	199.3	194.7	98
Fats & Oils	45.3	57.2	126
Sweets	97.6	83.6	86
Beverages: Coffee, Tea, & Cocoa	20.0	14.3	92
Condiments	1.0	1.6	160

Table 25

Percent of persons who reported using specific foods for which there is a significant difference by race (USDA)

Food Groups	Race		
	White	Black	Other
Fruits	74	64	70 (a)
Noncritus fruits	61	37	54
Potatoes	80	64	84
Dried beans and peas	22	29	62
Dark green vegetables	14	27	13
Whole grain bread	24	8	16
Quickbreads	34	46	49
Breakfast cereals	54	64	66 (a)
Cooked cereals	15	34	26
Rice	15	47	51
Milk, yoghurt, cheese	93	80	93
Milk	85	76	88 (a)
Lowfat milk	20	4	2
Cheese	50	23	36
Natural cheese	24	10	15
Processed cheese	25	13	20
Red meats	82	83	98 (a)
Beef	70	62	88
Poultry	41	64	60
Eggs	53	66	69
Nuts	28	11	13
Desserts	73	52	57
Soups	32	22	49
Snack foods	31	17	18
Potato chips	20	13	12 (a)
Condiments	36	28	23 (a)
Candy	16	7	5
Sugar-based beverages	60	76	74
Carbonated beverages	55	69	64
Fats	87	78	84 (a)
Table spreads	70	50	62
Salad dressings	47	32	38
Cream and substitutes	18	4	5
Bacon and salt pork	24	39	18
Coffee and tea	68	48	52

(a) - significant at the 1 percent level ($p<0.01$)

All other differences significant at the 0.1 percent level ($p<0.001$)

Source: Cronin, F J et al. JADA 81: 661-673, 1982

Table 26

Percent of persons who reported using specific foods for which there is a significant difference by income (USDA)

	---Income level--- under $5,000	$20,000 or more
Noncitrus fruit	53	66
Dried beans and peas	27	20
Other vegetables #	82	92
Whole grain bread	21	30
Rice	27	16 (a)
Grain mixtures	27	42 (a)
Milk, yoghurt, cheese	86	95 (a)
Lowfat milk	8	25
Cheese	34	53
Natural cheese	14	29
Meat, fish, poultry	98	100 (a)
Beef	60	77
Eggs	63	52
Nuts	20	31 (a)
Desserts	58	79
Grain-based desserts	50	72
Dairy desserts	25	38 (a)
Candy	9	20
Snack foods	17	38
Potato chips	10	25
Condiments	22	41
Fats	74	87
Salad dressings	33	50

(a) - significant at the 1 percent level ($p<0.01$)

All other differences significant at the 0.1 percent level ($p<0.001$)

Source: Cronin, F J et. al. JADA 81: 661-673, 1982

Table 27

Percent of persons who reported using specific foods for which there is a significant difference by sex (USDA)

	Sex	
	Male	Female
Fruits	70	75 (a)
Whole milk	55	48 (a)
Yoghurt	1	4
Luncheon meats	61	51
Meat, fish, poultry sandwiches	23	18 (a)
Eggs	59	52 (a)
Desserts	74	67 (a)
Grain-based desserts	64	58 (a)
Sugar and sweet spreads	68	59
Coffee and tea	61	67 (a)
Low calorie carbonated beverages	6	11

(a) - significant at the 1 percent level ($p<0.01$)

All other differences significant at the 0.1 percent level ($p<0.001$)

Source: Cronin, F J et al. JADA 81: 661-673, 1982

Table 28

Mean number of times per day that users reported foods, by food groups, for which there is a significant difference by race

Food Groups	Race		
	White	Black	Other
Fruits and vegetables	2.9	2.3	3.2
Fruits	1.2	1.0	1.4
Vegetables	2.0	1.7	2.2
Breads and cereals	2.4	2.5	2.8
Yeast breads	1.4	1.3	1.4 (a)
Ready to eat cereals	0.7	0.6	0.6
Milk, yoghurt and cheese	2.0	1.4	2.0
Milk	1.8	1.3	1.9
Skim milk	1.2	0.6	2.7 (a)
Meat, fish, poultry, eggs	1.8	2.0	2.0
Desserts	1.0	0.8	0.8
Grain-based desserts	0.8	0.6	0.7
Fats	1.3	1.1	1.0
Coffee and tea	1.9	1.1	1.6

(a) - significant at the 1 percent level ($p<0.01$)

All other differences significant at the 0.1 percent level ($p<0.001$)

Source: Cronin, F J et al. JADA 81: 661-673, 1982

Table 29

Mean number of times per day that users reported foods, by food groups, for which there is a significant difference by income

	---Income level--- under $5,000	$20,000 or more
Fruits and vegetables	2.6	3.1
Fruits	1.2	1.4 (a)
Vegetables	1.8	2.1
Vegetables (exclude potatoes, dried beans and peas)	1.2	1.5
Other vegetables #	1.0	1.2 (a)
Meat, fish, poultry	1.4	1.6 (a)
Desserts	0.8	1.1
Grain-based desserts	0.7	0.9
Fats: table spreads	1.0	0.9 (a)

(a) - significant at the 1 percent level ($p<0.01$)

All other differences significant at the 0.1 percent level ($p<0.001$)

Source: Cronin, F J et al. JADA 81: 661-673, 1982

Table 30

Mean number of times per day that users reported foods, by food groups, for which there is a significant difference by sex

	Sex	
	Male	Female
Breads and cereals	2.6	2.3
Yeast breads	1.5	1.3
White breads	1.4	1.2
Milk, yoghurt, cheese	2.0	1.8 (a)
Milk	1.8	1.6 (a)
Meat, fish, poultry, eggs	2.0	1.7
Meat, fish, poultry	1.7	1.5
Red meats	0.8	0.7
Desserts	1.0	0.9 (a)
Grain-based desserts	0.9	0.8 (a)
Sugar and sweet spreads	1.1	1.0 (a)

(a) - significant at the 1 percent level ($p<0.01$)

All other differences significant at the 0.1 percent level ($p<0.001$)

Source: Cronin, F J et al. JADA 81: 661-673, 1982

Table 31

Industrial Processes and Chemicals with Known Human Carcinogenicity

Industrical Processes and Occupations:

- Auramine manufacture
- Boot and shoe manufacture and repair (certain occupations)
- Furniture manufacture
- Isopropyl alcohol manufacture (strong-acid process)
- Nickel refining
- Rubber industry (certain occupations
- Underground haematite mining (with exposure to radon)

Chemicals and groups of chemicals:

- 4-Aminobiphenyl
- Analgesic mixtures containing phenacetin
- Arsenic and arsenic compounds
- Asbestos
- Azathioprine
- Benzene
- Benzidine
- N,N-Bis(2-chloroethyl)-2-naphthylamine (Chlornaphazine)
- Bis(chloromethyl)ether and technical-grade chloromethyl methyl ether
- 1,4-Butanediol dimethanesulphonate (Myleran)
- Certain combined chemotherapy for lymphomas (including MOPP)
- Chlorambucil
- Chromium and certain chromium compounds[a]
- Conjugated oestrogens
- Cyclophosphamide
- Diethylstiboestrol
- Melphalan
- Methoxsamen with ultra-violet A therapy (PUVA)
- Mustard gas
- 2-Naphthylamine
- Soots, tars and oils
- Treosulphan
- Vinyl chloride

Source: International Agency for Research on Cancer. IARC Monographs Supplement 4. Lyons, 1982

Table 32

Minority Representation by Occupational Category

Occuaptional Category	Percent Non-white	
	1972	1981
All Occupations	10.6	11.6
Processional Technical	7.2	9.9
Managers and Administrators (non-farm)	4.0	5.8
Sales	3.6	5.4
Clerical	8.7	11.6
Crafts	6.9	8.5
Operatives (non-transportation)	13.2	16.2
Transportation Operatives	14.8	15.5
Laborers (non-farm)	20.2	16.5
Farm Laborers	15.1	12.3
Service	18.5	18.4
Private Household Workers	40.6	32.4

Source: U.S. Dept of Commerce, Bureau of the Census. Statistical Abstract of the United States 1982-83, table 651, pp. 388-390. U.S. Government Printing Office, Washington, D.C., 1983.

Table 33

SUMMARY OF STUDIES OF OCCUPATIONAL RISK FACTORS BY RACE

Author, Year, Country	Study Design	Industry	Occupation	Exposure	Cancer Site	Risk Estimates: Blacks n*	Blacks %	Blacks risk	Whites n*	Whites %	Whites risk	comments
Bradshaw & Schonland, 1969, Africa	Population-based Case-control Study	Industries and occupations were translated into exposure variables.		Petrol & oil	Esophagus	11	1.9					Cancer of the esophagus and lung are the most common tumors among African males. Cases were relatively young, 79% of lung ca. cases were less than 60 years of age. No statistical adjustment for age. Cases & controls were asked about specific jobs & industries with carcinogenic related exposures. Lung ca. cases had a lower SES ranking & higher amount smoked
				Tar		15	2.5					
				Lead		37	3.1					
				Asbestos		18	3.2					
				Soot		6	7.2					
				Bagasse		3	1.7					
				Petrol & oil	Lung	8	3.3					
				Tar		14	7.3					
				Lead		13	2.1					
				Asbestos		3	1.0					
				Soot		2	5.1					
				Bagasse		1	1.2					
							(%)			(%)		
Keller, 1969, US VA Hospitals	Population-based Case-control study. Cases identified from VA hospitals		Professionals		Mouth & Pharynx	3	4.4	1.2	35	5.5	1.0	Occupation was taken from the medical record and classified into broad categories based on the Dept. of Labor classification scheme. The job taken probably represents the most recent.
			Managerials			1	1.4	0.3	22	3.4	0.6	
			Clericals			4	5.8	2.5	53	8.3	1.6	
			Sales workers			1	1.4	--	41	6.4	1.1	
			Craftsmen			11	16.0	1.3	191	30.0	1.2	
			Operators			9	13.0	0.9	67	10.5	1.3	
			Service workers			22	31.9	1.8	103	16.2	1.3	
			Laborers			9	16.0	0.7	36	5.7	1.3	
			Farmers			6	8.7	1.1	2	0.3	0.1	

*For case-control studies n refers to the number of cases exposed and the % is the corresponding percent of cases exposed.

Table 33 (continued)

Author, Year, Country	Study Design	Industry	Occupation	Exposure	Cancer Site	Risk Estimates Blacks n*	Blacks % risk	Whites n*	Whites % risk	comments
Lloyd, 1971, U.S.	Non-concurrent prospective	Steel	Coke Oven	Coal Tar	Lung	17	3.0	3	1.6	The coke oven group includes workers required to spend some of their time at the topside or side of the ovens. The analysis is limited to workers employed on or before 1953. 91% of all blacks & 42% of whites were employed in the coke oven areas.
			Non-oven			4	3.6	1	0.6	
Monson and Nakamo, 1976, U.S.	Non-concurrent prospective	Rubber	Production workers		Digestive	15	0.8	47	0.7	986 black & 5501 white males were employed sometime between 1933-71. Usual work area was used to define exposure, however, analysis by exposure status is not presented.
					Lung	11	0.8	41	0.8	
					Bladder	--	---	8	1.1	
					Brain	--	---	4	0.8	
					Lymphatic & myeloma	3	1.3	12	1.2	
					Leukemia	--	---	8	0.9	
Ross et al, 1979, U.S.	Rates for 1972-75		Professionals		Prostate	Not Presented		185	1.5	Cases identified from the Los Angeles County Cancer Surveillance Prgm. Only 11 black cases of testicular ca. were identified. However, 792 prostate cases were found.
			Managers					263	1.6	
			Salesman					96	1.2	
			Clerical					49	0.8	
			Craftman					156	0.7	
			Operatives					53	0.6	
			Transportation					30	0.8	
			Laborers					35	0.9	
			Service Workers					63	0.9	

*For case-control studies n refers to the number of cases exposed and the % is the corresponding percent of cases exposed.

Table 33 (continued)

Author, Year, Country	Study Design	Industry	Occupation	Exposure	Cancer Site	Risk Estimates Blacks n*	Blacks % risk	Whites n*	Whites % risk	comments
Goldsmith et al, 1980	Nested Case-Control Study	Rubber & Tire	Batch prep.	Heavy metals, oxides, and organic accelerators	Prostate	8	2.3	9	3.2	Cohort is comprised of active & retired hourly rubber workers. 88 cases & 258 controls were identified from DC. Risk estimates are for those employed at least 1 month in the defined occupational group.
			Batch service			8	2.1	--	---	
			Reclaim			-	---	7	2.6	
			Fabrication			-	---	24	1.4	
			Janitoring			5	1.0	10	0.7	
			Shipping & Receiving			9	3.7	12	1.3	
			Salary			-	---	13	2.8	
Pickle & Gottlieb, 1980, US	Population-based Case-Control Study		White collar		Pancreatic Males		0.3		0.9	19 parishes in Louisiana were selected for a case-control study because of high ca. rates.
			Craftsmen				1.0		1.0	
			Operators				1.3		1.2	
			Laborers				1.1		0.9	
			Service workers				0.7		1.1	
			Farmers				1.0		1.2	
			White collar		Females		0.6		1.4	
			Laborers				0.6		---	
			Service workers				0.8		0.9	
			Farmers				1.0		---	
Sheffet et al, 1982, US	Non-concurrent prospective	Pigment Plant	3 Exposure groups defined on the basis of level and frequency of exposure	Lead & Zinc Chromate	Esophagus	0	---	1	1.0	1,296 white & 650 non-white males employed sometime between 1940-69. Results are presented for all 3 exposure groups combined.
					Stomach	3	1.6	5	2.0	
					Large intestine	0	---	2	0.5	
					Rectum	1	2.2	2	1.4	
					Pancreas	2	1.7	4	1.7	
					Lung	10	1.6	21	1.6	
					Prostate	1	0.6	3	1.2	
					Hodgkins	0	---	2	2.9	
					Leukemia	2	3.7	1	0.5	
					Lymphatics	2	3.7	1	1.1	

*For case-control studies n refers to the number of cases exposed and the % is the corresponding percent of cases exposed.

BIBLIOGRAPHY

- Demography
- Epidemiology
- Tobacco Use
- Nutrition and Cancer
- Occupation
- Knowledge, Attitudes, and Practices
- Health Services Patterns
- Interventions

Butler L, King, G, White J. Communications strategies, cancer information and black populations: an analysis of longitudinal data. In: Mettlin C, Murphy GP, eds. Progress in cancer control IV: research in the cancer center. New York: Alan R Liss, Inc, 1983:171-182

Development Associates, Inc. Population Reference Bureau, Inc. The demographic and socioeconomic characteristics of the Hispanic population in the United States 1950-1980. Washington, DC, 1982

Haller JS Jr. Race, mortality, and life insurance: Negro vital statistics in the late nineteenth century. J Hist Med Allied Sci 1970 Jul; 25(3):247-261

Indian and Alaskan native population--1984 [Table]. In: American Indian and Alaskan native. Population Branch, OPS/DRC/IHS, February 1984

Matney W, Johnson D. America's black population: 1970-1982. A statistical view. Washington, DC: US Department of Commerce, Bureau of the Census, July 1983; PIO/POP-83-1

Nam CB, et al. Measurement of socioeconomic status from U.S. census data. Presented at the annual meeting of the American Association for the Advancement of Science, Toronto, Canada, January 6, 1981

Social and economic characteristics [Table]. In: American Indian and Alaskan native. Population Division, OPS/DRC/IHS, February 1984

Spencer G. Projections of the population of the United States by age, sex, and race: 1983 to 2080. Current population reports. Population estimates and projections. Washington, DC: Department of Commerce, Bureau of the Census, May 1984; Series P-25, no. 952:17-18, 141-157

US Department of Commerce, Bureau of the Census. Census of population: 1970 subject reports. Final report PC(2)-1G. Japanese, Chinese, and Filipinos in the United States. Washington, DC: US Government Printing Office, 1973

US Department of Commerce, Bureau of the Census. 1980 Census of population, general social and economic characteristics. United States Summary. Washington, DC: US Government Printing Office, December 1983; PC80-1-C1

US Department of Commerce, Bureau of the Census. Conditions of Hispanics in America today [Conclusions]. Washington, DC: US Government Printing Office, 1983

EPIDEMIOLOGY

Ahluwalia B, Jackson MA, Jones GW, Williams AO, Rao MS, Rajguru S. Blood hormone profiles in prostate cancer patients in high-risk and low-risk populations. Cancer 1981; 48(10):2267-2273

Austin H, Cole P, Wynder E. Breast cancer in black American women. Int J Cancer 1979; 24(5):541-544

Axtell LM, Myers MH. Contrasts in survival of black and white cancer patients, 1960-73. JNCI 1978; 60(6):1209-1215

Axtell LM, Meyers MH, Shambaugh E. Treatment and survival patterns for black and white cancer patients diagnosed 1955 through 1964. Washington, DC: 1975. DHEW publication no. (NIH)75-712

Bailar JC, Weisburger EK. Second symposium on epidemiology and cancer registries in the Pacific Basin. Natl Cancer Inst Monogr 1979; 53:35-47

Bartow S, Weston JI, Mettler FA, Key CR, Black WC, Anderson HC. Benign and noninvasive breast lesions in populations at different risk for breast cancer [Meeting Abstract]. Lab Invest 1980; 42(1):100

Berg JW. Economic status and survival of cancer patients. Cancer 1977; 39:467-477

Berg JW. The real cancer risks in Colorado. Colo Med 1980; 77(7):241-245

Berg JW, Connelly RR. Updating the epidemiologic data on pancreatic cancer. Semin Oncol 1979; 6(3):275-284

Berg JW, Howell MA, Silverman SJ. Dietary hypotheses and diet-related research in the etiology of colon cancer. Health Serv Res 1973; 88(10): 915-924

Bjelke E. Epidemiology of colorectal cancer, with special emphasis on diet. Exerpta Med Int Congr Ser 1980; 484:158-174

Black WC, Key CR, Carmany TB, Herman D. Carcinoma of the gallbladder in a population of Southwestern American Indians. Cancer 1977; 39(3):1267-1279

Blair A, Berney BW, Heid MF, White DW. Causes of death among workers in the tobacco industry. Arch Environ Health 1983; 38(4):223-228

Boss LP, Lanier AP, Dohan PH, Bender TR. Cancers of the gallbladder and biliary tract in Alaskan natives: 1970-79. JNCI 1982; 69(5):1005-1007

Bradshaw E, Harington J. The cancer problem among blacks: South Africa. In: Mettlin C, Murphy GP, eds. Cancer among black populations. New York: Alan R Liss, Inc, 1981:17-33

Breslow L, Klein B. Health and race in California. Am J Public Health 1971; 61(4):763-775

Bridges BA, Butterworth BE, Weinstein IB (eds). Banbury report 13: indicators of genotoxic exposure. Cold Spring Harbor: Cold Spring Harbor Laboratory, Banbu

Brown RR. The role of diet in cancer causation. Food Technol 1983; 37(3):49-56

Burbank F, et al. U.S. cancer mortality: non-white predominance. JNCI 1972; 49:649-659

Carreras Ruiz O, Perera Fernandez F. Some epidemiological aspects of carcinoma of the uterine cervix. Rev Cubana Obstet Ginecol 1981; 7(4):376-383

Cederlof R, et al. The relationship of smoking and some social covariables to mortality and cancer morbidity. Stockholm: Karolinska Institute, 1975

Christopherson WM. Changing trends in morbidity and mortality in endometrial carcinoma. In: Gray LA, ed. Endometrial carcinoma and its treatment: the role of irradiation, extent of surgery, and approach to chemotherapy. Springfield: C.C. Thomas, 1977

Creagan ET, Fraumeni JF. Cancer mortality among American Indians, 1950-67. JNCI 1972; 49(4):959-967

Culter SJ, Devesa SS. Trends in cancer incidence and mortality in the USA. In: Doll R, Vodopija I, eds. Host environment interactions in the etiology of cancer in man. World Health Organization International Agency for Research on Cancer, Lyon, France, 1973

Daly M, Osborne C, Clark G, McGuire W. Mexican-American breast cancer patients have a worse prognosis [Meeting Abstract]. Proc Am Soc Clin Oncol 1983; 2:C-18
Dayal HH, Power RN, Chiu C. Race and socioeconomic status in survival from breast cancer. J Chron Dis 1982; 35:675-683

Devesa SS, Diamond EL. Association of breast cancer and cervical cancer incidences with income and education among whites and blacks. JNCI 1980; 65:515

Devesa SS, Diamond EL. Socioeconomic and racial differences in lung cancer incidence. Am J Epidemiol 1983; 118(6):818-831

Devor EJ, Buechley RW. Gallbladder cancer in Hispanic New Mexicans. I. General population, 1957-1977. Cancer 1980; 45(7):1705-1712

Diehl AD. Epidemiology of gallbladder cancer: a synthesis of recent data. JNCI 1980; 65(6):1209-1214

Dix D, Cohen P. The incidence of female cancers: correlations with etiologic implications. Anticancer Res 1984; 4(3):197-202

Donovan JF, Lahiri SR. Adenocarcinoma of the lung in a defined area. Proc Am Assoc Cancer Res 1976; 17:145

Drelichman A, Al-Sarraf M, Decker D, English P, Bell S. Factors affecting survival in bladder cancer in Detroit: an analysis of 5,352 cases [Meeting Abstract]. Proc Am Soc Clin Oncol 1983; 2:C-540

Enterline JP, White JE. The role of primary and secondary prevention in reducing cancer mortality among U.S. blacks [Meeting Abstract]. Fifth annual meeting of the American Society of Preventive Oncology, Bethesda, March 26-27, 1981

Ernster VL, Sacks ST, Selvin S, Petrakis NL. Cancer incidence by marital status: U.S. Third National Cancer Survey. JNCI 1979; 63(3):567-585

Ernster VL, Winkelstein W, Selvin S, Brown SM, Sacks ST, Austin DF, Mandel SA, Bertolli TA. Race, socioeconomic status, and prostatic cancer. Cancer Treat Rep 1977; 61(2):187-191

Fasal E, Simmons M, Kampert J. Factors associated with high and low risk of cervical neoplasia. JNCI 1981; 66(4):631-636

Feldman J, Gardner B, Carter A, et al. Relationship of race to functional status among breast cancer patients after curative surgery. J Surg Oncol 1979; 11:333-339

Fraumeni JF. Cancers of the pancreas and biliary tract: epidemiological considerations. Cancer Res 1975; 35(11 Pt 2):3437-3446

Fraumeni JF, Mason TJ. Cancer mortality among Chinese Americans, 1950-69. JNCI 1974; 52(3):659-665

Funderburk W, Rosero E, Leffall L. Breast lesions in blacks. Surg Gynecol Obstet 1972; 135:58-60

Garfinkel L, Poindexter CE, Silverberg E. Cancer in black Americans. CA 1980; 30(1):39-44

Gaudette LA, Burns PE, Lees AW, Grace M. Trends in breast cancer incidence in a population-based registry (1953-1975) [Meeting Abstract]. Am J Epidemiol 1977; 106(3):249

Goldsmith DF, Smith AH, McMichael AJ. A case-control study of prostate cancer within a cohort of rubber and tire workers. J Occup Med 1980; 22(8):533-541

Gottlieb MS, Pickle LW. Bladder cancer mortality in Louisiana. J La State Med Soc 1981; 133(1):1-5

Graham S, et al. The socioeconomic distribution of cancer of various sites in Buffalo N.Y. Cancer 1960; 13:180-191

Graham S, Schotz W. Epidemiology of cancer of the cervix in Buffalo, N.Y. JNCI 1979; 63(1):23-27

Gray GE, Henderson BE, Pike MC. Changing ratio of breast cancer incidence rates with age of black females compared with white females in the United States. JNCI 1980; 64(3):461-463

Haas RJ. Circumcision: a new look at an old controversy. W Va Med J 1981; 77(9):225-228

Henderson BE, Gerkins VR, Pike MC. Sexual factors and pregnancy. In: Fraumeni JF Jr, ed. Persons at high risk of cancer, an approach to cancer etiology and control. New York: Academic Press, Inc., 1975

Hendershot GE. Coitus-related cervical cancer risk factors: trends and differentials in racial and religious groups. Am J Public Health 1983; 73(3):299-301

Henschke UK, et al. Alarming increase of the cancer mortality in the U.S. black population (1950-1967). Cancer 1973; 31:763-768

Higginson J, MacLennan R, Muir CS. Aetiological factors in human cancer. In: Homburger F, Brennen MJ, Krakoff IH, eds. The physiology of cancer. Vol 2. Basel: S Karger, 1976

Hill P, Wynder EL, et al. Effect of diet on plasma and urinary hormones in South African men with prostatic cancer. Cancer Res 1982; 42(9):3864-3869

Hill P, Wynder EL, Garbaczewski L, Garnes H, Walker AR. Response to luteinizing releasing hormone, thyrotrophic releasing hormone, and human chorionic gonadotrophin administration in healthy men at different risks for prostatic cancer and in prostatic cancer patients. Cancer Res 1982; 42(5):2074-2080

Ho JH. Some epidemiologic observations on cancer in Hong Kong. Second symposium on Epidemiology and Cancer Registries in the Pacific Basin. Bethesda, Maryland: National Cancer Institute, 1979; NIH publication no. 79-1864.

Hulka B. Risk factors for cervical cancer. J Chronic Dis 1982; 35:3-11

Hulka B, Redmond C. Factors related to progression of cervical atypias. Am J Epidemiol 1971; 93(1):23-32

Hutchison GB. Incidence and etiology of prostate cancer. Urology 1981; 17 (suppl 3):4-10

Jackson MA. Epidemiology of prostate cancer [Meeting Abstract]. International Union Against Cancer 1980. Prostatic Cancer Workshop: Recent Progress and Current Results, Paris, June 30-July 2, 1980

Janerich DT, Hoff MB. Evidence for a crossover in breast cancer risk factors. Am J Epidemiol 1982; 116(5):737-742

Jensen OM. Epidemiology of colorectal cancer. Boerhaave Ser 1980; 18:3-13

Jordan SW, Key CR. Carcinoma of the cervix in Southwestern American Indians: results of a cytologic detection program. Cancer 1981; 47(10):2523-2532

Keller AZ. Selected factors in the risks of upper alimentary cancers. Prev Med 1983; 12(4):541-553

Kelsey JL, LiVolsi VA, Holford TR, Fischer DB, Mostow ED, Schwartz PE, O'Connor T, White C. A case-control study of cancer of the endometrium. Am J Epidemiol 1982; 116(2):333-342

Key CR, Samet JM. Comparison of cancer incidence among New Mexico's Indian, Hispanic, and Anglo populations [Meeting Abstract]. Fifth annual meeting of the American Society of Preventive Oncology, Bethesda, March 26-27, 1981

Kim K, Rigal RD, Patrick JR, Walters JK, Bennett A, Nordin W, Claybrook JR, Parekh RR. The changing trends of uterine cancer and cytology. A study of morbidity and mortality trends over a 20-year period. Cancer 1978; 42(5): 2439-2499

Kioko GM. Cervical dysplasia in a large predominantly black practice as diagnosed by colposcopy in patients with normal and class II Papanicolaou smears. J Reprod Med 1979; 22(4):222-224

Kodama M, Kodama T. Relation between the epidemiological and endocrinological aspects of gastric cancer patients in Japan [Meeting Abstract]. Proc Am Assoc Cancer Res 1984; 25:223

Kolonel LN, Nomura AM, Hirohata T, Hankin JH, Hinds MW. Association of diet and place of birth with stomach cancer incidence in Hawaii Japanese and Caucasians. Am J Clin Nutr 1981; 34(11):2478-2485

Kolonel LN, Ross RK, Thomas DB, Thompson DJ. Epidemiology of testicular cancer in the Pacific Basin. Natl Cancer Inst Monogr 1982; (62):157-160

Kovi J, Heshmat MY, Gerald MD. Malignant tumors in a predominantly black hospital: a 20-year retrospective study at Freedmen's Hospital, Washington, D.C. J Natl Med Assoc 1972; 64(1):14-18

Kovi J, Jackson MA, Rao MS, Heshmat MY, Akberzie ME, Wiliams AO, Christian EC. Cancer of the prostate and aging: an autopsy study in black men from Washington, D.C., and selected African cities. Prostate 1982; 3(1):73-80

Kovi J, Viola MV, Connoly CA, Vohra R. Gastric cancer in American Negroes. Cancer 1974; 34(3):765-770

Kupchik G. Environmental health in the ghetto. Am J Public Health 1969; 59(2):220-225

Lanier AP, Bender TR, Blot WJ, Fraumeni JF, Hurlburt WB. Cancer incidence in Alaska Natives. Int J Cancer 1976; 18:409-412

Lanier AP, Blot WJ, Bender TR, Fraumeni JF. Cancer in Alaskan Indians, Eskimos, and Aleuts. JNCI 1980; 65:1157-1159

Latourette HB. Economic status and survival of cancer patients. Cancer 1977; 39:467-477

Lee HP, Cuello C, Singh K. Review of the epidemiology of cervical cancer in the Pacific Basin. Natl Cancer Inst Monogr 1982; (62):197-199

Lee YT. Better prognosis of many cancers in females: a phenomenon not explained by study of steroid receptors. J Surg Oncol 1984; 25(4):255-262

Leffall L. Breast cancer in black women. CA 1981; 31(4):204-211

Levin DL, Connelly RR. Cancer of the pancreas: available epidemiologic information and its implications. Cancer 1972; 31:1231-1236

Levin DL, Connelly RR, Devesa SS. Demographic characteristics of cancer of the pancreas: mortality, incidence, and survival. Cancer 1981; 47(suppl 6):1456-1468

Linden G. The influence of social class in the survival of cancer patients. Am J Public Health 1969; 59:267-274

Lipworth L. Socioeconomic factors in the prognosis of cancer patients. J Chronic Dis 1970; 23:105-116

Locke FB, King H. Cancer mortality risk among Japanese in the United States. JNCI 1980; 65(5):1149-1156

Lynch HT, Fain PR, Albano WA, Ruma T, Black L, Lynch J, Shonka M. Genetic/ epidemiological findings in a study of smoking-associated tumors. Cancer Genet Cytogenet 1982; 6(2):163-169

MacMahon B. Risk factors for cancer of the pancreas. Cancer 1982; 50(suppl 11):2676-2680

Mahboubi E, Eyler N, Wynder EL. Epidemiology of cancer of the endometrium. Clin Obstet Gynecol 1982; 25(1):5-17

Mancuso TF. Lung cancer among black migrants. Interaction of host and occupational environment factors. J Occup Med 1977; 19(8):531-532

Mancuso TF, Sterling TD. Lung cancer among black and white migrants in the U.S.: etiological considerations. J Natl Med Assoc 1975; 67(2):102,106-111

Mandel JS. Epidemiologic study of etiologic factors in prostatic cancer. Vol I and II. Diss Abstr Int (B) 1981; 42(1):155-B

Manton KG, Patrick CH, Stallard E. Population impact of mortality reduction: the effects of elimination of major causes of death on the "saved" population. Int J Epidemiol 1980; 9(2):111-120

Martinez-Martinez I. Cancer epidemiology. Bol Asoc Med PR 1963; 55(8):321-337

Maruchi N. High-risk factors for pancreatic cancer. In: Kawai K, ed. Early diagnosis of pancreatic cancer. New York: Igaku-Shoin, 1980

Matanoski GM, Elliott EA. Bladder cancer epidemiology. Epidemiol Rev 1981; 3:203-229

Maudlin B. Colombia's poverty poignant reminder to conserve resources. AORN J 1981; 33(6):1150-1155

McCurtis JW. Social contact factors in the diffusion of cervical cytology among Mexican-Americans in Los Angeles County, California. Soc Sci Med 1979; 13A:807-811

Menck HR, Henderson BE, Pike MC, Mack T, Martin SP, SooHoo J. Cancer incidence in the Mexican-American. JNCI 1975; 55(3):531-536

Menck HR, Mack TM. Incidence of biliary tract cancer in Los Angeles. Natl Cancer Inst Monogr 1982; (62):95-99

Mettlin C. Nutritional habits of blacks and whites. Prev Med 1980; 9(5): 601-606

Mettlin C, Mikuta JJ, Natarajan N, Priore R, Murphy GP. Treatment and follow-up study of squamous cell carcinoma in situ of the cervix uteri. Surg Gynecol Obstet 1982; 155(4):481

Mettlin C, Murphy GP (eds). Cancer among black populations. New York: Alan R Liss, Inc, 1981

Mettlin C, Natarajan N, Mittelman A, Smart CR, Murphy GP. Management and survival of adenocarcinoma of the rectum in the United States: results of a national survey by the American College of Surgeons. Oncology 1982; 39:265-273

Miller AB. Risk factors from geographic epidemiology for gastrointestinal cancer. Cancer 1982; 50(suppl 11):2533-2540

Miller JM, Chapman TW. Reviewing cancer in American blacks: a Baltimore study. J Natl Med Assoc 1981; 73(2):127-132

Miller W, Cooper R. Rising lung cancer death rates among black men: the importance of occupation and social class. J Natl Med Assoc 1982; 74(3): 253-258

Modan B. Role of ethnic background in cancer development. Isr J Med Sci 1974; 10(9):1112-1116

Modan B, Lubin F, Ron E, Modan M, Schor S, Selzer G, Sachs M, Black M. Epidemiologic characteristics of breast cancer and benign breast disease [Meeting Abstract]. NCI, BCTF Intercom 1978; 7(2):4

Monson RR, Nakano KK. Mortality among rubber workers. II. Other employees. Am J Epidemiol 1976; 103(3):297-303

Moossa AR, Levin B. Collaborative studies in the diagnosis of pancreatic cancer. Semin Oncol 1979; 6(3):298-308

Morris DL, Buechley RW, Key CR, Morgan MV. Gallbladder disease and gallbladder cancer among American Indians in tricultural New Mexico. Cancer 1978; 42(5):2472-2477

Morrison AS. Public health value of using epidemiologic information to identify high-risk groups for bladder cancer screening. Semin Oncol 1979; 6(2):184-188

Morrison AS, Cole P. Epidemiology of urologic cancers. In: Javadpour N, ed. Principles and management of urologic cancer. Baltimore: Williams and Wilkins, 1979

Munoz N, de-The G. Epidemiology and etiological study of hematosarcomas in children. C R Acad Sci [D] (Paris) 1976; 282(13):1329-1332

Myers MH, Hankey BF. Cancer patient survival experience. Trends in survival 1960-63 to 1970-73. Comparison of survival for black and white patients. Long-term effects of cancer. Washington, DC: US Department of Health and Human Services, 1980; NIH publication no. 80-2148

Najem GR, Thind IS, Lavenhar MA, Louria DB. Gastrointestinal cancer mortality in New Jersey counties, and the relationship with environmental variables. Int J Epidemiol 1983; 12(3):276-289

Nasca PC, Burnett WS, Greenwald P, Brennan K, Wolfgang P, Carlton K. Population density as an indicator of urban-rural differences in cancer incidence, upstate New York, 1968-1972. Am J Epidemiol 1980; 112(3):362-375

Newell GR. Multiple primary cancers: suggested etiologic implications. Cancer Bull 1980; 32(4):160-164

Newell GR, Gordon JE, Monlezun AP, Horwitz JS. ABO blood groups and cancer. JNCI 1974; 52(5):1425-1430

Newell GR, Rawlings W, Krementz ET, Roberts JD. Multiple primary neoplasms in blacks compared to whites. III. Initial cancers of the female breast and uterus. JNCI 1974; 53(2):369-373

Nichols A. Ethics of the distribution of health care. J Fam Pract 1981; 12(3):533-538

Oluwole S, Freeman H. Analysis of benign breast lesions in blacks. Am J Surg 1979; 137:786-789

Page WF, Kuntz AJ. Racial and socioeconomic factors in cancer survival: a comparison of veterans administration results with selected studies. Cancer 1980; 45:1029-1040

Pottern LM, Morris LE, Blot WJ, Ziegler RG, Fraumeni JF. Esophageal cancer among black men in Washington, D.C. I. Alcohol, tobacco, and other risk factors. JNCI 1981; 67(4):777-783

Presbury G, Bowman P, George S, Aur R, Dahl G, Simone J. Reexamination of race as a prognostic factor in acute lymphocytic leukemia (all) [Meeting Abstract]. Proc Am Assoc Cancer Res 1981; 22:480

Rapp F. Herpes simplex virus type 2 and cervical cancer [Preface]. Chicago: Year Book Medical Publishers, Inc., 1981

Rice DP, Hodgson TA. Social and economic implications of cancer in the United States of America. World Health Stat Rep 1980; 33(1):56-100

Riggan WB, Van Bruggen J, Acquavella JF, Beaubier J, Mason TJ. NCI/EPA inter-agency agreement on environmental carcinogenesis. Bethesda, Maryland: National Cancer Institute, 1983

Rogers EL, Goldkind L, Goldkind SF. Increasing frequency of esophageal cancer among black male veterans. Cancer 1982; 49(3):610-617

Savage D, Lindenbaum J, Osserman E, Van Ryzin J, Garrett T. Survival of black and white patients with multiple myeloma at two hospitals [Abstract]. Proc Am Assoc Cancer Res 1981; 22:537

Schimpff SC. Cancer epidemiology. Demographic evaluation of cancer epidemiology: influence of gender, race, and socioeconomic group. In: Lichtman MA, Adamson JW, Lessin LS, Marder VJ, Wiernik PH, eds. Hematology and oncology. The science and practice of clinical medicine. Vol 6. New York: Grune and Stratton, 1980

Schottenfeld D. Alcohol as a co-factor in the etiology of cancer. Cancer 1979; 43:1962-1966

Schottenfeld D. Chronic disease in the workplace and environment: cancer. Arch Environ Health 1984; 39(3):150-157

Schottenfeld D. The epidemiology of cancer: an overview. Cancer 1981; 47(suppl 5):1095-1108

Seidman H, Silverberg E, Holleb AI. Cancer statistics, 1976. A comparison of white and black populations. CA 1976; 26(1):2-29

Shapiro S, Venet W, Strax P, Venet L, Roeser R. Prospects for eliminating racial differences in breast cancer survival rates. Am J Public Health 1982; 72(10):1142-1145

Silber W. Advances in carcinoma of the oesophagus. S Afr Cancer Bull 1981; 25(1/2):24-30

Stebbings JH, Lucas HF, Stehney AF. Mortality from cancers of major sites in female radium dial workers. Am J Ind Med 1984; 5(6):435-459

Stockwell EG. A critical examination of the relationship between socio-economic status and mortality. Am J Public Health 53(6):956

Swanson GM, Young JL Jr. Trends in cancer incidence in metropolitan Detroit, 1937-1977: leads for prevention. Prev Med 1983; 12(3):403-420

Teta MJ, Walrath J, Meigs JW, Flannery JT. Cancer incidence among cosmetologists. JNCI 1984; 72(5):1051-1057

Thind IS, Carnes R, Najem R, Quartello G, Feuerman M, Louria DB. Cancer incidence and mortality in Newark, New Jersey, 1970-1974: a national comparison. Cancer 1981; 47(5):1047-1053

Thind IS, Najem R, Paradiso J, Fuerman M. Cancer among blacks in Newark, New Jersey, 1970-1976: a national and international comparison. Cancer 1982; 50(1):180-186

Thomas DB. Epidemiologic studies of cancer in minority groups in the Western United States. Natl Cancer Inst Monogr 1979; 53:103-113

Trevathan E, Layde P, Webster LA, Adams JB, Benigno BB, Dry H. Cigarette smoking and dysplasia and carcinoma in situ of the uterine cervix. JAMA 1983; 250:499-502

Trichopoulos D, MacMahon B, Brown J. Socioeconomic status, urine estrogens, and breast cancer risk. JNCI 1980; 64:753-755

Trichopoulos D, Yen S, Brown J, Cole P, MacMahon B. The effect of Westernization on urine estrogens, frequency of ovulation, and breast cancer risk. A study of ethnic Chinese women in the Orient and the USA. Cancer 1984; 53(1): 187-192.

Tuyns A. Epidemiology of alcohol and cancer. Cancer Res 1979; 39:2840-2843

Vakil DV, Morgan RW. Etiology of breast cancer. II. Epidemiologic aspects. Can Med Assoc J 1973; 109(3):201-206

Wheeler RC, Marcus AC, Cullen JW, Konugres E. Baseline chronic disease risk factors in a racially heterogeneous elementary school population: the "Know Your Body" program, Los Angeles. Prev Med 1983; 12(4):569-587

Wilkinson GS, et al. Delay, stage of disease, and survival from breast cancer. J Chronic Dis 1979; 32:365-373

Williams RR, et al. Association of cancer sites with tobacco and alcohol consumption and socioeconomic status of patients: interview study from the Third National Cancer Survey. JNCI 1977; 58:525-547

Wilson RE, Donegan WL, Mettlin C, Natarajan N, Smart CR, Murphy GP. The 1982 national survey of carcinoma of the breast in the United States by the American College of Surgeons. Surg Gynecol Obstet 1984; 159(4):309

Winn DM, Blot WJ, Shy CM, Pickle LW, Toledo A, Fraumeni JF. Snuff dipping and oral cancer among women in the Southern United States. N Engl J Med 1981; 304(13):745-749

Wynder EL. An epidemiological evaluation of the causes of cancer of the pancreas. Cancer Res 1975; 35(8):2228-2233

Wynder EL, Goldsmith R. The epidemiology of bladder cancer. A second look. Cancer 1977; 40(3):1246-1268

Yatani R, Chigusa I, Akazaki K, Stemmermann GN, Welsh RA, Correa P. Geographic pathology of latent prostatic carcinoma. Int J Cancer 1982; 29(6):611-616

Young JL Jr, Pollack ES. The incidence of cancer in the United States. Cancer Epidemiol Prev 1982; 138

Young JL Jr, Ries LG, Pollack ES. Cancer patient survival among ethnic groups in the United States. JNCI 1984; 73(2):341-352

Yu ESH. The epidemiology of nasopharyngeal cancer in Chinese populations. Unpublished paper. Division of Epidemiology, Columbia University, 1982

Yu MC, Mack T, Hanisch R, Peters RL, Henderson BE, Pike MC. Hepatitis, alcohol consumption, cigarette smoking, and hepatocellular carcinoma in Los Angeles. Cancer Res 1983; 43(12 Pt 1):6077-6079

Ziegler RG, Morris LE, Blot WJ, Pottern LM, Hoover R, Fraumeni JF. Esophageal cancer among black men in Washington, D.C. II. Role of nutrition. JNCI 1981; 67(6):1199-1206

American Cancer Society. Cancer facts and figures: 1984. New York: American Cancer Society, 1984

American Cancer Society. Cancer facts and figures for black Americans: 1983. New York: American Cancer Society, 1983

Brunswick AF, Messeri PA. Gender differences in processes of smoking initiation. Presented at the 1982 meeting of the American Public Health Association, Montreal, 1982

Brunswick AF, Messeri PA. Gender differences in the processes leading to cigarette smoking. J Psychosoc Oncol 1984; 2(1):49-69

Corey L, Mushinski M, Wynder E. Smoking habits in a hospitalized population: 1970-1980. Am J Public Health 1983; 73(1):1293-1297

EVAXX, Inc. A study of smoking behavior among black Americans. New York: American Cancer Society, 1983

Freidman G, Seltzer C, Siegelaub A, et al. Smoking among white, black, and yellow men and women. Am J Epidemiol 1972; 96(1):23-35

Gordon T, Kannel WB, Dawber TR. Changes associated with quitting smoking: the Framingham Study. Am Heart J 1975; 90:322-328

Hunter SM, et al. Social learning effects on trial and adoption of cigarette smoking in children: the Bogalusa Heart Study. Prev Med 1982; 11:29-42

National Institutes of Health. Guide to grants and contracts. March 1984

Shopland DR. The health consequences of smoking--cancer: a report of the Surgeon General. Rockville, Maryland: U.S. Department of Health and Human Services, 1982; DHHS publication no. (PHS)82-50179

Silverberg E, Poindexter C. Cancer facts and figures for black Americans: 1979. New York: American Cancer Society, 1979

Smoking and health: a report of the Surgeon General. Rockville, Maryland: U.S. Department of Health, Education, and Welfare, 1979; DHEW publication no. (PHS) 79-50066

Sterling T, Weinkam J. Smoking patterns by occupation, industry, sex and race. Arch Environ Health 1978 Nov-Dec; 33(6):313-317

The health consequences of smoking--cardiovascular disease: a report of the Surgeon General. Washington, DC: US Government Printing Office, 1983

The health consequences of smoking--chronic obstructive lung disease: a report of the Surgeon General. Washington, DC: US Government Printing Office, 1984

Trevathan E, Layde P, Webster L, Adams JB, Benigno BB, Dry H. Cigarette smoking and dysplasia and carcinoma in situ of the uterine cervix. JAMA 1983; 250:499-502

Warnecke R. Intervention in black populations. In: Mettlin C, Murphy GP, eds. Cancer among black populations. New York: Alan R Liss, Inc, 1981

Warnecke R, Graham S, Rosenthal S, et al. Social and psychological correlates of smoking among black women. J Health Soc Behav 1978; 19:397-410

White J, Enterline J, Alan Z, Moore R. Cancer among blacks in the U.S.: recognizing the problem. In: Mettlin C, Murphy GP, eds. Cancer among black populations. New York: Alan R Liss, Inc, 1981

Young JL Jr, Percy CL, Asire AJ, Berg JW, Cusano MM, Gloeckler LA, Horm JW, Lourie WI Jr, Pollack ES, Shambough EM. Cancer incidence and mortality in the United States, 1973-77. Natl Cancer Inst Monogr 1981 Jun; 57:1-187

Cahalan D, Cisin IH, Crossley HM. American drinking practices: a national study of drinking behavior and attitudes. New Brunswick: Rutgers Center of Alcohol Studies, 1969

Fraumeni JF. Epidemiological opportunities in alcohol-related cancer. Cancer Res 1979; 39:2851-2852

Harper FD (ed). Alcohol abuse and black America. Alexandria: Douglas Publishers, 1976

Keller A. Liver cirrhosis, tobacco, alcohol, and cancer among blacks. J Natl Med Assoc 1978; 70(8):575-580

Lieber C, Seitz H, Garro A, et al. Alcohol-related diseases and carcinogenesis. Cancer Res 1979; 39:2863-2886

McCay G, Wynder E. Etiological and preventive implications in alcohol carcinogenesis. Cancer Res 1979; 39:2844-2850

National Institute on Alcohol Abuse and Alcoholism. Alcohol use and abuse among black Americans. Third special report to the U.S. Congress on alcohol and health. Washington, DC: US Government Printing Office, 1978; DHEW

Rothman K. The proportion of cancer attributable to alcohol consumption. Prev Med 1980; 9:174-179

Schottenfeld D, Gantt RC, Wynder EL. The role of alcohol and tobacco in multiple primary cancers of the upper digestive system, larynx, and lung: a prospective study. Prev Med 1974; 3:277-293

Sterne M, Pittman DJ. Drinking practices in the ghetto. Vol I and II. St. Louis: Washington University, Social Science Institute, 1972

Thuyns A. Alcohol, Chap. 16. In: Schottenfeld D, Fraumeni JF, eds. Cancer epidemiology and prevention. New York: WB Saunders, 1982

Thuyns A. Epidemiology of alcohol and cancer. Cancer Res 1979; 39:2840-2843

NUTRITION AND CANCER

Alexander L. Nutrition and breast cancer. J Natl Med Assoc 1978; 70(11):791

American Cancer Society. Nutrition and cancer: cause and prevention. New York: American Cancer Society, January 1984

Anderson L (ed). Study links lifestyle and colon cancer. National Cancer Institute Update. January 1984

Bertino J. Nutrients, vitamins, and minerals as therapy. Cancer 1979; 43:2137-2142

Block G. A review of validations of dietary assessment methods. Am J Epidemiol 1982; 115:492-505

Burch JD, Howe GR, Miller AB. Breast cancer in relation to weight in women aged 65 years and over. Can Med Assoc J 1981; 142:1326-1327

Burkitt MD. Epidemiology and etiology. JAMA 1980; 244:264-265

Byers T, Marshall J, Graham S, Mettlin C, Swanson M. A case-control study of dietary and non-dietary factors in ovarian cancer. JNCI 1983; 71:681-686

Centers for Disease Control. Ten state nutrition survey, 1968-70, III. Clinical, Anthropometry, Dental. DHHS publication no. (HSM)72-8131

Centers for Disease Control. Ten state nutrition survey, 1968-70. IV. Biochemical. DHHS publication no. (HSM)72-8132

Centers for Disease Control. Ten state nutrition survey, 1968-70. V. Dietary. DHHS publication no. (HSM)72-8133

Centers for Disease Control. Ten state nutrition survey 1968-70. Demographic Data. DHHS publication no. (HSM)72-8134

Committee on Diet, Nutrition, and Cancer. Diet, nutrition and cnacer. Washington, DC: National Academy Press, 1982

Correa P. Gastrointestinal cancer among black populations. In: Mettlin C, Murphy GP, eds. Cancer among black populations. New York: Alan R Liss, Inc., 1981:197-211

Cronin FJ, Krebs-Smith SN, Wyse BW, Light L. Characterizing food usage by demographic variables. J Am Diet Assoc 1982; 81:661-673

Dales LG, Friedman GC, Ury HK, Grossman S, Williams SR. A case-control study of relationships of diet and ether traits to colorectal cancer in American blacks. Am J Epidemiol 1979; 109:132-144

Darby W. Etiology and nutritional fads. [Editorial] Cancer 1979; 43(Suppl):2121-2124

de la Pointe J. Personal communication. American Public Health Association. November 1984

Devesa SS, Diamond EL. Socioeconomic and racial differences in lung cancer incidence. Am j Epidemiol 1983; 118:818-831

Earles LC III. Cancer epidemic in the black community. J Natl Med Assoc 1984; 76:93-94

Economic Research Service. Food consumption, prices, and expenditures, 1960-80. Washington, D.C.: US Department of Agriculture, September 1981; Statistical bulletin no. 672

Goldin BR, Garbach SL. Microbial factors and nutrition in carcinogenesis. Adv in Nutr Res 1979; 2:129-148

Goodwin WJ Jr, Lane HW, Bradford K, Marshall MV, Griffin AC, Geopfert H, Jessee RH. Selenium and glutathione peroxidase levels in patients with epidermoid carcinoma of the oral cavity and oropharynx. Cancer 1983; 51:110-115

Gori GB. Diet and nutrition in cancer causation. Nutr Cancer 1978; 1:5-8

Gori GB. Dietary and nutritional implications in the multifactorial etiology of certain prevalent human cancers. Cancer 1979; 43:2151-2161

Graham S, Dayal H, Swanson M, Mittelman A, Wilkinson G. Diet in the epidemiology of cancer of the colon and rectum. JNCI 1978; 3:709-714

Graham S, Haughey B, Marshall J, Priore R, Byers T, Rzepka T, Mettlin C, Pontes JE. Diet in the epidemiology of carcinoma of the prostate gland. JNCI 1983; 70:687-692

Graham S, Marshall J, Mettlin C, Rzepka T, Nemoto T, Byers T. Diet in the epidemiology of breast cancer. Am J Epidemiol 1982; 116:68-75

Graham S, Mettlin C. Diet and colon cancer (revised and commentary). Am J Epidemiol 1979; 109:1-20

Greger J, Entyre G. Validity of 24-hour dietary recalls by adolescent females. Am J Public Health 1978; 68(1):70-72

Gregorio DI, Cummings M, Michalek A. Delay, stage of disease, and survival among white and black women with breast cancer. Am J Public Health 1983; 73:590-593

Henschke UK, Leffall LD, Mason CH, Reinhold AW, Schneider RL, White JE. Alarming increase of the cancer mortality in the U.S. black population (1950-1967). Cancer 1973; 31:763-768

Hill P, Garbaczewski L. Age, environmental factors and prostatic cancer. Med Hypotheses 1984; 14:29-39

Hill P, Wynder EL, Garbeczewski L, et al. Effect of diet on plasma and urinary hormones in South African black men with prostatic cancer. Cancer Res 1982; 42:3864-3869

Hill P, Wynder EL, Garbaczewski L, Garnes H. Walker ARP. Diet and urinary steroids in black and white North American men and black South African men. Cancer Res 1979; 39:5101-5105

Hill P, Wynder EL, Garnes H, Walker ARP. Environmental factors, hormone status, and prostatic cancer. Prev Med 1980; 9:657-666

Human Nutrition Information Services. Food and nutrient intakes of individuals in one day, low-income households. Nationwide food consumption survey, 1979-1980. Washington, DC: US Department of Agriculture, 1984; Preliminary report no. 13

Human Nutrition Information Services. Food and nutrient intakes of individuals in one day, low-income households, November 1977-March 1978. Nationwide food consumption survey, 1977-1978. Washington, DC: US Department of Agriculture, August 1982; Preliminary report no. 11

Jackson MA, Kovi J, Heshmat MY, Jones GW, Rao MS, Ahluwalia BS. Factors involed in the high incidence of prostatic cancer among American blacks. In: Mettlin C, Murphy GP, eds. Cancer among black populations. New York: Alan R Liss, Inc, 1981:111-132

Jones Y. Personal communication, National Cancer Institute. November 1984

Kerr RK, Lee SE, Lam MM, Lorimor RJ, Randall E, Forthofer RN, Davis MA, Magnetti S. Relationships between dietary and biochemical measures of nutritional status in HANES I data. Am J Clin Nutr 1982; 35:294-305

Kovi J, Heshmat MY. Incidence of cancer in Negroes in Washington, D.C. and selected African cities. Am J Epidemiol 1973; 96:401-413

Kromhout D, Bosschieter EB, Lezenne C. Dietary fiber and 10-year mortality from coronary heart disease, cancer, and all causes: the Zutphen study. Lancet 1982; 2:518-521

LaVecchia C, Fanceschi S, Gallus G, Decarla A, Colombo E, Liberati A, Tognoni G. Prognostic feature of endometrial cancer in estrogen users and obese women. Am J Obstet Gynecol 1983; 144:38-7390

Lawrence W Jr. Effects of cancer on nutrition: impaired organ system effects. Cancer 1979; 43:2020-2029

Light L. Personal Communication, national Cancer Institute. November 1984.

Lipsett M. Interaction of drugs, hormones, and nutrition in the causes of cancer. Cancer 1979; 43:1967-1981

Lowenfels A, Anderson M. Diet and cancer. Cancer 1977; 39:1809-1814

Lubin JH, Burns PE, Blot WJ, Ziegler RG, Lees AW, Fraumeni JF Jr. Dietary factors and breast cancer risk. Int J Cancer 1981; 28:685-698

MacDonald PC, Edman CD, Hemsell DL, Porter JC, Suteri PK. Effect of obesity on conversion of plasma androstenedione to estrone in postmenopausal women with and without endometrial cancer. Am J Obstet Gynecol 1978; 130:448

MacMahon B. Risk factors for cancer of the pancreas. Cancer 1982; 50:2676-2680

MacMahon B, Yen S, Trichopoulos D, et al. Coffee and cancer of the pancreas. N Engl J Med 1981; 394:630-633

Malhotra SL. Faecal urobilinogen levels and pH of stools in population groups with different incidence of cancer of the colon and their possible role in its aetiology. J R Soc Med 1982; 75:709-714

Mandal AK, Shama IN, Bier RK, Oparah SS. Outcome of theracic esophageal carcinoma in blacks in the inner city. Cancer 1984; 5:924-928

Martinez I. Factors associated with cancer of the esophagus, mouth, and pharynx in Puerto Rico. JNCI 1969; 42:1069-1094

Mettlin C. Diet and the epidemiology of human breast cancer. Cancer 1984; 53:605-611

Mettlin C. Nutritional habits of blacks and whites. Prev Med 1980; 9:601-606

Mettlin C, Graham S, Swanson M. Vitamin A and lung cancer. JNCI 1979; 62:1435-;1438

Miller AB. Nutrition and cancer. Prev Med 1980; 9:189-196

National Center for Health Statistics. National health survey (HANES I) caloric and selected nutrient values for persons 1-74 years of age: first health and nutrition examination survey. United States, 1971-74. Hyattsville, Maryland: National Center for Health Statistics, June 1979; DHHS publication no. (PHS)79-1657. (Vital and health statistics: series 11; no 209)

National Dairy Council. An update on nutrition, diet, and cancer. Dairy Council Digest 1980; 50:24-30

Pottern LM, Morris LE, Blot WJ, Ziegler RG, Fraumeni JF Jr. Esophageal cancer among black men in Washington, D.C. I. Alcohol, tobacco, and other risk factors. JNCI 1981; 777-783

Reddy BS. Nutrition and colon cancer. Adv Nutr Res 1979; 2:199-218

Roach WA. An attempt on a cause and prevention of esophageal cancer in the transkei bantu. A Afr Med J 1973; 47:347-348

Salathe LE, Gallo AE, Boehn WT. The impact of race on consumer food purchases. Washington, DC: USDA Economics, Statistics, and Cooperative Service, ESCS68, August 1979

Sampson CC, Braxton EL. Esophageal carcinoma in blacks: analysis of 88 necropsied cases. J Nat Med Assoc 1976; 68:278-280

Schrabi A, Sandoz J, Spratt JS, Polk HC Jr. Recurrence of breast cancer: obesity, tumor size, and axillary lymph node metastases. JAMA 1980; 244:264-265

Schwerin HS, Stanton JL, Smith JL, Riley AM, Brett BE. Food, eating habits, and health: further examination of the relationship between food eating patterns and nutritional health. Am J Clin Nutr 1982; 35:1310-1325

Stehr PA. Vitamin A deficiencies as a predisposing factor in the development of stomach cancer. Dis Abst Int 1983; 43(9):2863-B

Tartter PI, Papatestas AE, Ioannovich J, Mulvihill MN, Lesnick G, Aufses AH Jr. Cholesterol and obesity as prognostic factors in breast cancer. Cancer 1981; 47:2222-2227

Todd KS, Hudes M, Calloway DH. Food intake measurement: problems and approaches. AM J Clin Nutr 1983; 37:139-146

Walker ARP. The relationship between bowel cancer and fiber content in the diet. Am J clin Nutr 1978; 31:S248-S251

Walker ARP, Segal I. Diet and colon cancer (editorial). S Afr Med J 1980; 57:221-222

Weisburger JH. Mechanism of action of diet as a carcinogen. Cancer 1979; 43:1987-1995

Weisburger JH, Reddy BS, Cohen LA, Hill P, Wynder EL. Mechanisms of promotion in nutritional carcinogenesis. Carcinogenesis 1982; 7:175-182

Wynder E. Dietary habits and cancer epidemiology. Cancer 1979; 43:1955-1961

Young JL Jr, Gloeckler RL, Pollack ES. Cancer patient survival among ethnic groups in the U.S. JNCI 1984; 73:341-352

Young V, Richardson D. Nutrients, vitamins, and minerals in cancer prevention: facts and fallacies. Cancer 1979; 43(suppl):2125-2136

Ziegler RG, Morris LE, Blot WJ, Pottern LM, Hoover R, Fraumeni JF Jr. Esophageal cancer among black men in Washington, D.C. II. role of nutrition. JNCI 1981; 67:1199-1206

OCCUPATION

Bradshaw E, Schonland M. Oesophageal and lung cancers in natal African males in relation to certain socioeconomic factors. An analysis of 484 interviews. Br J Cancer 1969 Jun; 23(2):275-284

Goldsmith DF, Smith AH, McMichael AJ. A case-control study of prostate cancer within a cohort of rubber and tire workers. J Occup Med 1980 Aug; 22(8):533-41

Keller AZ. Survivorship with mouth and pharynx cancer and their association with cirrhosis of the liver, marital status, and residence. Am J Public Health 1969 Jul; 59(7):1139-53

Lloyd JW. Long-term mortality study of steelworkers. V. Respiratory cancer in coke plant workers. J Occup Med 1971 Feb; 13(2):53-68

Mancuso TF. Lung cancer among black migrants. Interaction of host and occupational environment factors. J Occup Med 1977 Aug; 19(8):531-532

Mazumda S, Lerer T, Redmond CK. Long-term mortality study of steelworkers. IX. Mortality patterns among sheet and tin mill workers. J Occup Med 1975 Dec; 17(12):751-755

Michaels D. Occupational cancer in the black population: the health effects of job discrimination. J Natl Med Assoc 1983 Oct; 75(10): 1014-1018

Miller WJ, Cooper R. Rising lung cancer death rates among black men: the importance of occupation and social class. J Natl Med Assoc 1982 Mar; 74(3):253-258

Monson RR, Nakano KK. Mortality among rubber workers. II. Other employees. Am J Epidemiol 1980 Mar; 70(3):256-259

Pickle LW, Gottlieb MS. Pancreatic cancer mortality in Louisiana. Am J Public Health 1980 Mar; 70(3):256-259

Ross RK, McCurtis JW, Henderson BE, Menck HR, Mack TM, Martin SP. Descriptive epidemiology of testicular and prostatic cancer in Los Angeles. Br J Cancer 1979 Mar; 39(3):284-92

Sheffet A, Thind IS, Miller AM, Louria DB. Cancer mortality in a pigment plant utilizing lead and zinc chromates. Arch Environ Health, 1982 Jan-Feb; 37(1):44-52

KNOWLEDGE, ATTITUDES, AND PRACTICES

Berkanovic E, Reeder L. Ethnic, economic, and social psychological factors in the source of medical care. Soc Prob 1973; 21:246-259

Block C. Communicating with the urban poor: an exploratory inquiry. Journal Quart 1970; 47:3-11

Blumberg B. NCI's coping with cancer information and education program--evolution, planning, and implementation. In: Issues in cancer screening and communications. New York: Alan R Liss, Inc, 1982:83-90

Butler L, King G, White J. Communications strategies, cancer information, and black populations: an analysis of longitudinal data. In: Mettlin C, Murphy GP, eds. Progress in cancer control IV: research in the cancer center. New York: Alan R Liss, Inc, 1983:171-172

Cardwell JJ, Collier WV. Racial differences in cancer awareness--"what black Americans know and need to know about cancer." Urban Health 1981 Oct; 10(8):29-31

EVAXX, Inc. A study of black Americans' attitudes toward cancer and cancer tests. New York: American Cancer Society, 1980

EVAXX, Inc. Black Americans' attitudes toward cancer and cancer tests: highlights of a study. CA 1981; 31(4):212-218

Green L. Educational components of preventive health programs. In: Preventive medicine, USA. New York: Prodist, 1976

Green L, Wang V, Ephross P. A 3-year longitudinal study of the impact of nutrition aides on the knowledge, attitudes, and practies of rural poor homemakers. Am J Public Health 1974; 64(7):722-724

Henschke V, Lefall L, Mason C, Reinhold H, Schneiden J, White J. Alarming increase of cancer mortality in the U.S. black population (1950-1967). Cancer 1973; 31:760-768

Kane-Williams E, White J. Community-based education for the elderly. In: Mettlin C, Murphy GP, eds. Progress in cancer control IV: research in the cancer center. New York: Alan R Liss, Inc, 1983:113-122

Kutner N, Kutner M. Race and sex as variables affecting reactions to disability. Arch Phys Med Rehabil 1979; 60:62-66

Lynch P, Ronis D. Cancer information for blacks: a radio program evaluation. In: Mettlin C, Murphy GP, eds. Issues in cancer screening and communications. New York: Alan R Liss, Inc, 1982:399-408

Manfredi C, Warnecke R. Levels and sources of cancer knowledge by demographic characteristics and cancer site. NCI-CA 21954 "Cancer information needs in Illinois" and CA 34886 "Cancer control science program: improving patient compliance with referrals of an evaluation of possible malignancies," 1978

Manfredi C, Warnecke R, Graham S, Rosenthal S. Social psychological correlates of health behavior: knowledge of breast self-examination techniques among black women. Soc Sci Med 1977; 11:433-440

McKinlay J. Social networks, lay consultation, and help-seeking behavior. Soc Forces 1973; 51:275-292

Mettlin C, Cummings K. Communication and behavior change for cancer control. In: Mettlin C, Murphy GP, eds. Issues for cancer screening and communications. New York: Alan R Liss, Inc, 1982:135-148

National Cancer Institute. Breast cancer: a measure of progress in public understanding. Bethesda, Maryland: National Cancer Institute, 1981; NIH publication no. 81-2291

Parker D, Enterliri M, White J. Differences between black and white responses to cancer information promotion mechanisms. In: Mettlin C, Murphy GP, eds. Issues in cancer screening and communications. New York: Alan R Liss, Inc, 1982: 429-436

Pratt L. Relationship of socioeconomic status to health. Am J Public Health 1971; 61:281-291

Sievers ML, Fisher JR. Diseases of North American Indians. In: Rothschild H, Chapman C, eds. Biocultural aspects of disease. New York: Academic Press, 1981: 191-252

Warnecke R. Intervention in black populations. In: Mettlin C, Murphy GP, eds. Cancer among black populations. New York: Alan R Liss, Inc, 1981

Warnecke R, Graham S. Characteristics of blacks obtaining Papanicolaou smears. Cancer 1976; 37:2015-2025

Wishart D. The key to effective cancer communication at the community level. In: Mettlin C, Murphy GP, eds. Issues in cancer screening and communications. New York: Alan R Liss, Inc, 1982:111-121

HEALTH SERVICES PATTERNS

Baehr G. Some popular delusions about health and medical care. Am J Public Health 1971; 63(3):582-585

Barabba V. Population trends and the cost of medical care. National Commission on the Cost of Medical Care.

Bellin L. Ghetto medicine. Am J Public Health 1972; 62(1):3-11

Bernstein AB, Berk ML. Perceived health status and selected indicators of access to care among the minority aged. Presented at the annual conference of the American Public Health Association, Los Angeles, November 1981

Bernstein B. What happened to "ghetto medicine" in New York State? Am J Public Health 1971; 61(7):1287-1293

Breslow L. The urgency of social action for health. Am J Public Health 1970; 60(1):10-16

Cafferata GL. National Health Care Expenditures Study, data preview 18: private health insurance coverage of the Medicare population. Washington, DC: National Center for Health Services Research, 1984; DHHS publication no. (PHS)84-3362.

Celentano D, Shapiro S, Weilsman C. Cancer preventive screening behavior among elderly women. Prev Med 1982; 11:454-463

Challenor B, Onyeani L. Health and legal services in a disadvantaged community. Am J Public Health 1973; 63(9):810-815

Chapman J, Coulson A. Community diagnosis: an analysis of indicators of health and disease in a metropolitan area. Int J Epidemiol 1972; 1:75-81

Collins JG. Physician visits, volume and interval since last visit, United States, 1980. Hyattsville, Maryland: National Center for Health Statistics 1983; DHHS publication no. (PHS)83-1572. (Vital and health statistics: series 10; no 144)

Coulehan J. Screening yield in an urban low income practice. Am J Public Health 1975; 65(5):474-479

Daniels R. Governance and administration of human services in urban low-income communities. Am J Public Health 1973; 63(8):715-720

Davis K. Medicaid payments and utilization of medical services by the poor. Inquiry 1976; 13:122-135

Domke H, Gunther J. The city and the changing American health system. Am J Public Health 1970; 60(1):38-44

Fabrega H, Roberts R. Ethnic differences in the outpatient use of a public-charity hospital. Am J Public Health 1972; 62(7):936-941

Farley PJ. National Health Care Expenditures Study, data preview: private insurance and public programs--coverage of health services in the United States, 1977. Prepublication draft. Washington, DC: National Center for Health Services Research, 1977

Fishman R, Everson R. The implications of the differing perceptions of urban and suburban citizens for environmental comprehensive health planning.

Foster RS, Costanza MKC. Breast self-examination practices and breast cancer survival. Cancer 1984; 53:999-1005

Froh R, Galanter R. The poor, health, and the law. Am J Public Health 1972; 62(3):427-430

Fuentes J. The need for effective and comprehensive planning for migrant workers. Am J Public Health 1974; 64(1):2-10

Gagnon RO, DeLozier JE, McLemore T. The National Ambulatory Medical Care Survey, United States, 1979 summary. Hyattsville, Maryland: National Center for Health Statistics, 1982; DHHS publication no. (PHS)82-1727. (Vital and health statistics: series 13; no 66)

Gornick M, Freedman B, Gorten M. Use of medical services as demanded by the urban poor. Am J Public Health 1969; 59(8):1302-1311

Graves EJ. Utilization of short-stay hospitals, United States, 1982 annual summary. Hyattsville, Maryland: National Center for Health Statistics, 1984; DHHS publication no (PHS)84-1739. (Vital and health statistics: series 13; no 78)

Hewitt D, Milner J. Components of the demand for hospital care. Int J Epidemiol 1972; 1:61-68

Hilleboe H. Modern concepts of prevention in community health. Am J Public Health 1971; 61(5):1000-1006

Holahan J. The medically needy and needy. Effects of the new Federal policy. Struggle for the assurance of access to health care. Presented at the 1982 annual health conference of the New York Academy of Medicine, Committee on Medicine in Society, April 29-30, 1982

Kamaroff A, Duffell P. An evaluation of selected Federal categorical health programs for the poor. Am J Public Health 1976; 66(3):255-261

Kasper JA, Barrish G. National Health Care Expenditures Study, data preview 12: usual sources of medical care and their characteristics. Washington, DC: National Center for Health Services Research, 1982; DHHS publication no. (PHS)82-3324

Li F, Schlief N, Chang C, et al. Health care for the Chinese community in Boston. Am J Public Health 1972; 62(4):536-539

Muse DN, Sawyer D. The Medicare and Medicaid data book, 1981. Washington, DC: Health Care Financing Administration, April 1982; HCFA publication no. 03128

National Cancer Institute. Surveillance, epidemiology, and end results: incidence and mortality data, 1973-77. Natl Cancer Inst Monogr 1981 Jun; 57. (NIH publication no. 81-2330)

National Center for Health Statistics. Annual summary of births, deaths, marriages, and divorces: United States, 1983. Hyattsville, Maryland: National Center for Health Statistics, 1984; DHHS publication no. (PHS)84-1220. (Monthly vital statistics report: vol 32; no 13)

National Center for Health Statistics. Health, United States, 1983. Public Health Service. Washington, DC: US Government Printing Office, December 1983; DHHS publication no. (PHS)84-1232

National Center for Health Statistics. Characteristics of nursing home residents, health status, and care received. National Nursing Home Survey, United States, May-December 1977. Hyattsville, Maryland: National Center for Health Statistics, 1981; DHHS publication no. (PHS)81-1712. (Vital and health statistics: series 13; no 51)

National Center for Health Statistics. Health, United States, 1979. Prepublication copy. Washington, DC: US Government Printing Office, 1979; DHHS publication no. (PHS)80-1232

National Center for Health Statistics. Health, United States, 1980. Hyattsville, Maryland: National Center for Health Statistics, December 1980; DHHS publication no. (PHS)81-1232

Navarro V. The political and economic determinants of health and health care in rural America. Inquiry 1976; 13:111-121

Orient J. Equity in medical care: are the deserving poor eligible? Perspect Biol Med 1983; 26(3):411-416

Roberts R, Lee E. Health practices among Mexican Americans: further evidence from the human population laboratory studies. Prev Med 1980; 9:675-688

Shapiro S, Venet W, Strax P, Venet L, Roesei R. Prospect for eliminating racial differences in breast cancer survival rates. Am J Public Health 1982 Oct; 72(10):1142-1145

Sher G. Health care and the deserving poor. Hastings Cent Rep 1983 Feb; 13(1):9-12

Sparer G, Alderman A. Data needs for planning neighborhood health centers. Am J Public Health 1971; 61(4):796-806

Trevino FM, Moss AJ. Health indicators for Hispanic, black, and white Americans. Hyattsville, Maryland: National Center for Health Statistics, 1984; DHHS publication no. (PHS)84-1576. (Vital and health statistics: series 10; no 148)

Tucker M. Utilization and price analysis: prospects for avoiding higher program costs in health care. Am J Public Health 1969; 69(7):1226--1237

US Department of Commerce, Bureau of the Census. Current population reports: consumer income, money income, and poverty status of families and persons in the United States (advance data from the March 1981 current population survey). Washington, DC: US Government Printing Office

US Department of Commerce, Bureau of the Census. General population characteristics, United States summary, 1980 census of the population. Washington, DC: US Government Printing Office, May 1983

Walton Report. Cervical cancer screening programs. Can Med Assoc J 1976; 114:11

Warnecke RB. Intervention in black populations. In: Mettlin C, Murphy GP, eds. Cancer among black populations. New York: Alan R Liss, Inc, 1981: 167-183

Warnecke RB, Graham S. Characteristics of blacks obtaining Papanicolaou smears. Cancer 1976; 37:2015-2025

Warnecke RB, Havlicek P, Manfredi C. Awareness and use of screenings by older aged persons. Perspectives on prevention and treatment of cancer in the elderly. New York: R Yanick, 1983:275-287

Wilensky GR, Walden DC. Minorities, poverty, and the uninsured. Presented at the 109th annual meeting of the American Public Health Association, Los Angeles, November 1981

Wilson RW, Danchik KM. A comparison of "black" and "other than white" data from the National Health Interview Survey and mortality statistics. Classification issues in measuring the health status of minorities. Presented at the annual meeting of the American Statistical Association under the sponsorship of the Social Statistics Section, Houston, August 11-14, 1980

INTERVENTION

American Society of Preventive Oncology. The role of primary and secondary prevention in reducing cancer mortality among U.S. blacks. Fifth annual meeting of the American Society of Preventive Oncology, Bethesda, Maryland, March 26-27, 1981

Burrell-Roberson N. Outreach programs. Community networking. Proceedings of the fourth national conference on cancer nursing of the American Cancer Society, 1983

Clark RA, Blackburn GL. The role of nutrition in disease prevention and health promotion. Compr Ther 1983; 9(4):12-22

Enterline JP, Gold EB. A method for estimating the potential effects of primary and secondary prevention activities in high-risk populations. Prog Clin Biol Res 1983; 130:249-259

Fruchter RG, Boyce J, Hunt M. Invasive cancer of the cervix: failures in prevention. I. Previous Pap smear tests and opportunities for screening. NY State J Med 1980; 80(5):740-745

Holleb AI. Progress in clinical cancer control. CA 1982; 32(6):363-365

Lundahl S, Weller E, Celentano D, Waalkes TP. Employee cancer education and detection demonstration program [Meeting Abstract]. Fifth annual meeting of the American Society of Preventive Oncology, Bethesda, Maryland, March 26-27, 1981

Peck S. Education and communications for a community-based cancer control program. Fam Community Health 1981; 4(3):61-65

Cancer Statistics Review: Black, White, and Other Group Comparisons

Report of the Subcommittee on Cancer, Part II

Acknowledgements

This review of cancer statistics presents selected highlights of the cancer experience - survival, incidence, and mortality - of whites, blacks, and other minority groups for specified time periods.

The following sections within the National Cancer Institute's Divison of Cancer Prevention and Control are gratefully acknowledged for their contributions to the preparation of this document:

- Cancer Control Application Branch
- Demographic Analysis Section
- Biometry Branch

TABLE OF CONTENTS: PART 2

I. Introduction to the Cancer Statistics Review

Contents, Section I 109
Introduction 110
Figures 113
Tables 114

II. Incidence and Mortality for Blacks, Whites, and other Groups

Contents, Section II 115
Introduction 117
Figures 119
Tables 151

III. Five-year Relative Survival for Blacks, Whites, and Other Groups

Contents, Section III 155
Introduction 156
Figures 158
Tables 174

IV. Survival Trends: Five-year Relative Survival by Year of Diagnosis for Blacks and Whites

Contents, Section IV 175
Introduction 176
Figures 177

V. Survival Trends: Relative Survival by Numbers of Years after Diagnosis for Blacks and Whites

Contents, Section V 183
Introduction 185
Figures 186

VI. Trends: Comparison of Incidence, Mortality, and Survival for Blacks and Whites

Contents, Section VI 216
Introduction 218
Figures 220

VII. Distributions of Histologic Types of Cancer for Blacks and Whites

Contents, Section VII 250
Introduction 251
Figures 252

VIII. Five-year Relative Survival by Cancer Stage at Diagnosis for Blacks and Whites

Contents, Section VIII. 257
Introduction 258
Figures 259

Discussion 110

Figures:

Surveillance, Epidemiology, and End Results (SEER) Program, National Cancer Institute 113

Tables:

Percent distribution of geographic area of all cancer cases used in survival analysis for each ethnic group: SEER Program, 1973-1979 114

Section I: Introduction

The purpose of this report is to present selected examples of cancer statistics in order to show comparisons between blacks, whites, and other racial and ethnic groups. This presentation displays in greater detail than in the past comparisons of the cancer experience of these groups. Differences between blacks and whites indicate where efforts must be directed to address the cancer needs of blacks in order to achieve improvement in survival and mortality.

The data presented in this report are derived from two sources. Mortality data are obtained from the National Center for Health Statistics (NCHS). Data tapes on all deaths in the United States are obtained annually from the NCHS and form the basis for all of the mortality statistics. Incidence and survival data are derived from the Surveillance, Epidemiology, and End Results (SEER) Program of the National Cancer Institute. Cancer incidence and patient survival data are derived from the eleven population-based cancer registries of the SEER Program (Figure I.B-1). The patients in SEER cover over 12 percent of the U.S. population. From 1973 to 1979, 462,613 cancer cases were diagnosed in the SEER areas; of these, 402,752 cancer cases were used for data analysis. These cases had the following racial/ethnic distribution:

Anglo (non-Hispanic white)	87.0
Black	7.5
Hispanic	2.1
American Indian	0.3
Chinese	0.8
Japanese	1.2
Filipino	0.6
Hawaiian	0.5
	100.0%

Table I. shows how these eight racial/ethnic groups of cancer cases were distributed within the SEER geographic areas.

The SEER program began in 1973 and presently includes six entire states (Connecticut, Hawaii, Iowa, New Mexico, New Jersey, and Utah), four large metropolitan areas (Atlanta, Detroit, San Francisco, and Seattle) and Puerto Rico. New Jersey joined the SEER program in late 1983 but its data are not yet available. It is now possible to analyze changes within the time period covered by SEER since it has been in operation for over 10 years. The majority of the SEER data on blacks is obtained from Atlanta, Detroit, and San Francisco.

Content of Report

This report is presented in 8 sections as follows:

Section I	Introduction
Section II	Incidence and Mortality for Blacks, Whites, and Other Groups
Section III	Five-Year Relative Survival for Blacks, Whites, and Other Groups
Section IV	Survival Trends: Five-Year Relative Survival by Year of Diagnosis for Blacks and Whites
Section V	Survival Trends: Relative Survival by Number of Years After Diagnosis for Blacks and Whites
Section VI	Trends: Comparison of Incidence, Mortality, and Survival for Blacks and Whites
Section VII	Distributions of Histologic Types of Cancer for Blacks and Whites
Section VIII	Five-Year Relative Survival by Cancer Stage at Diagnosis for Blacks and Whites

Definitions

Rate: An expression of the frequency of an event in an entire population. It is characterized by "counts of an event" during a specified time period. The total number of events, the numerator is divided by the population at risk (or mid-year population), the denominator. For example, the crude death rate is calculated by dividing the total number of deaths registered during the calendar year (January 1 to December 31) by the total population at the middle of the year (July 1). This is then multiplied by 1000.

Mortality Rate: The cancer mortality rate is the number of deaths from cancer occurring during the year in a specified population. It is expressed as a number per 100,000 population and includes those deaths where cancer is the reported underlying cause of death. This can be calculated for each specific type of cancer as well as for all cancer sites combined.

Observed Survival Rate: The proportion of newly diagnosed cancer patients surviving for a specified period of time after diagnosis.

Relative Survival Rate: The ratio of the observed survival rate for the patient group to the expected survival rate for persons in the general population similar to the patient group with respect to age, sex, race and calendar year of observation. Since almost half the cancers occur in persons 65 years of age or older, many of these individuals die of other causes with no evidence of recurrence of the cancer. Thus, because it is obtained by adjusting observed survival for the normal life expectancy of the general population of the same age, the relative survival rate is an estimate of the chance of surviving the effects of cancer. The Five-Year Relative Survival Rate, then, can be considered the proportion potentially curable.

Definitions (Continued)

Age-Adjusted Rate: A weighted average of the age-specific cancer mortality (or incidence) rates, where the weights are the numbers of persons in the corresponding age groups of a standard population. This has the effect of eliminating differences in age distributions of two populations as a factor in comparing their mortality (or incidence) rates for all ages combined. For this report, the 1970 United States population is used as a standard.

Standard Error: The standard error of a survival rate indicates the amount of sampling variability in the rate. Throughout this report, those rates for which the standard error is greater than 10% are indicated by "**" and those with a standard error between 5 and 10% by "*". All other survival rates have standard errors less than 5%.

Statistical Significance: A difference in survival rates is considered statistically significant if the probability that the difference is due to chance is less than 5%. These are indicated by "t" throughout this report.

Surveillance Epidemiology and End Results Program
National Cancer Institute

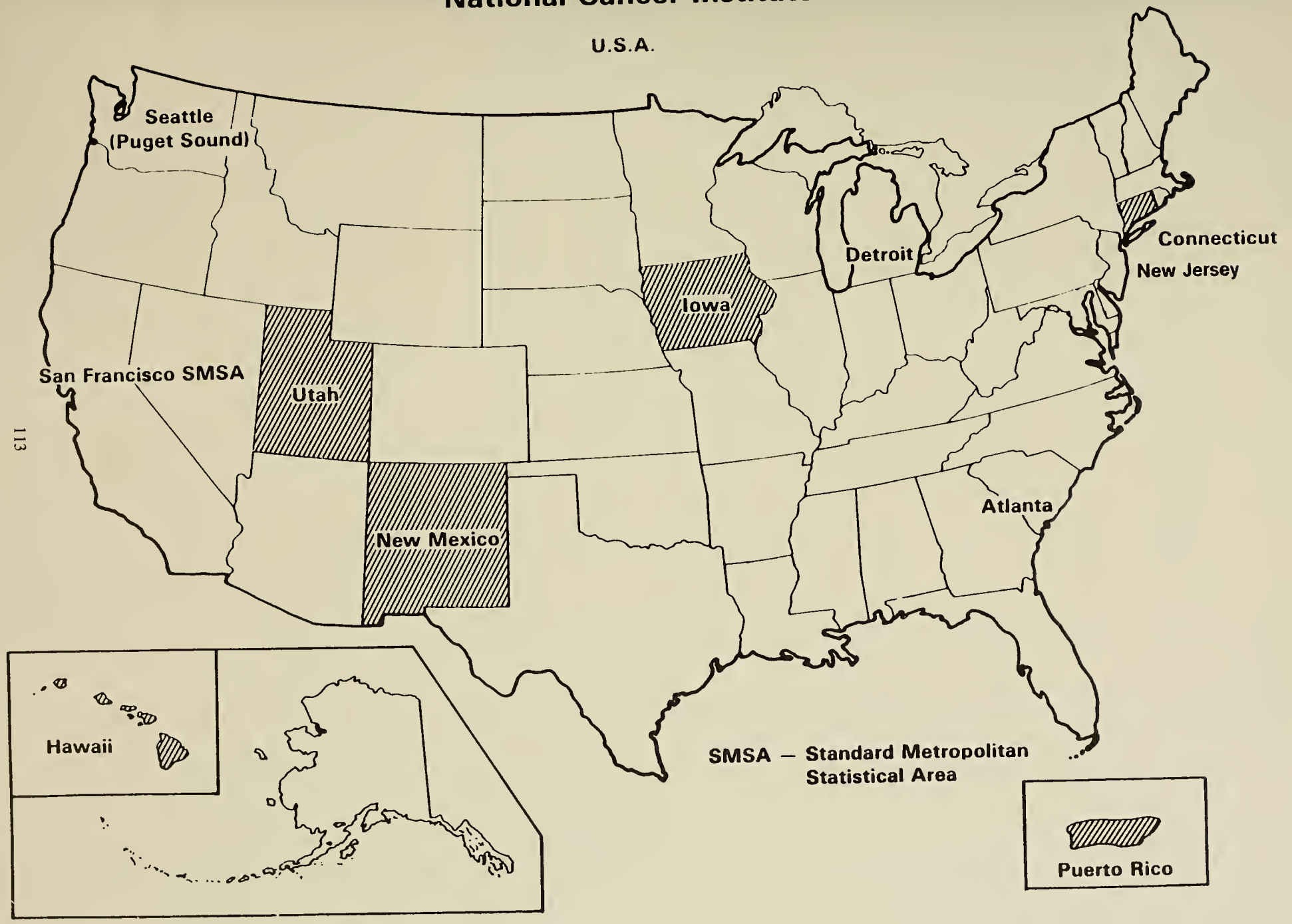


TABLE I. Percent Distribution of Cancer Cases by Geographic Area and Ethnic Group
SEER Program, 1978-81

Area	Total for all ethnic groups	Anglo	Hispanic	Black	American Indian	Chinese	Japanese	Filipino	Hawaiian
No. of cases	297,571	252,095	6,158	23,952	872	2,299	3,682	1,815	1,331
Percent residing in:									
All areas	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
San Francisco-Oakland	16.8	15.7	33.5	20.4	3.8	64.1	9.2	36.1	2.4
Connecticut	16.9	18.8	5.4	8.6	1.4	1.0	0.2	0.2	0.1
Detroit	19.4	18.3	1.4	45.9	1.5	1.4	0.4	1.7	0.1
Hawaii	3.4	1.4	-	0.2	-	28.6	82.9	55.8	97.0
Iowa	15.1	17.6	1.6	1.8	1.7	0.2	0.2	0.2	-
New Mexico	4.4	3.8	51.3	0.8	42.4	0.2	0.1	-	-
Seattle	12.7	13.7	1.6	3.2	12.6	3.8	5.6	6.6	0.4
Utah	4.3	4.8	4.8	0.2	3.2	0.2	1.3	0.2	-
Atlanta	3.1	5.6	0.6	16.6	0.4	0.3	0.1	0.1	0.1
Arizona Indians	0.1	-	-	-	32.7	-	-	-	-

Section II
Incidence and Mortality for Blacks, Whites and Other Groups

Discussion 117

Figures:

Age-specific Incidence and Mortality Rates, Black and White, 1978-1981. All sites 119

Incidence Rates, Age-adjusted, Black, White, and Other Groups 1978-1981. All sites 120

Incidence Rates, Age-adjusted, Black, White, and Other Groups 1978-1981. Selected sites:

Bladder 121
Brain and CNS 122
Breast, female 123
Buccal cavity 124
Cervix uteri 125
Colon 126
Corpus uteri 127
Kidney 128
Larnyx 129
Lung 130
Melanoma 131
Ovary 132
Pancreas 133
Prostate 134
Rectum 135
Stomach 136

Incidence Rates, Age-adjusted, for Hematopoietic and Lymphoid cancers; Black, White, and Other groups. 1978-1981:

Hodgkin's Disease 137
Leukemia 138
Non-Hodgkin's Disease 139

Figures (continued)

Mortality Rates, Age-specific, Black and White; 1978-1981.
Selected Sites:

Cervix uteri 140

Colon and Rectum
Male 141
Female 142

Corpus uteri 143

Esophagus
Male 144
Female 145

Lung
Male 146
Female 147

Multiple Myeloma
Male 148
Female 149

Prostate 150

Tables:

Cancer Incidence Rates, Age-adjusted, Black, White
and Other Groups; 1978-1981; by Primary Site 151

Cancer Mortality Rates, Age-adjusted, Black, White
and Other Groups; 1978-1981; by Primary Site 152

Ratio of Black and White Incidence and Mortality Rates,
Age-Adjusted, by Primary Site 153

Section II: Incidence and Mortality for Blacks, Whites, and Other Groups

A. Discussion

The information about cancer incidence contained in this section is based on SEER data collected between 1978 and 1981. Cancer incidence rates measure the rate of occurance of new cases of cancer during a year per hundred thousand persons in that population. The cancer incidence rates presented here are an average of four annual cancer incidence rates: 1978, 1979, 1980, and 1981.

The cancer mortality information used in this section is taken from national mortality data collected by the National Center for Health Statistics.

Organization of Figures and Tables

The first figure contains two line graphs presenting age-specific incidence and mortality rates for blacks and whites for all cancer sites combined. This is followed by a set of bar graphs showing age-adjusted cancer incidence rates for blacks, whites, and other racial/ethnic groups. A set of line graphs follow which compare age-specific mortality rates for selected cancer sites for blacks and whites. The next two tables present average annual age-adjusted cancer incidences and mortality rates for all and selected cancer sites for blacks, whites, and other racial/ethnic groups. The last table shows black/white ratios of age-adjusted cancer incidence and mortality rates.

Highlights

- After ages 35-39 blacks had higher age-specific incidence rates for all cancer sites combined than whites. This difference increases to ages 55-59 and then decreases until ages 70-74 where it begins to increase again.

- Blacks experienced higher age-specific mortality rates for all cancer sites combined than whites after ages 30-34.

- Among the major racial/ethnic groups, blacks had the highest overall incidence rate for cancer followed by Hawaiians and then whites. American Indians had the lowest cancer incidence rate.

- Among the racial/ethnic groups for which cancer data is available:

  - Blacks had the highest incidence rate for cancers of the colon, larynx, lung, pancreas and prostate.

  - Whites had the highest incidence rate for cancers of the bladder, brain and CNS, melanoma, and pancreas. They also had the highest incidence rates for the three hematopietic and lymphoid cancers: Hodgkin's disease, leukemia, and non-Hodgkin's disease.

- American Indians had the highest incidence rate for cancers of the female cervix, and kidney. They had the lowest incidence rate for cancers of the bladder, colon, rectum, larynx, male and female lungs, female breast, corpus, ovary, brain and CNS, buccal cavity and the three hematopietic and lymphoid cancers: Hodgkin's disease, non-Hodgkin's disease and leukemia.

- Hawaiians had the highest incidence rate for cancers of the female breast, ovary, corpus, stomach and female lung.

- Puerto Ricans had the highest incidence rate for cancers of the buccal cavity.

- Japanese Americans had the highest incidence rate for cancer of the rectum. They had the lowest incidence rate for cancers of the cervix and multiple myeloma.

- Hispanics had the lowest incidence rate for cancer of the esophagus.

- Chinese Americans had the lowest incidence rate for cancer of the prostate gland.

- Filipinos had the lowest incidence rate for cancers of the kidney and stomach.

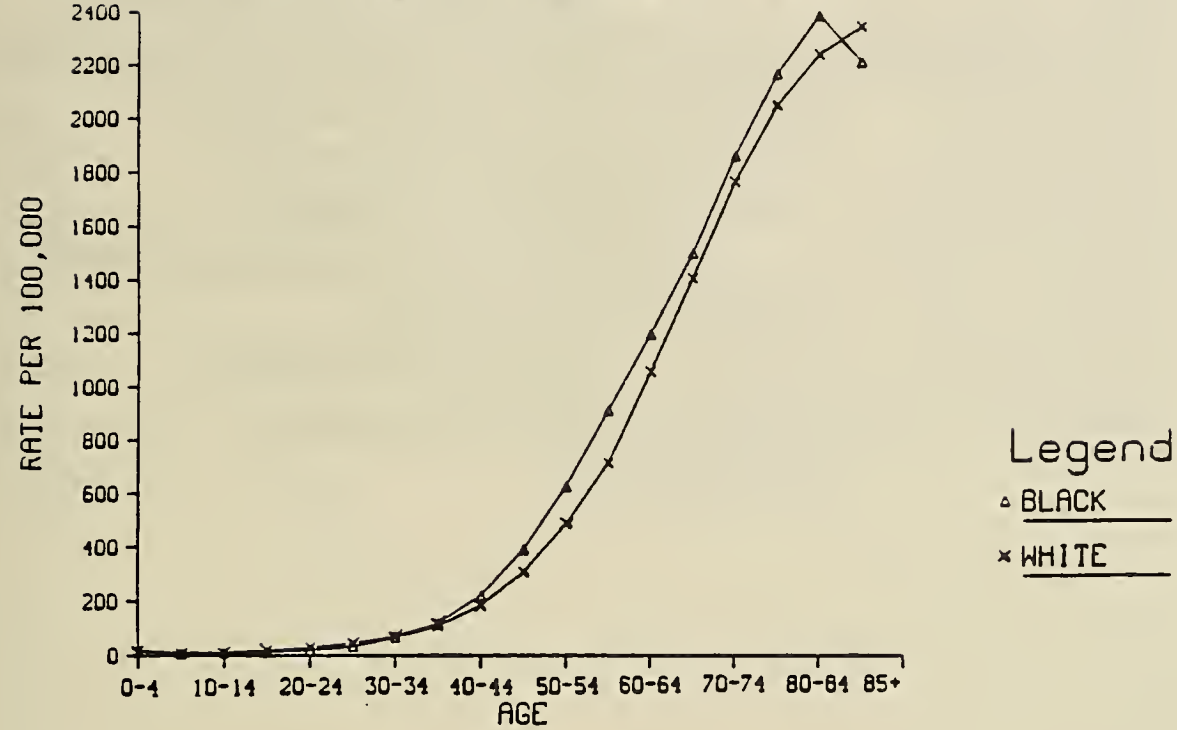
- Blacks were nearly four times as likely as whites to have cancer of the esophagus and more than twice as likely to have multiple myelomas.

- Black females were more than twice as likely as white females to have cancer of the cervix uteri.

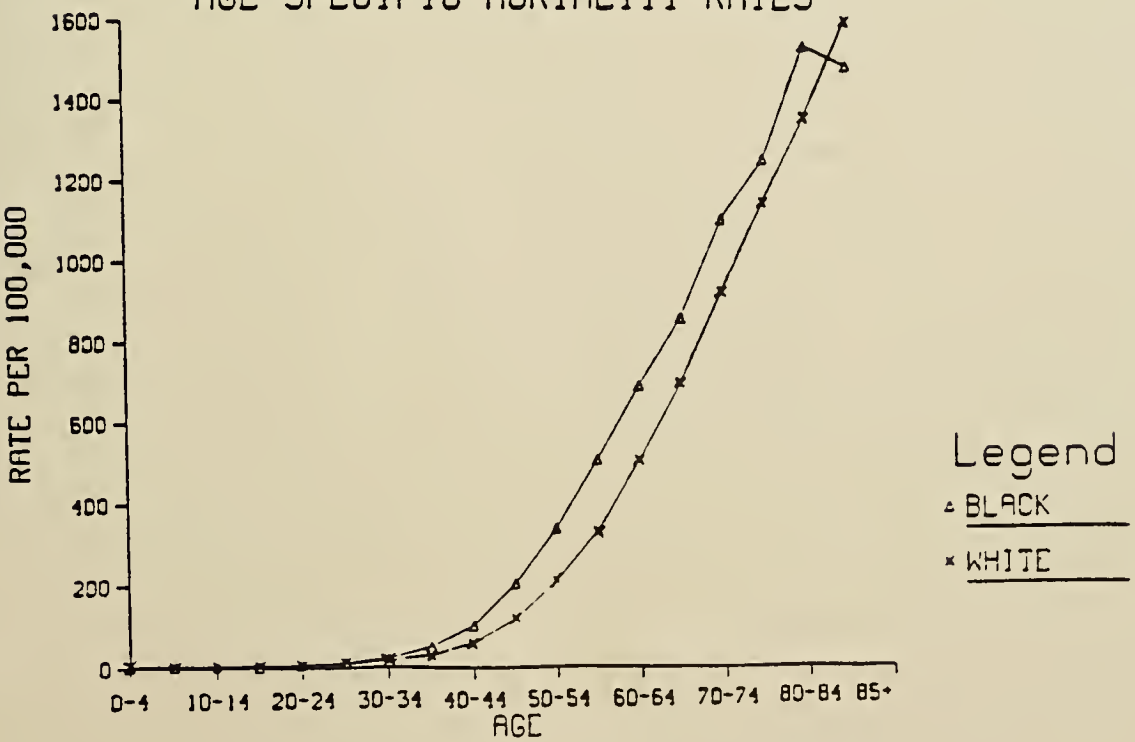
- Blacks had a mortality rate that was over three times the rate of whites for cancer of esophogus and more than twice the mortality rate of whites for cancers of the cervix uteri, prostate gland, and multiple myeloma.

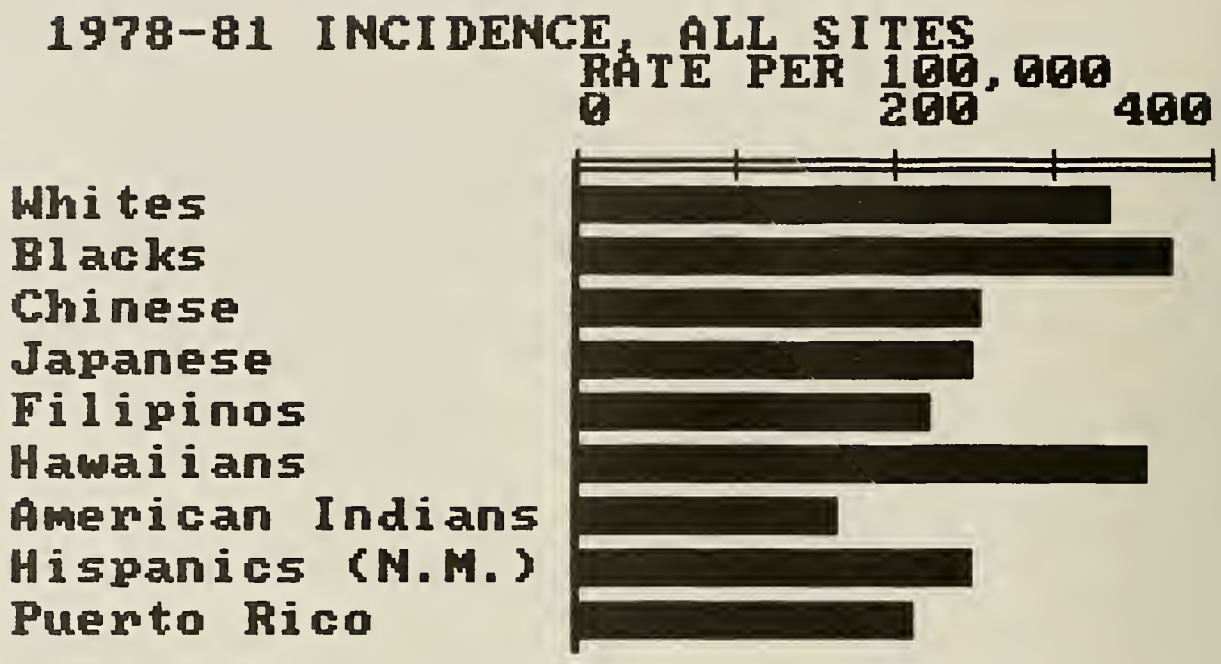
WHITES AND BLACKS, 1978-81
ALL SITES

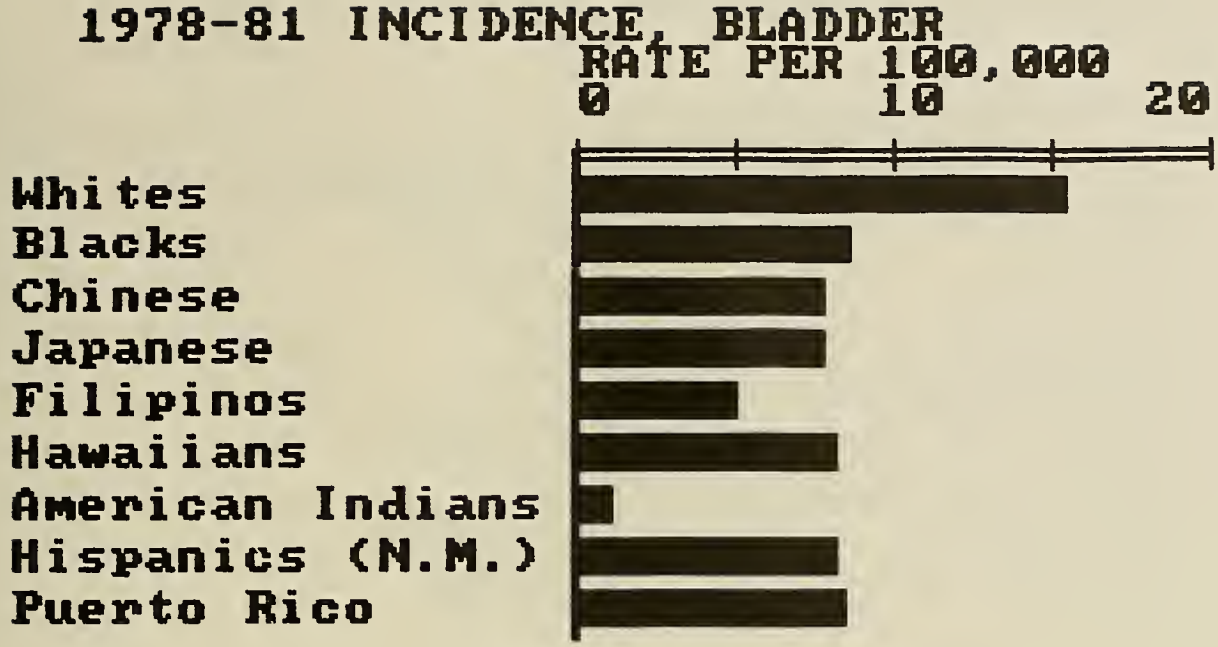
AGE SPECIFIC INCIDENCE RATES

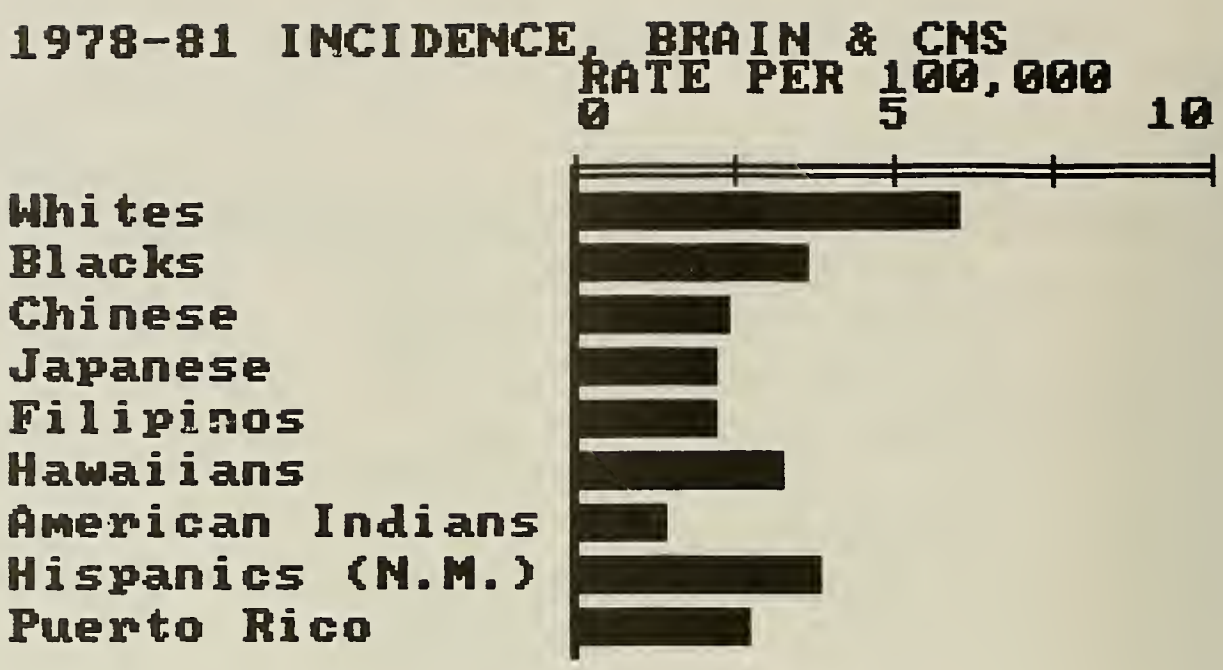


AGE SPECIFIC MORTALITY RATES

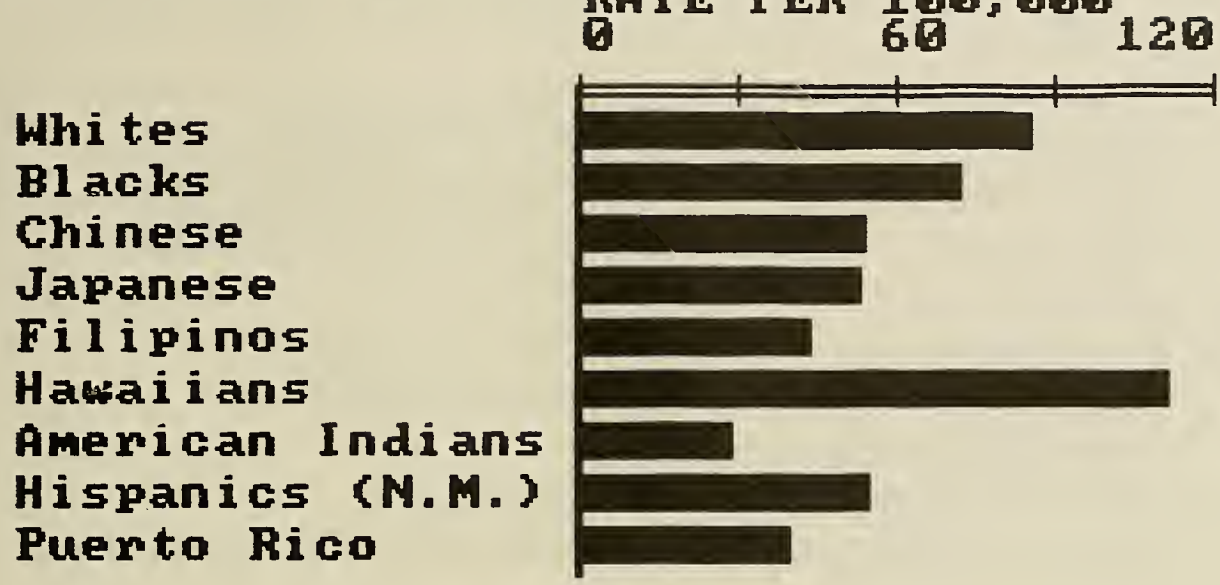


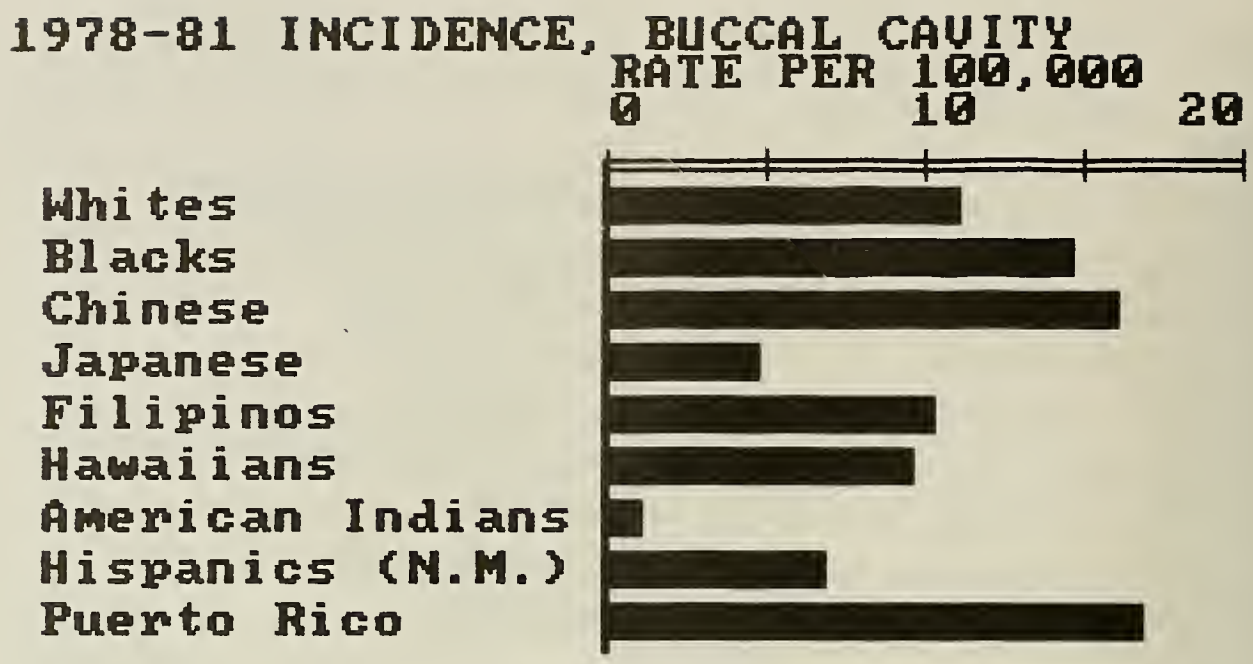

1978-81 INCIDENCE, ALL SITES
RATE PER 100,000
0
200
400
Whites
Blacks
Chinese
Japanese
Filipinos
Hawaiians
American Indians
Hispanics (N.M.)
Puerto Rico

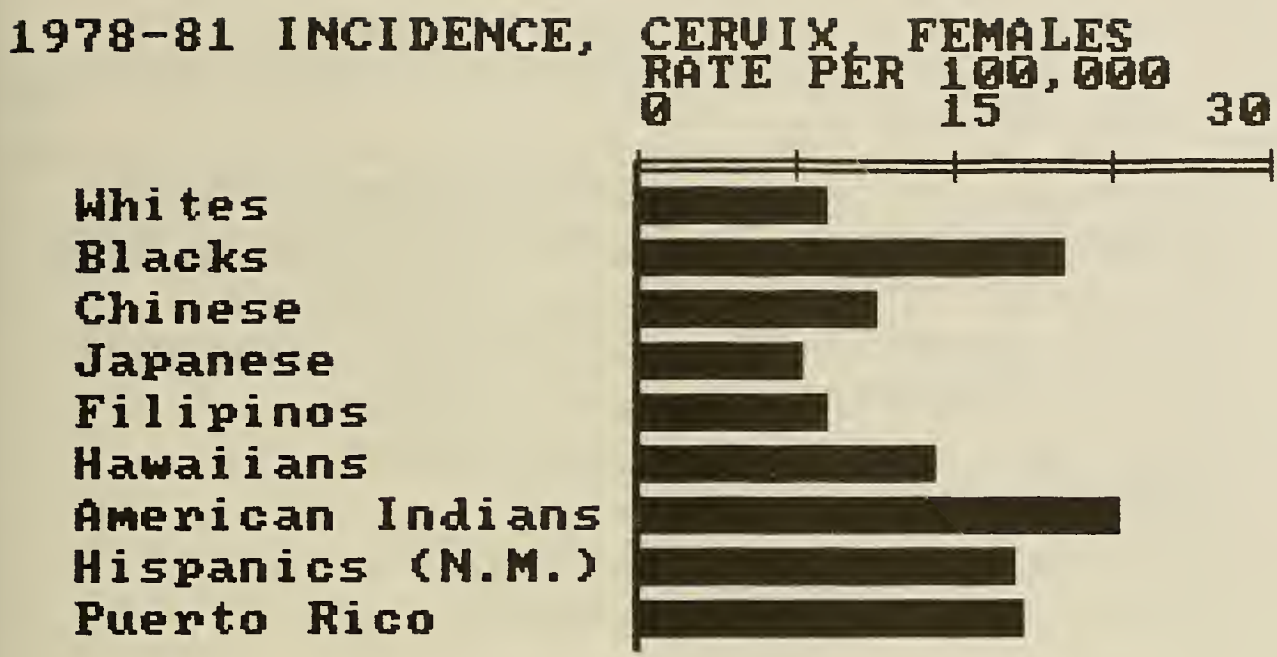

1978-81 INCIDENCE, BLADDER
RATE PER 100,000
0
10
20
Whites
Blacks
Chinese
Japanese
Filipinos
Hawaiians
American Indians
Hispanics (N.M.)
Puerto Rico

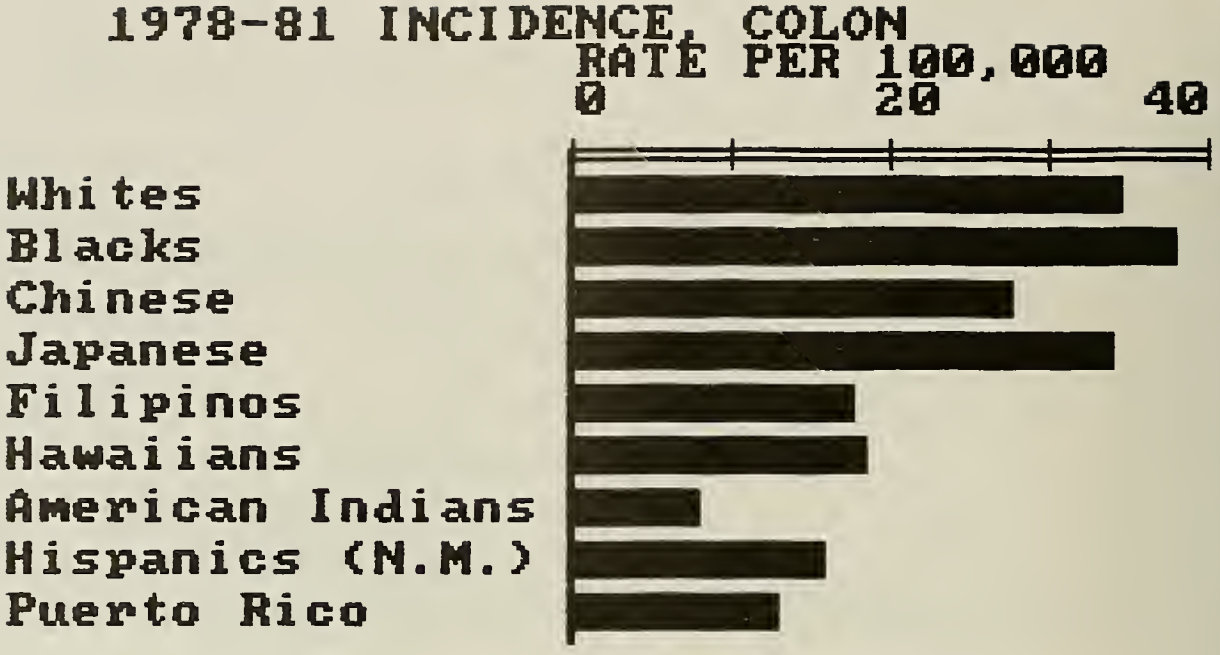

1978-81 INCIDENCE, BRAIN & CNS
RATE PER 100,000
0
5
10
Whites
Blacks
Chinese
Japanese
Filipinos
Hawaiians
American Indians
Hispanics (N.M.)
Puerto Rico

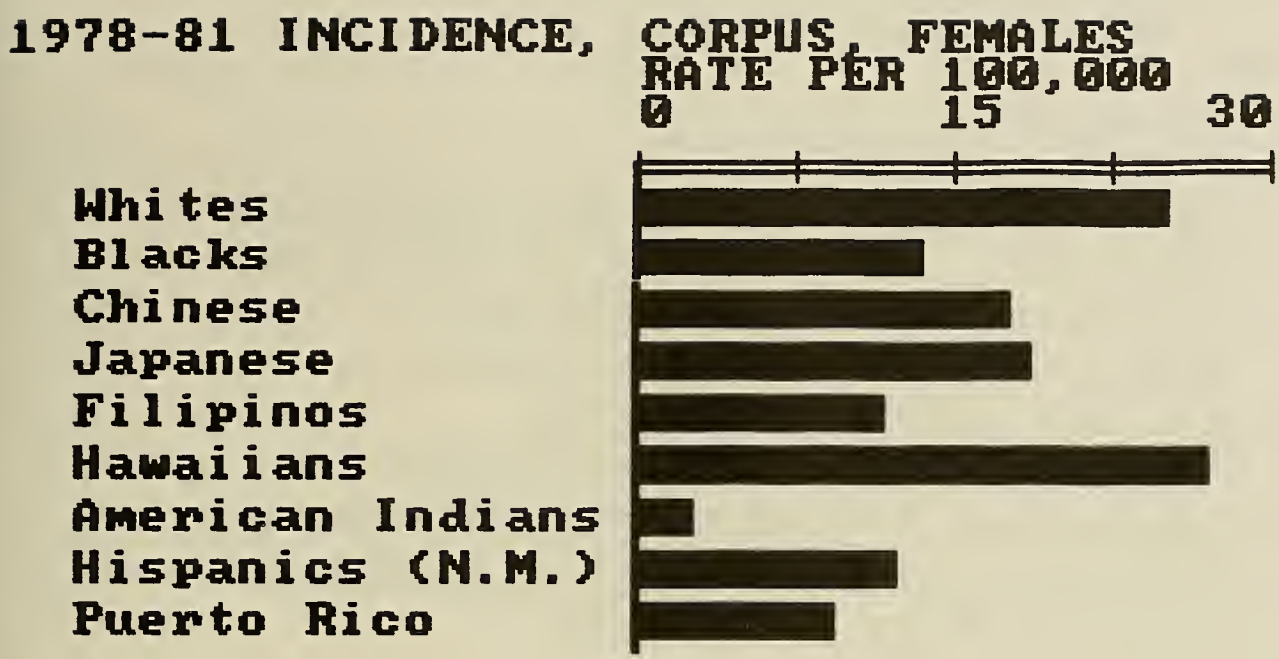
1978-81 INCIDENCE, BREAST, FEMALES
RATE PER 100,000

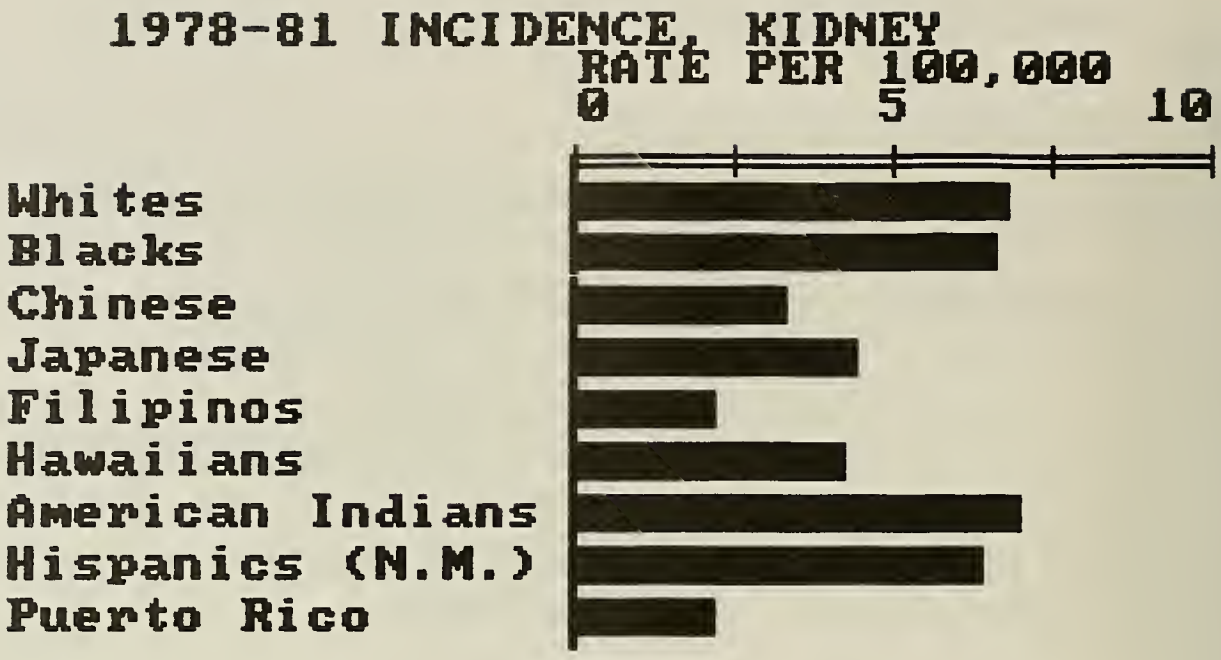


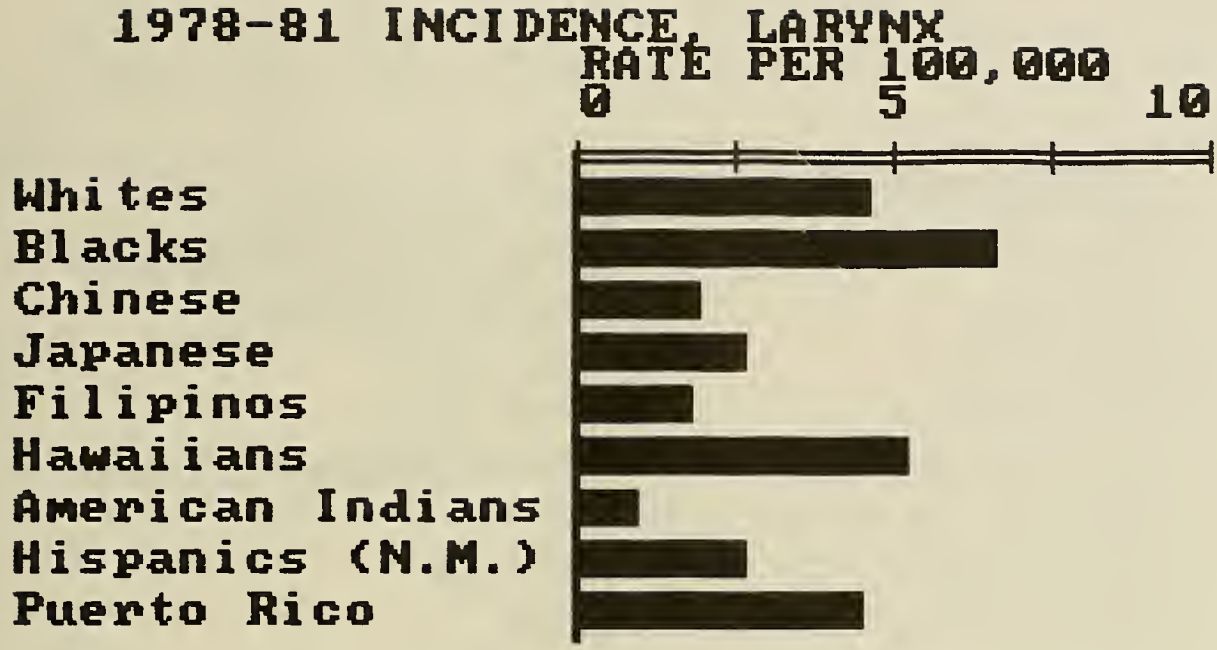

1978-81 INCIDENCE, BUCCAL CAVITY
RATE PER 100,000
0
10
20
Whites
Blacks
Chinese
Japanese
Filipinos
Hawaiians
American Indians
Hispanics (N.M.)
Puerto Rico

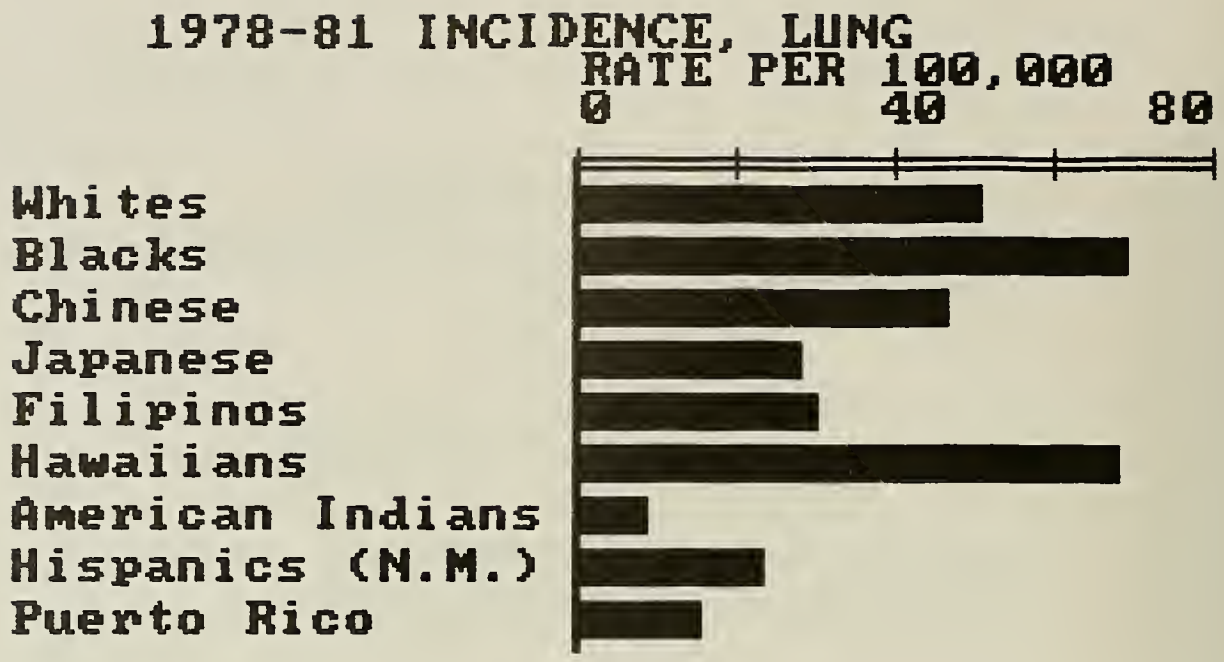

1978-81 INCIDENCE, CERVIX, FEMALES
RATE PER 100,000
0
15
30
Whites
Blacks
Chinese
Japanese
Filipinos
Hawaiians
American Indians
Hispanics (N.M.)
Puerto Rico

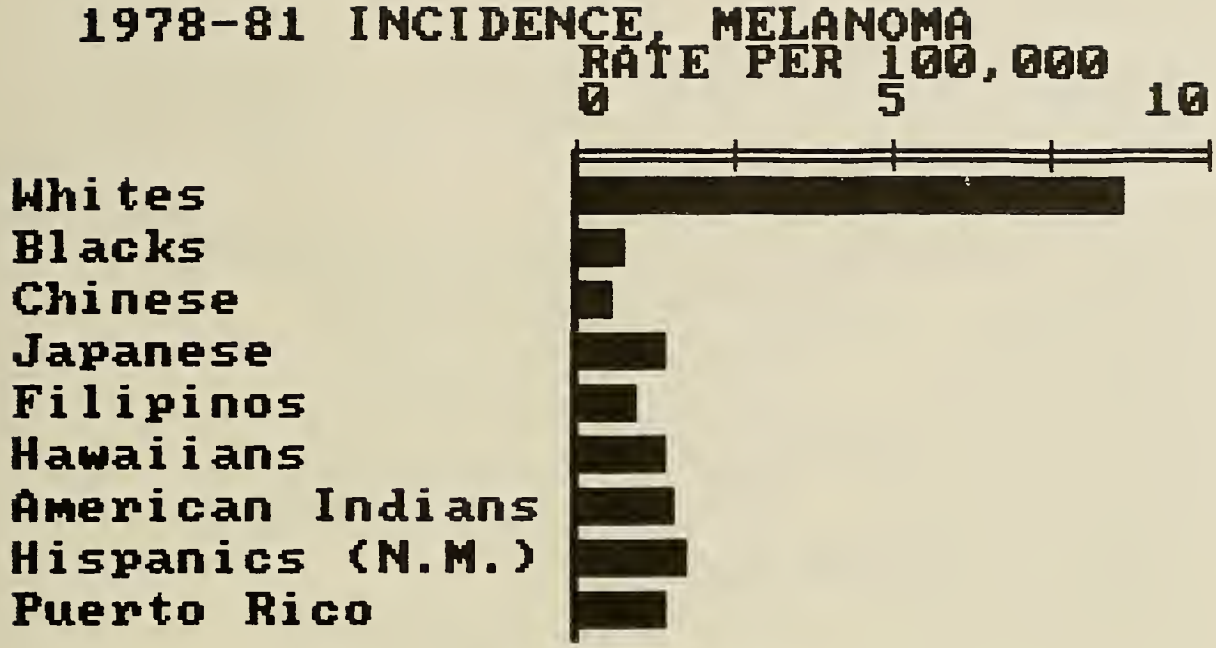

1978-81 INCIDENCE, COLON
RATE PER 100,000
0
20
40
Whites
Blacks
Chinese
Japanese
Filipinos
Hawaiians
American Indians
Hispanics (N.M.)
Puerto Rico

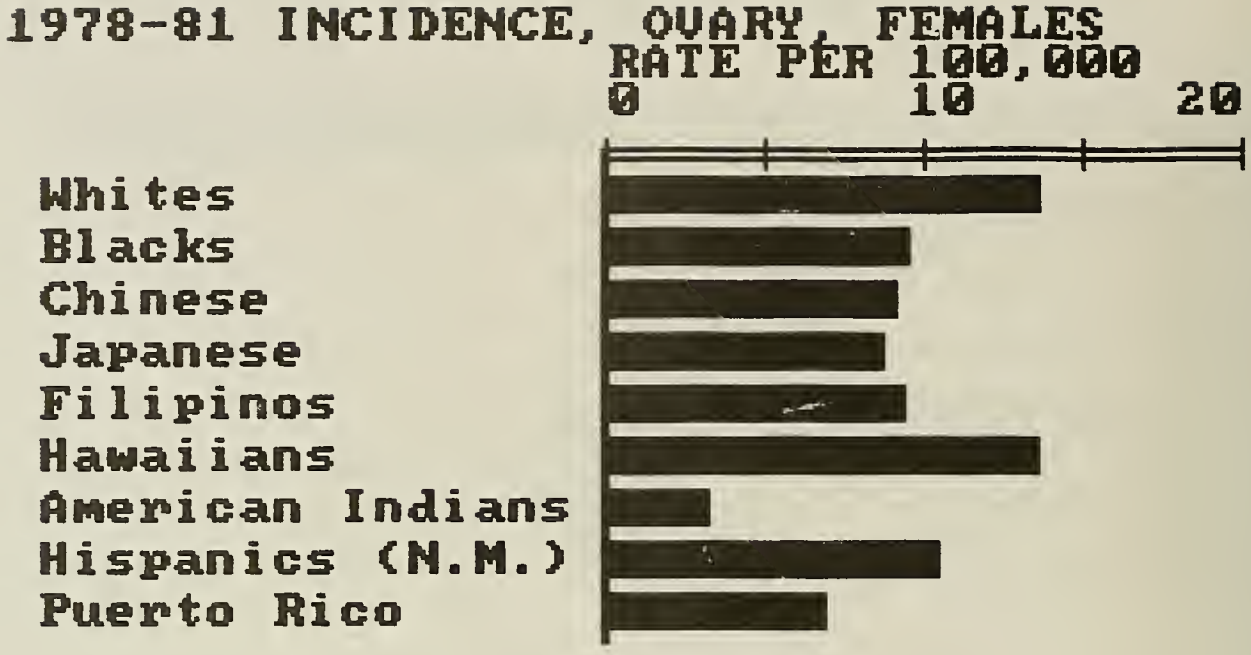

1978-81 INCIDENCE, CORPUS, FEMALES
RATE PER 100,000
0
15
30
Whites
Blacks
Chinese
Japanese
Filipinos
Hawaiians
American Indians
Hispanics (N.M.)
Puerto Rico

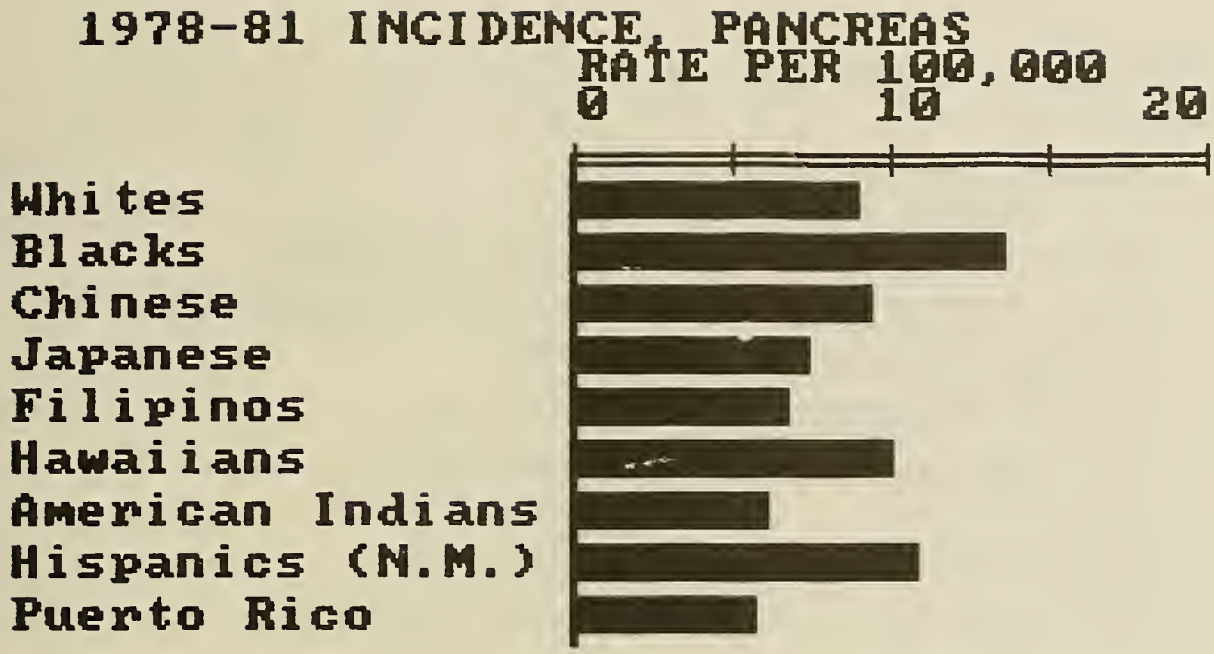

1978-81 INCIDENCE, KIDNEY
RATE PER 100,000
0
5
10
Whites
Blacks
Chinese
Japanese
Filipinos
Hawaiians
American Indians
Hispanics (N.M.)
Puerto Rico


1978-81 INCIDENCE, LARYNX
RATE PER 100,000
0
5
10
Whites
Blacks
Chinese
Japanese
Filipinos
Hawaiians
American Indians
Hispanics (N.M.)
Puerto Rico

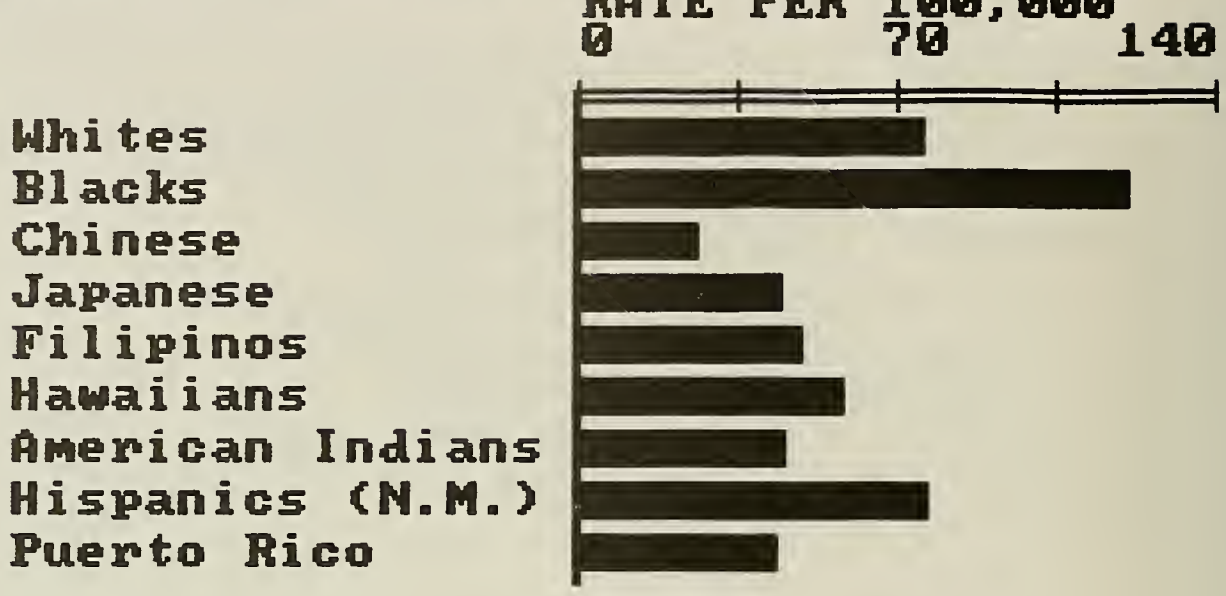

1978-81 INCIDENCE, LUNG
RATE PER 100,000
0
40
80
Whites
Blacks
Chinese
Japanese
Filipinos
Hawaiians
American Indians
Hispanics (N.M.)
Puerto Rico

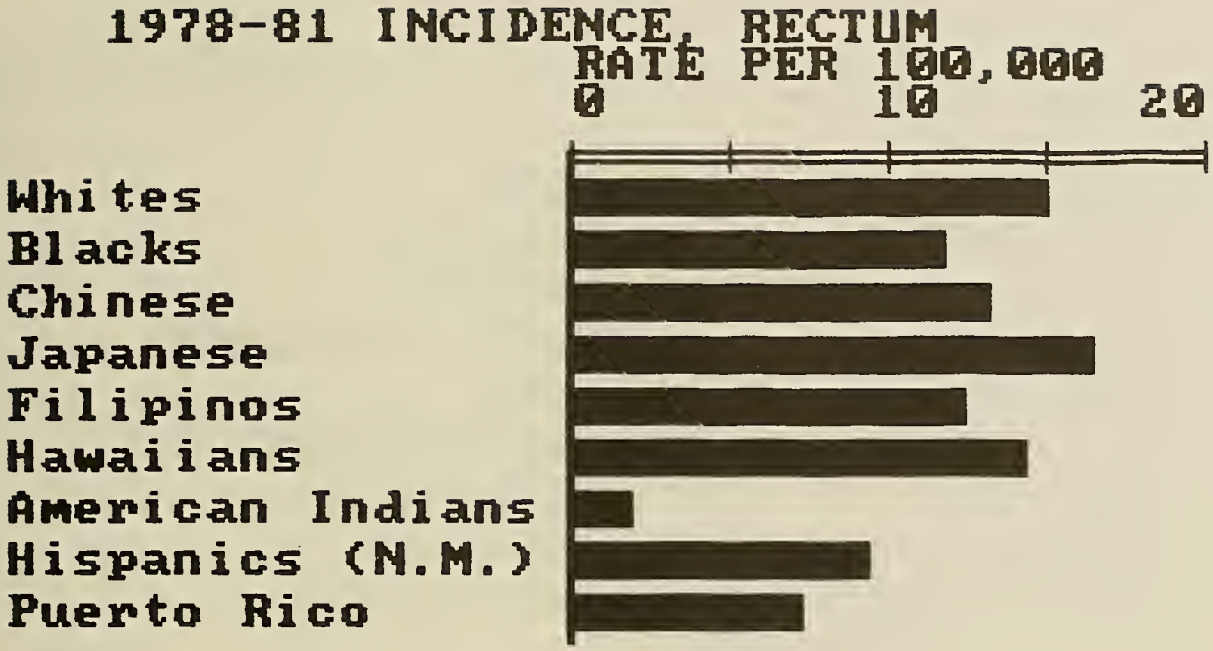

1978-81 INCIDENCE, MELANOMA
RATE PER 100,000
0
5
10
Whites
Blacks
Chinese
Japanese
Filipinos
Hawaiians
American Indians
Hispanics (N.M.)
Puerto Rico

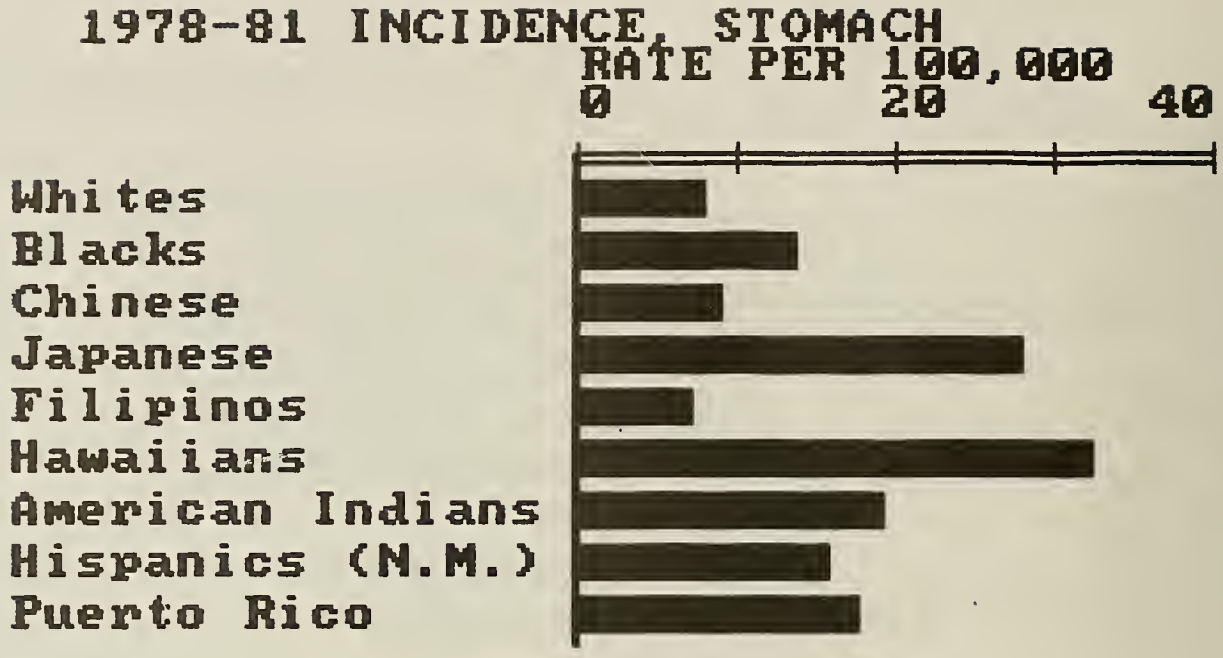

1978-81 INCIDENCE, OVARY, FEMALES
RATE PER 100,000
0
10
20
Whites
Blacks
Chinese
Japanese
Filipinos
Hawaiians
American Indians
Hispanics (N.M.)
Puerto Rico


1978-81 INCIDENCE, PANCREAS
RATE PER 100,000
0
10
20
Whites
Blacks
Chinese
Japanese
Filipinos
Hawaiians
American Indians
Hispanics (N.M.)
Puerto Rico

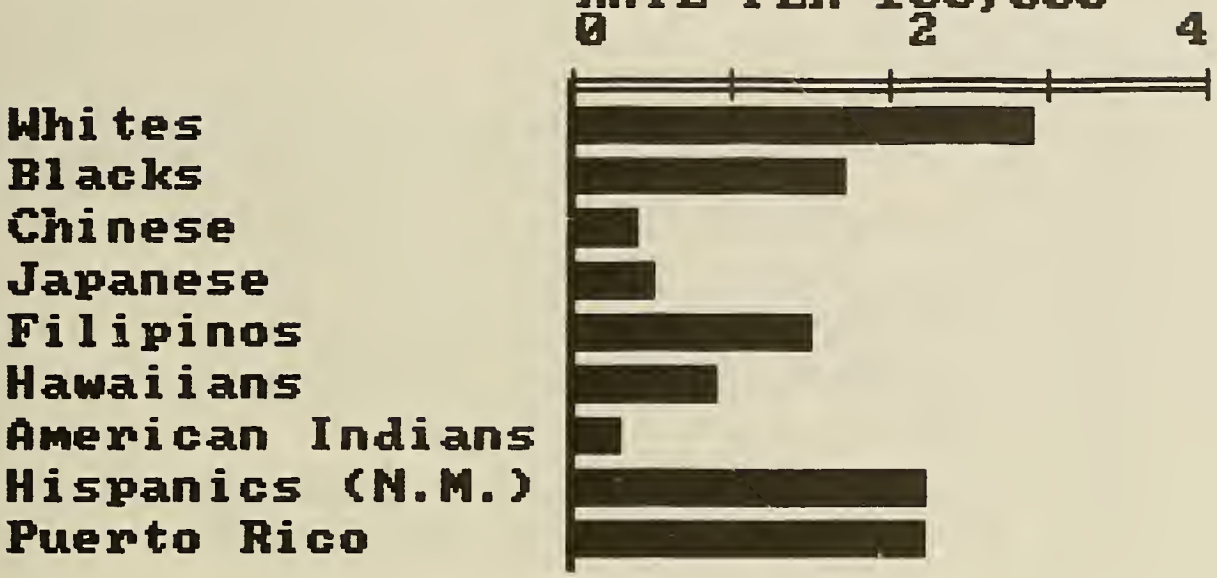
1978-81 INCIDENCE, PROSTATE, MALES
RATE PER 100,000

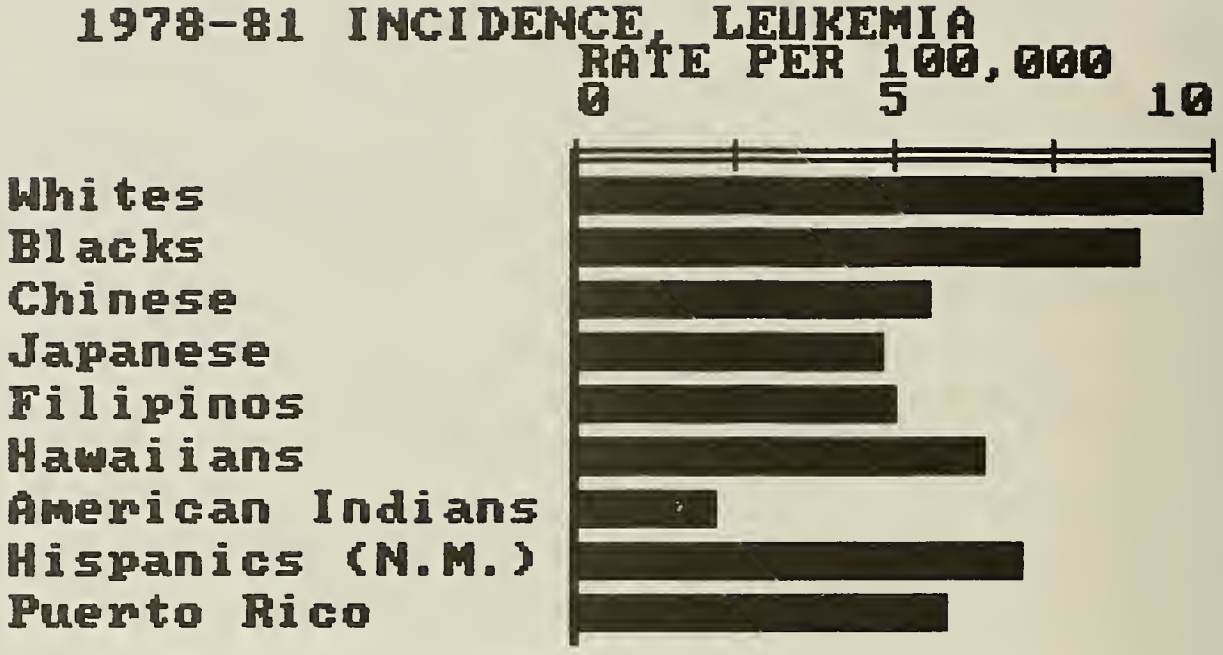


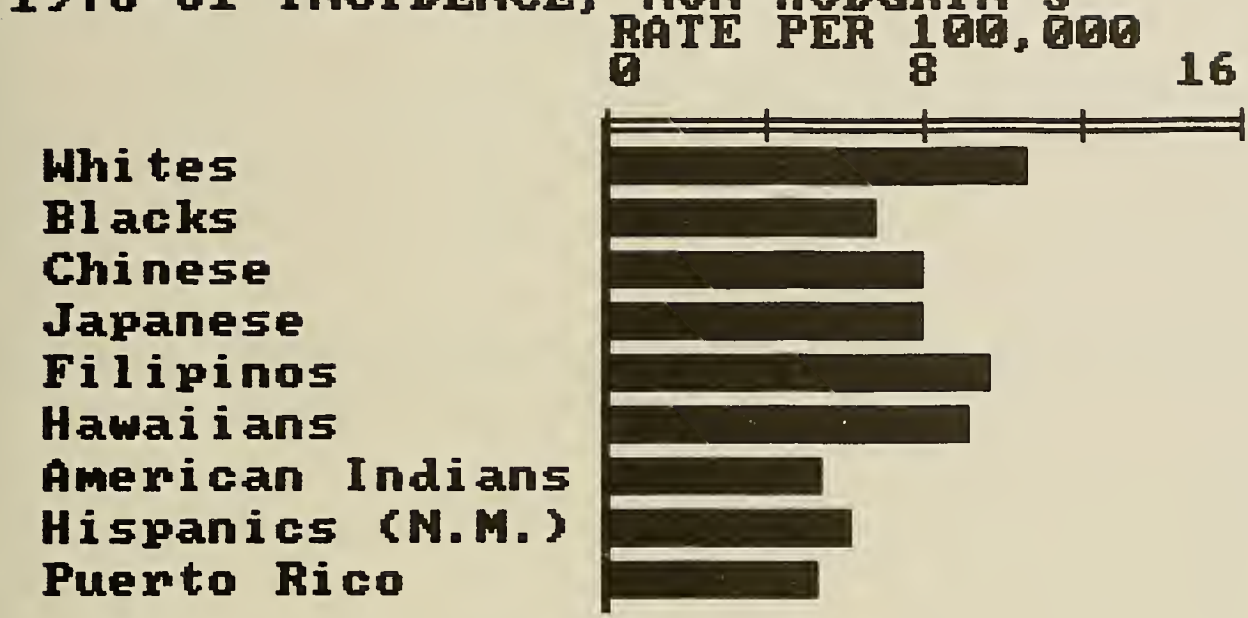

1978-81 INCIDENCE, RECTUM
RATE PER 100,000
0
10
20
Whites
Blacks
Chinese
Japanese
Filipinos
Hawaiians
American Indians
Hispanics (N.M.)
Puerto Rico


1978-81 INCIDENCE, STOMACH
RATE PER 100,000
0
20
40
Whites
Blacks
Chinese
Japanese
Filipinos
Hawaiians
American Indians
Hispanics (N.M.)
Puerto Rico

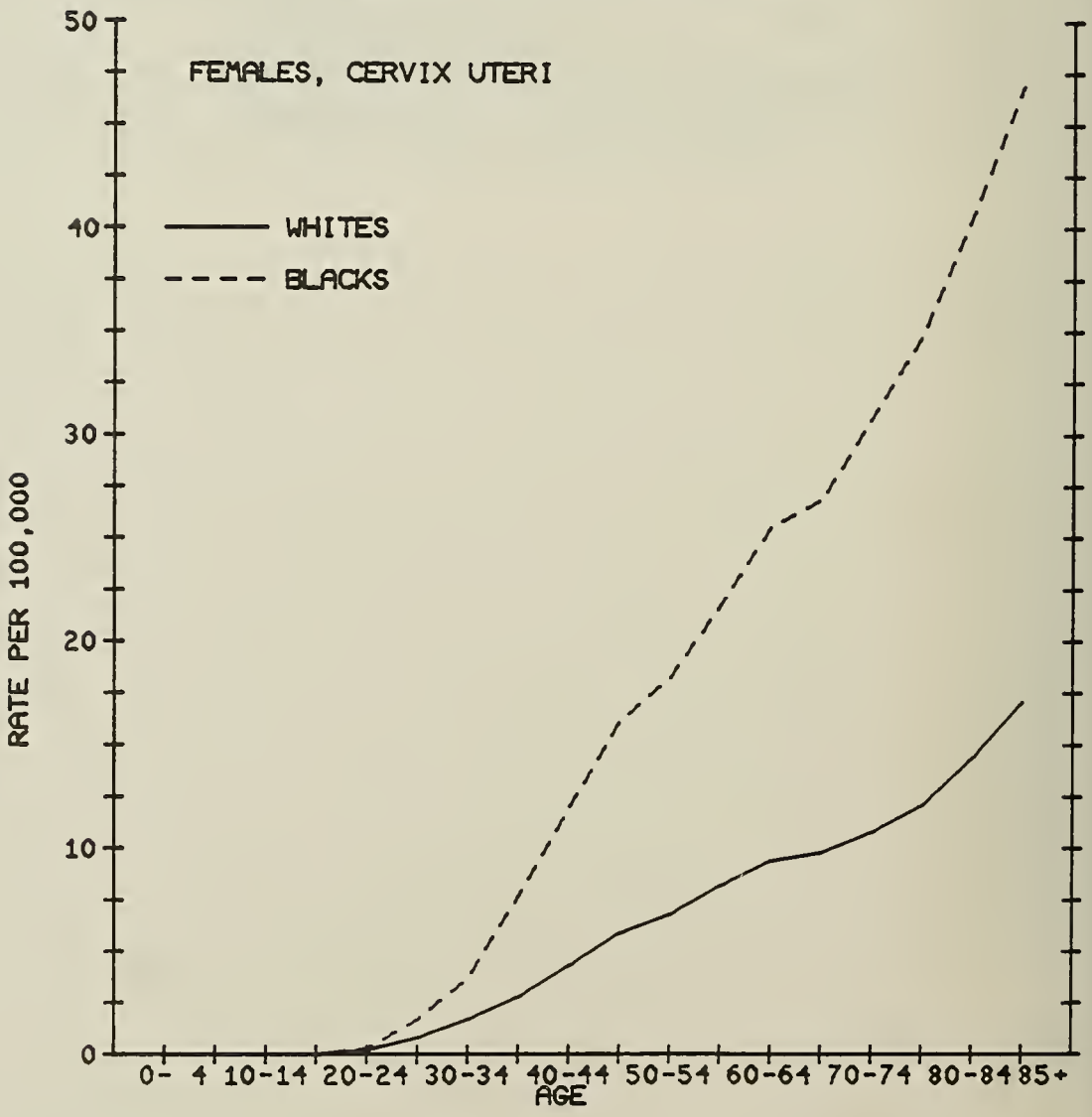
1978-81 INCIDENCE, HODGKIN'S DISEASE



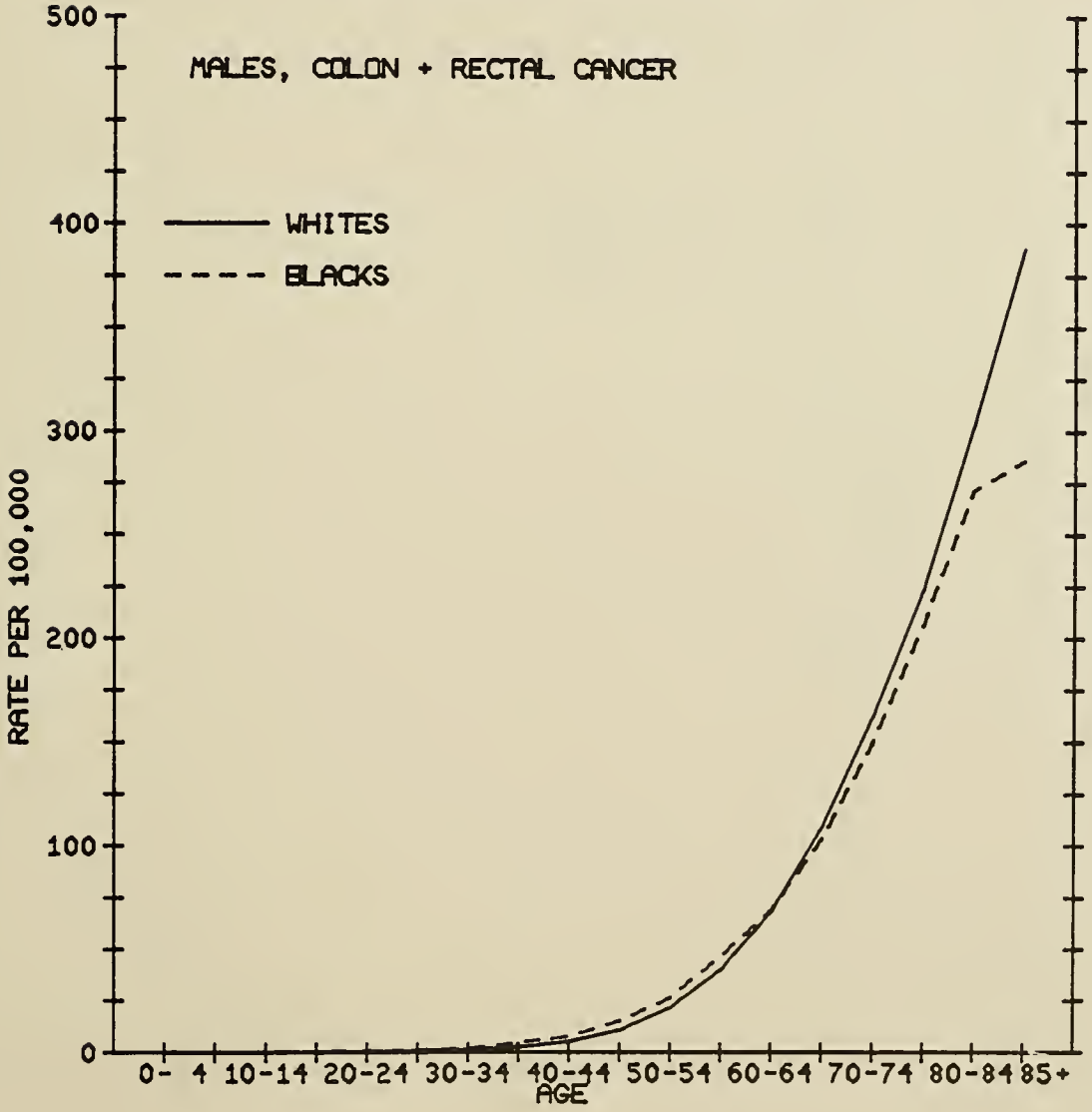

1978-81 INCIDENCE, LEUKEMIA
RATE PER 100,000
0
5
10
Whites
Blacks
Chinese
Japanese
Filipinos
Hawaiians
American Indians
Hispanics (N.M.)
Puerto Rico

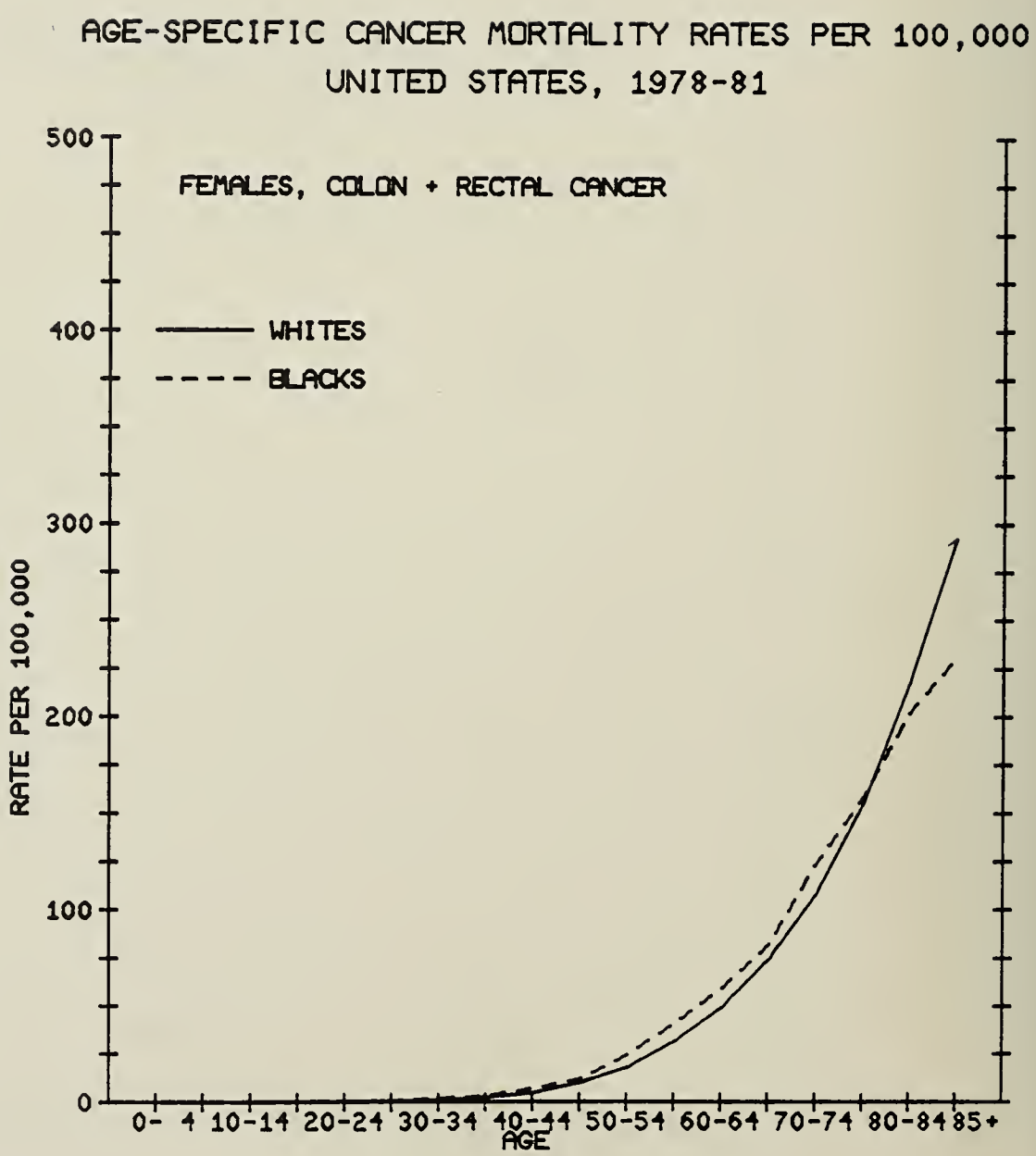

1978-81 INCIDENCE, NON-HODGKIN'S
RATE PER 100,000
0
8
16
Whites
Blacks
Chinese
Japanese
Filipinos
Hawaiians
American Indians
Hispanics (N.M.)
Puerto Rico

AGE-SPECIFIC CANCER MORTALITY RATES PER 100,000
UNITED STATES, 1978-81

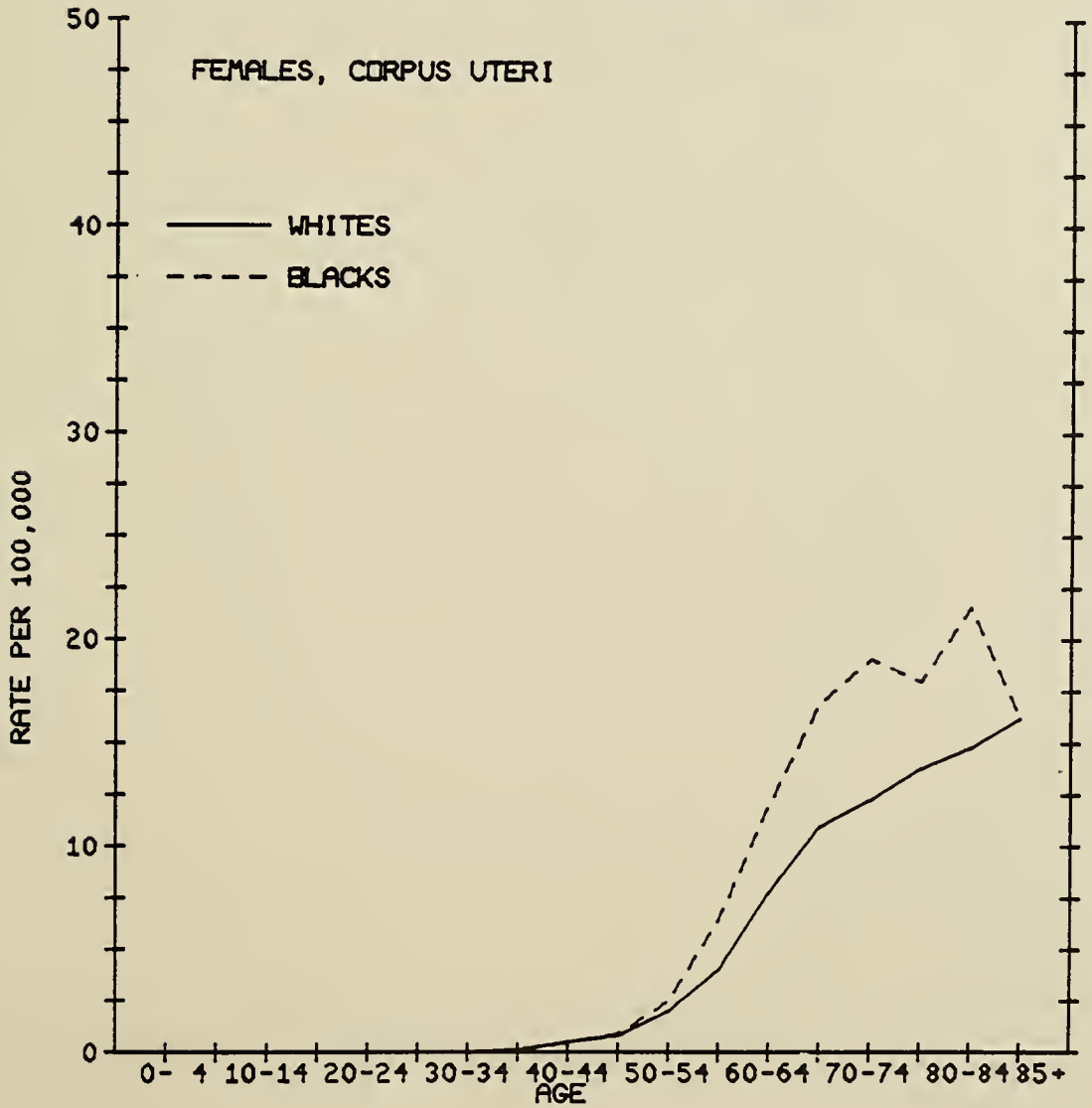


AGE-SPECIFIC CANCER MORTALITY RATES PER 100,000
UNITED STATES, 1978-81

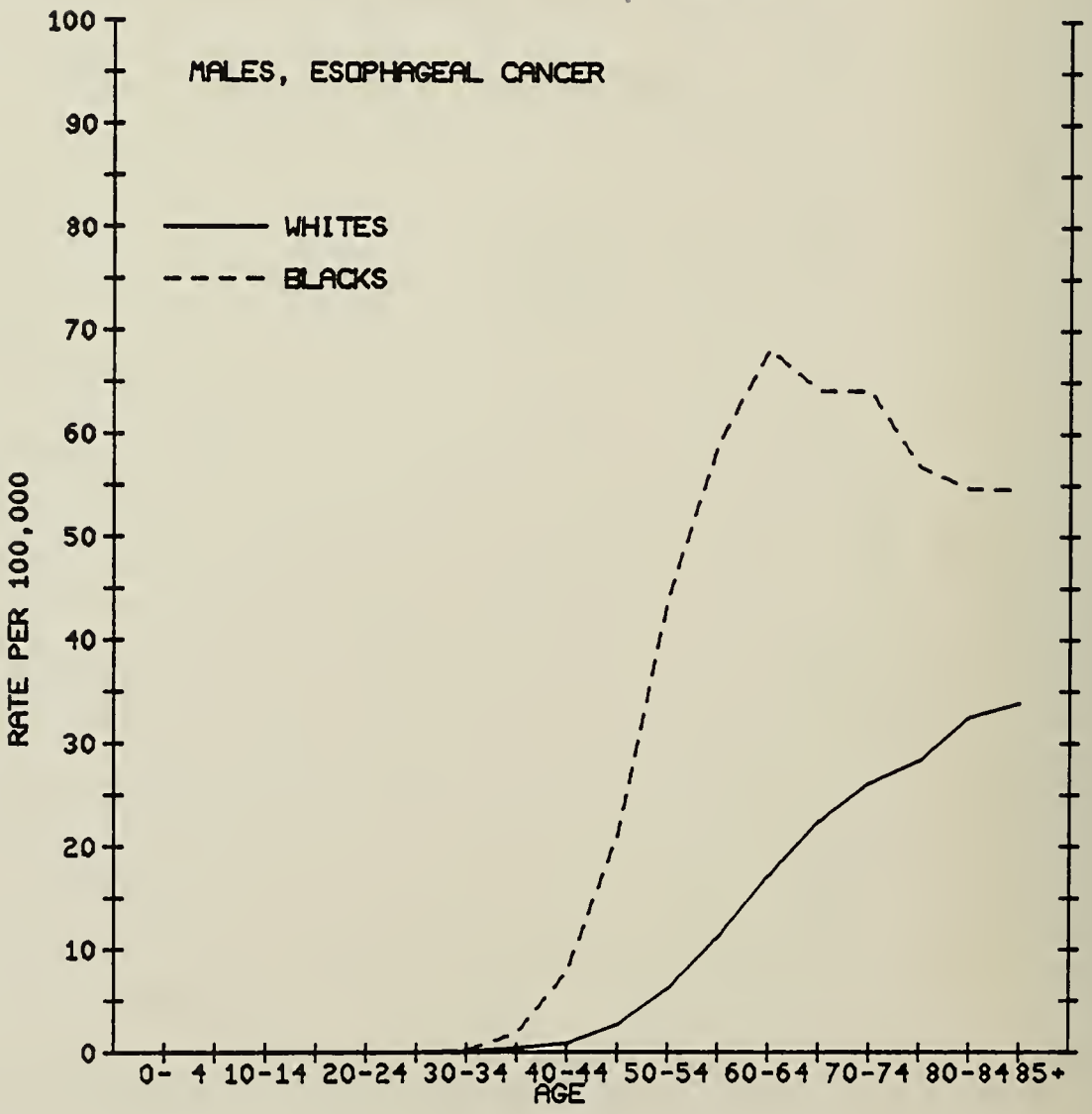



AGE-SPECIFIC CANCER MORTALITY RATES PER 100,000
UNITED STATES, 1978-81
FEMALES, COLON + RECTAL CANCER
WHITES
BLACKS
RATE PER 100,000
500
400
300
200
100
0
0- 4 10-14 20-24 30-34 40-44 50-54 60-64 70-74 80-84 85+
AGE

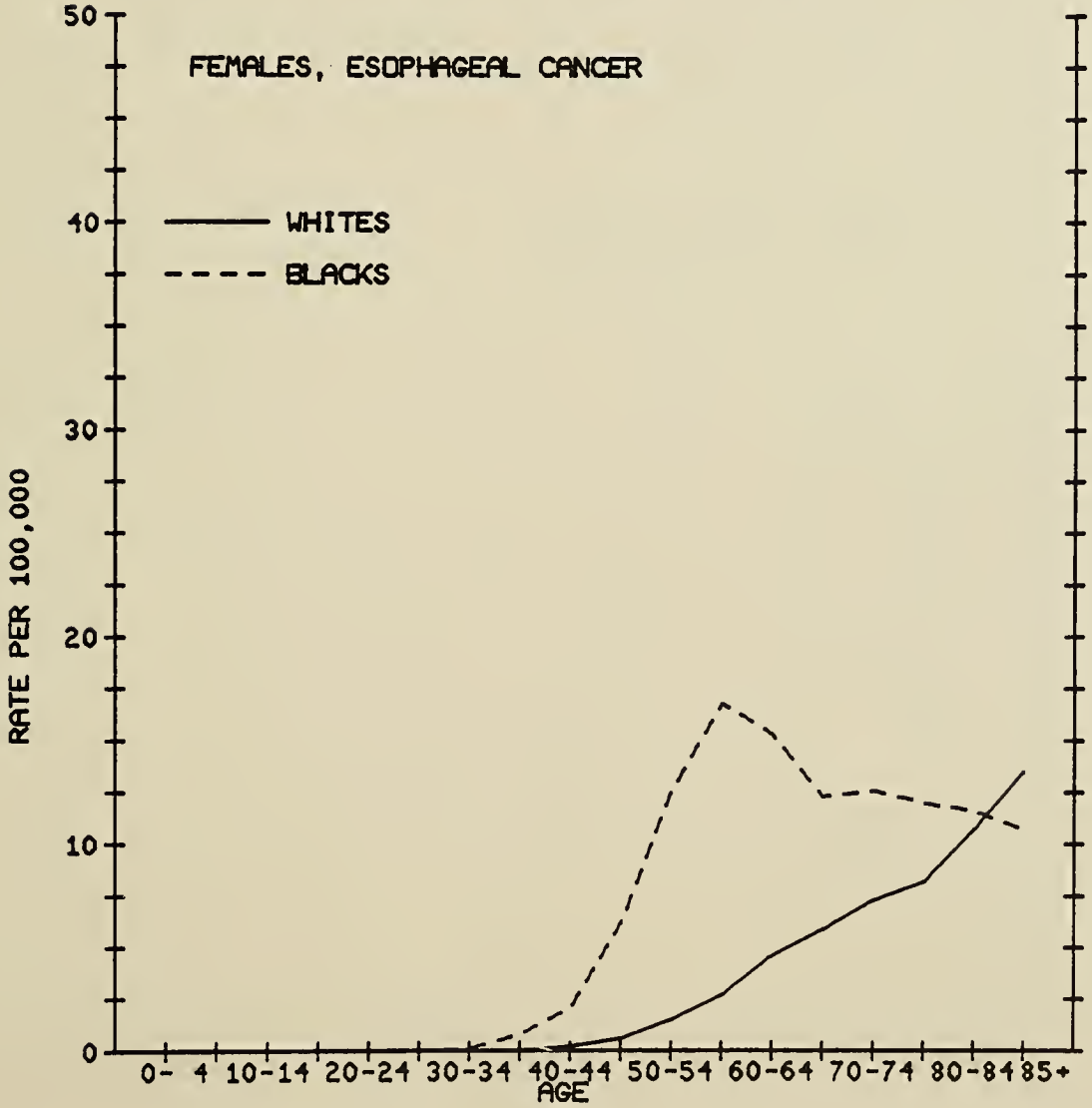
AGE-SPECIFIC CANCER MORTALITY RATES PER 100,000
UNITED STATES, 1978-81



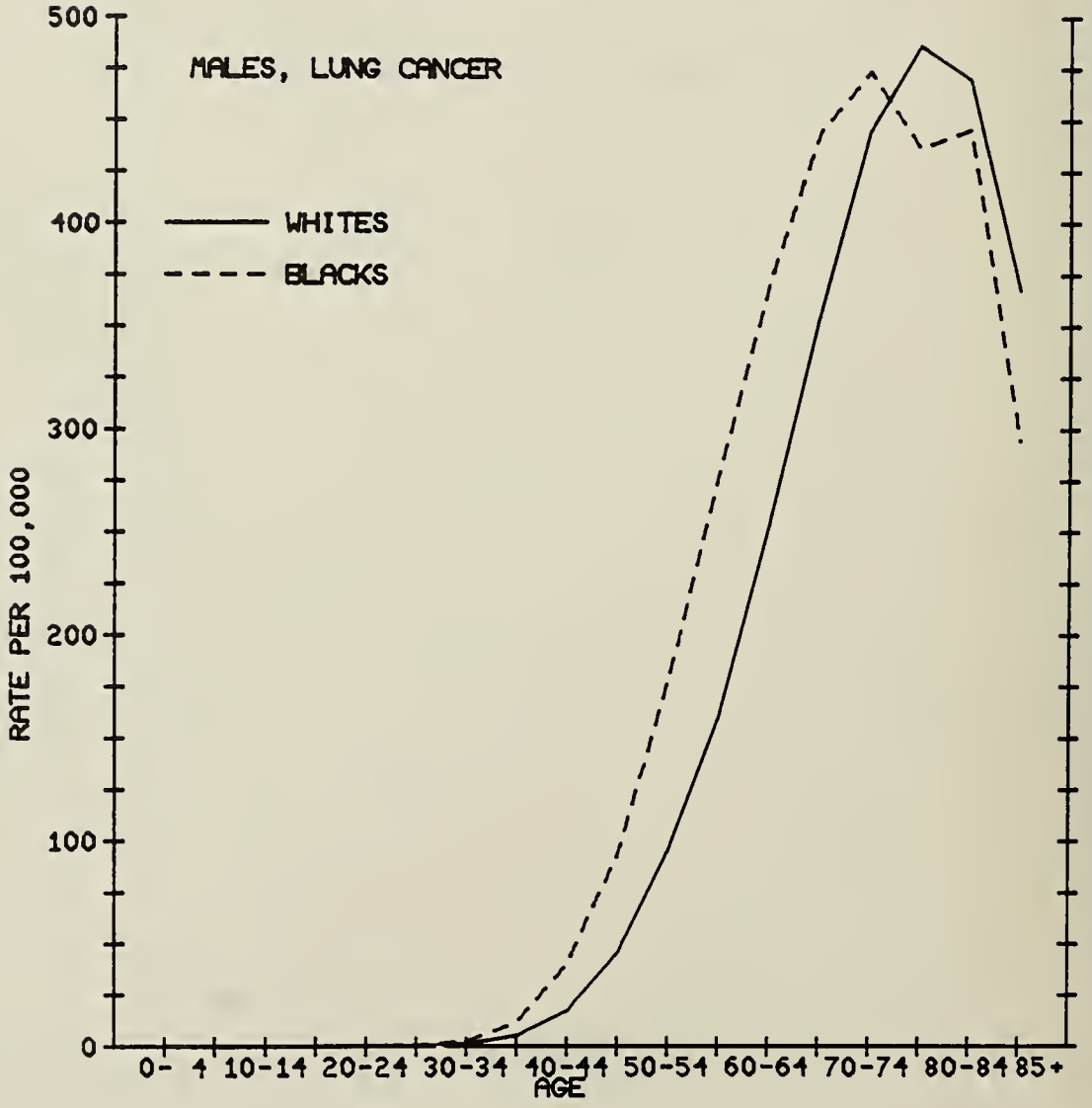
AGE-SPECIFIC CANCER MORTALITY RATES PER 100,000
UNITED STATES, 1978-81



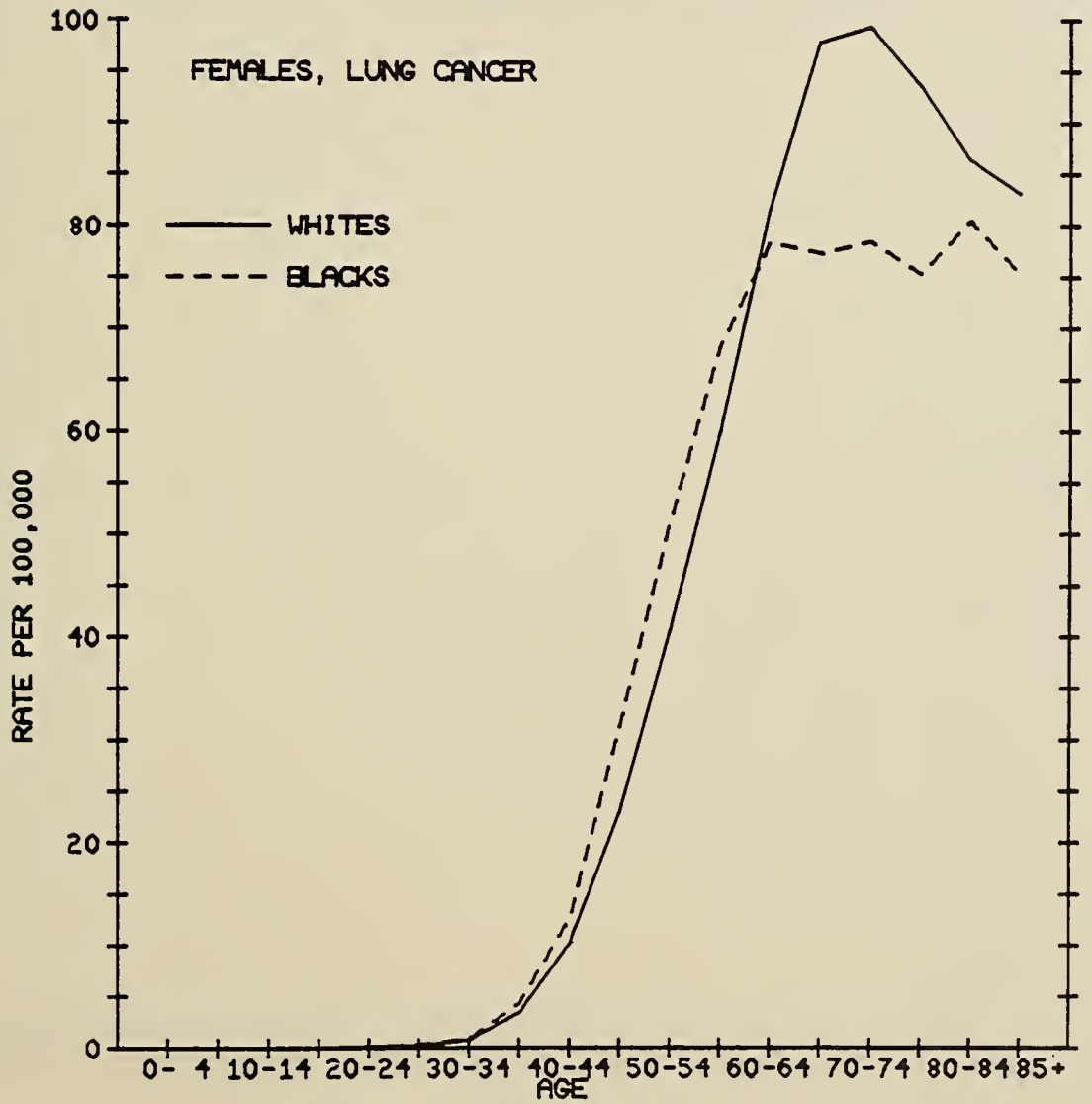
AGE-SPECIFIC CANCER MORTALITY RATES PER 100,000
UNITED STATES, 1978-81



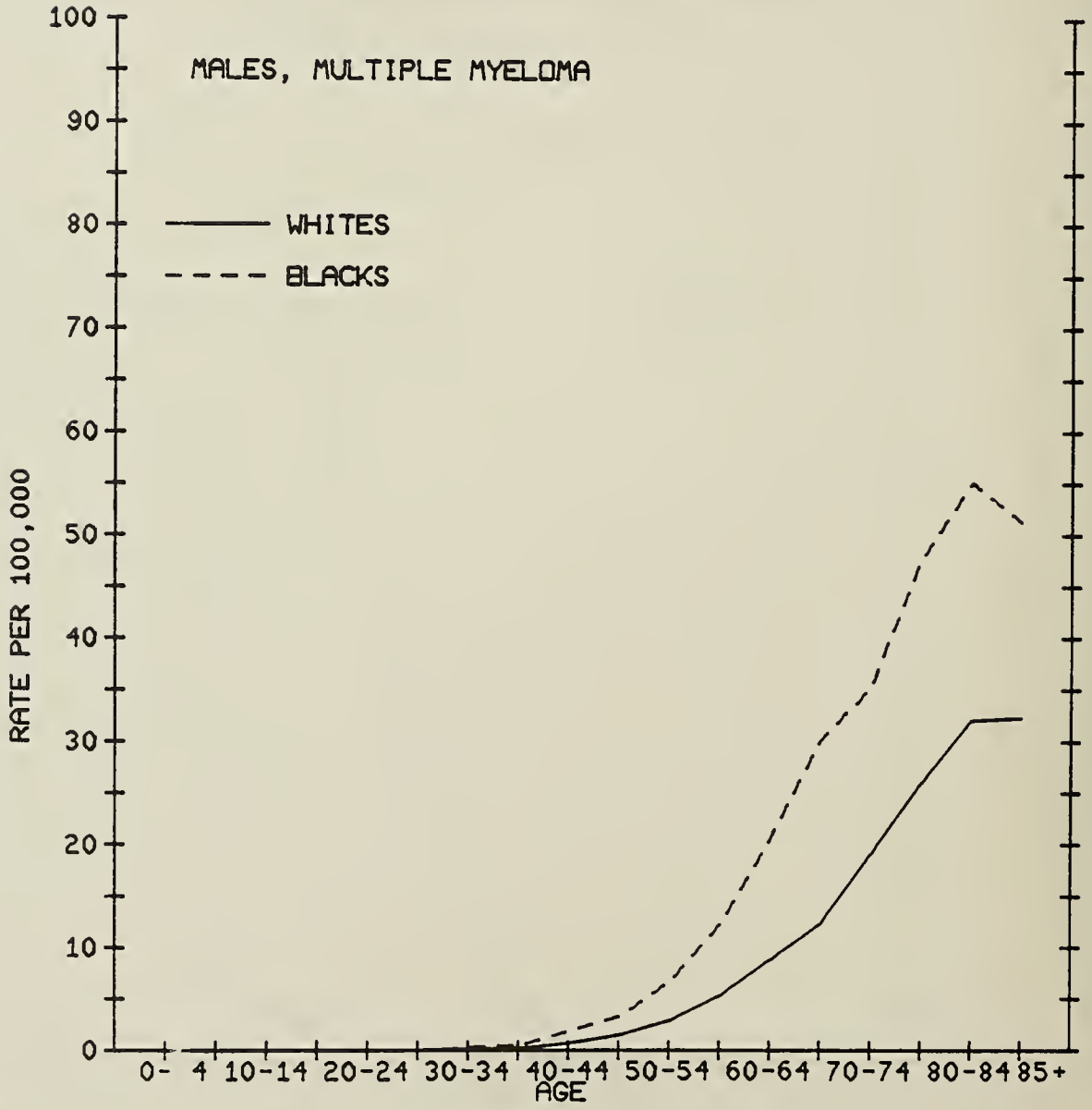
AGE-SPECIFIC CANCER MORTALITY RATES PER 100,000
UNITED STATES, 1978-81



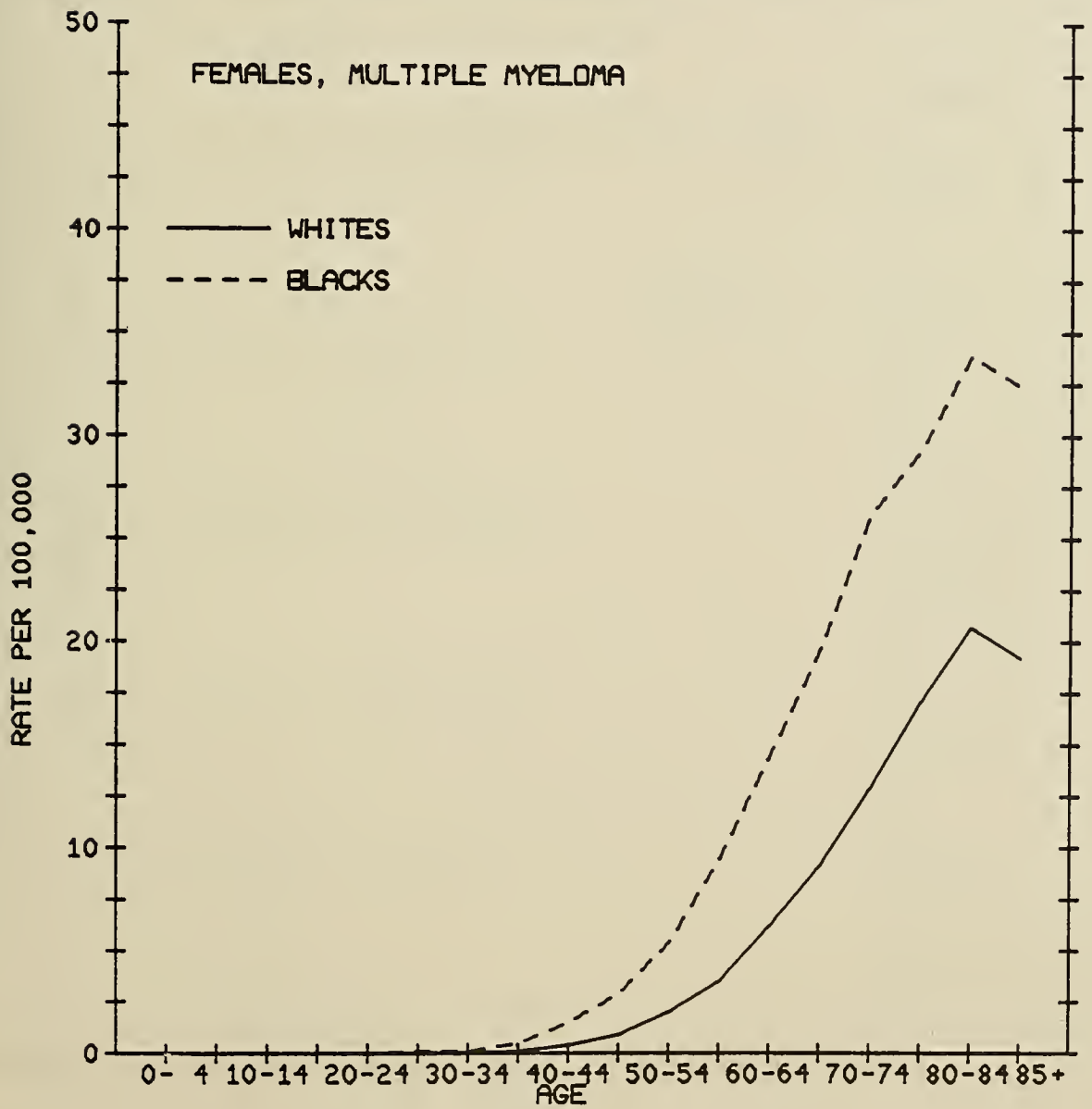
AGE-SPECIFIC CANCER MORTALITY RATES PER 100,000
UNITED STATES, 1978-81



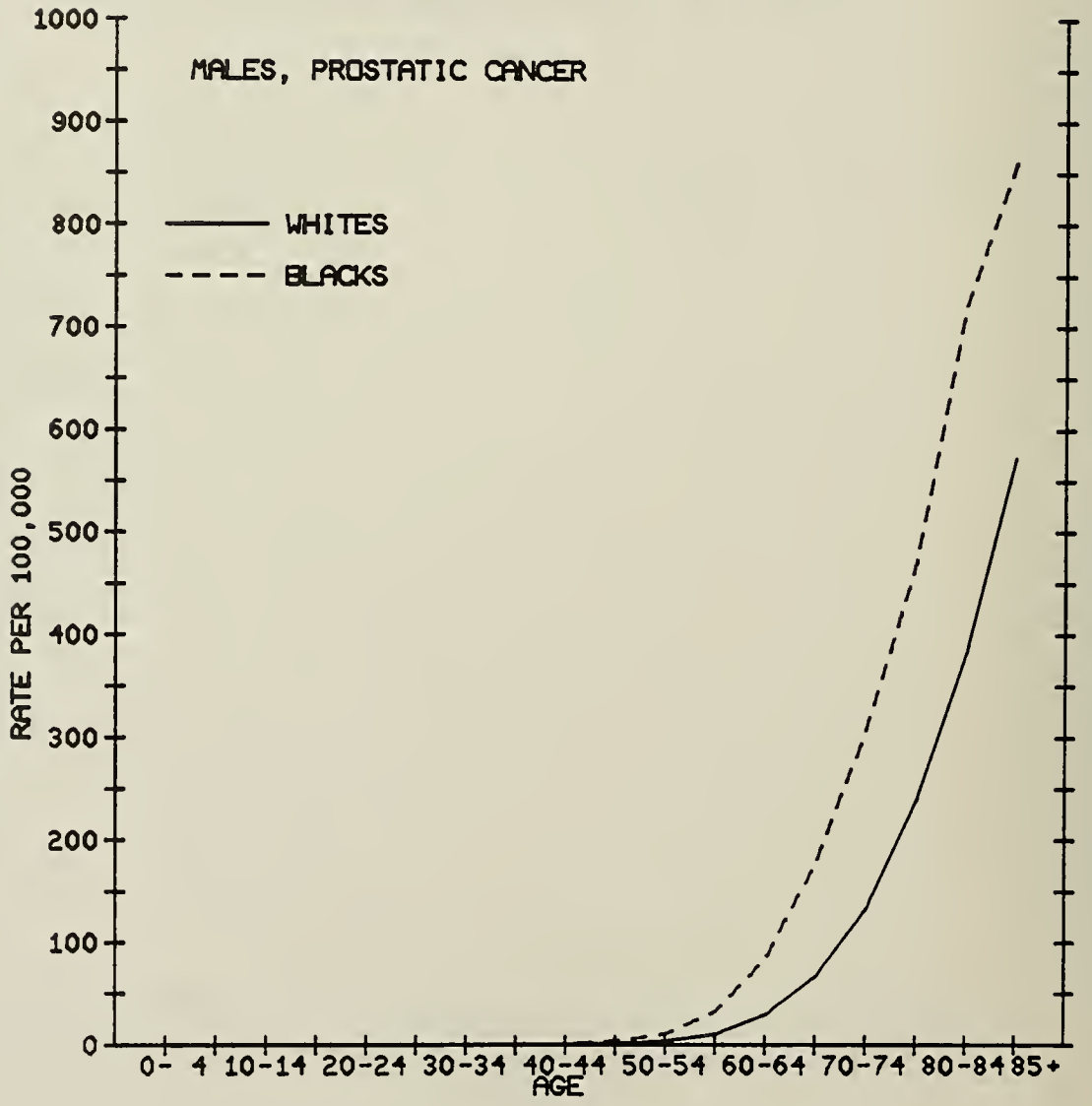
AGE-SPECIFIC CANCER MORTALITY RATES PER 100,000
UNITED STATES, 1978-81



AGE-SPECIFIC CANCER MORTALITY RATES PER 100,000
UNITED STATES, 1978-81



AGE-SPECIFIC CANCER MORTALITY RATES PER 100,000
UNITED STATES, 1978-81



Average annual age-adjusted (1970 U.S. standard) cancer incidence rates by primary site and ethnic group
Surveillance, Epidemiology, and End Results Program, 1978-81

Primary site	Whites	Blacks	Hispanics	Chinese	Japanese	Filipino	Hawaiians	Native Americans
All sites	335.0	372.5	246.2	252.9	247.8	222.4	357.9	164.2
Esophagus	3.0	11.5	1.6	3.4	2.4	3.6	6.4	2.4
Colorectal	49.6	48.9	25.2	40.8	50.4	30.1	32.7	9.9
Colon	34.6	37.9	15.8	27.7	34.0	17.7	18.4	8.0
Rectum	15.0	11.7	9.4	13.1	16.4	12.4	14.3	1.9
Pancreas	8.9	13.6	10.8	9.3	7.4	6.7	10.0	6.0
Larynx	4.6	6.6	2.6	1.9	2.6	1.8	5.2	0.9
Lung - male	81.0	119.0	34.3	62.6	45.1	38.1	100.9	14.3
- female	28.2	30.5	13.0	31.2	14.1	18.4	38.6	3.1
Breast	85.6	71.9	54.1	54.0	53.1	43.4	111.1	28.5
Cervix	8.8	20.2	17.7	11.2	7.6	8.8	14.1	22.6
Prostate gland	75.1	120.3	76.5	26.1	44.2	48.9	57.9	45.4
Multiple myeloma	3.4	7.9	2.5	1.6	1.2	4.1	5.5	2.8

Average annual age-adjusted (1970 U.S. standard) cancer mortality rates by primary site and race, Surveillance, Epidemiology, and End Results Program, 1978-81

Primary site	Whites	Blacks	Chinese	Japanese	Filipino	Hawaiians	Native Americans
All sites	163.6	208.5	131.5	104.2	69.7	200.5	87.4
Esophagus	2.6	9.2	3.3	1.9	1.9	6.5	2.1
Colorectal	21.6	22.3	19.3	17.2	8.1	15.0	8.6
Colon	18.1	18.8	15.5	13.6	5.8	11.4	6.8
Rectum	3.5	3.5	3.8	3.6	2.3	3.6	1.8
Pancreas	8.4	11.0	7.4	7.0	3.3	10.9	4.5
Larynx	1.3	2.5	0.7	0.2	0.4	1.4	0.9
Lung - male	69.3	91.4	48.2	32.7	20.0	88.0	28.0
- female	20.2	20.1	21.2	8.6	6.8	31.5	8.6
Breast	26.6	26.3	13.0	9.9	8.0	33.0	8.2
Cervix	3.2	8.8	2.9	2.7	1.6	4.2	5.8
Prostate gland	21.0	43.9	7.5	8.8	8.2	11.6	15.5
Multiple myeloma	2.4	5.0	1.2	1.2	1.2	2.8	1.9

Ratio of black to white age-adjusted (1970 U.S. standard) cancer incidence and mortality rates by primary site, Surveillance, Epidemiology, and End Results Program 1978-81

Primary site	Incidence rates	Mortality rates
All sites	1.11	1.27
Esophagus	3.89	3.47
Colorectal	1.00	1.03
Colon	1.10	1.04
Rectum	.78	1.00
Pancreas	1.53	1.31
Larynx	1.43	1.92
Lung - male	1.47	1.32
- female	1.08	1.00
Breast	.84	.99
Cervix uteri	2.30	2.75
Prostate gland	1.60	2.09
Multiple myeloma	2.30	2.08

Section III

Five-Year Relative Survival for Blacks, Whites, and Other Groups

---

Discussion 156

Figures:

Five-year Relative Survival Rates, All Sites, Males and Females; Black, White, and Other Groups. 1973-1981. 158

Five-year Relative Survival Rates, Selected Sites Black, White, and Other Groups. 1973-1981:

Bladder 159
Breast, female 160
Cervix uteri 161
Colon 162
Colon and rectum 163
Esophagus 164
Larynx 165
Lung and bronchus 166
Lung and bronchus, male 167
Lung and bronchus, female 168
Multiple myeloma 169
Pancreas 170
Prostate 171
Rectum 172
Stomach 173

Tables:

Five-year Relative Survival Rates by Site, Black, White, and Other Groups, 1973-1981 174

Section III: Five-Year Relative Survival For Blacks, Whites, and Other Groups

A. Discussion

This section presents information about the relative five-year cancer survival patterns of blacks, whites, and other racial/ethnic groups. The survival rates shown represent the percent of persons with cancer who are alive five years after diagnosis. This information comes from the reports of patients first diagnosed within SEER geographic areas 1973-81. The term Anglo as shown in the bar graphs and tables in this section is synonymous with white.

Organization of Figures and Tables

The first figure is a bar graph that compares the five-year relative survival rates for cancer, all sites combined, for blacks, whites, and other groups. This is followed by a set of bar graphs showing five-year relative survival rates for selected cancer sites for the same groups. The information presented in these bar graphs is combined into one table at the end of this section.

Highlights

- The five-year relative survival rate for Japanese Americans was 51%, the highest rate among the eight racial/ethnic groups presented. Whites, or Anglos, had the next highest rate, (50%) and Native Americans had the lowest overall five-year relative survival rate (34%).

- Among the major racial/ethnic groups presented:

  - Chinese Americans had the highest five-year relative survival rate for cancers of the esophagus, lung and bronchus for men, and bladder (along with whites).

  - Japanese Americans had the highest five-year relative survival rate for cancers of the female breast, colon and rectum, multiple myeloma, and stomach.

  - Hawaiians had the highest five-year relative survival rate for cancers of the cervix uteri, larynx, lung and bronchus for women, and prostate.

  - Blacks had the lowest five-year relative survival rate for cancers of the cervix uteri and esophagus.

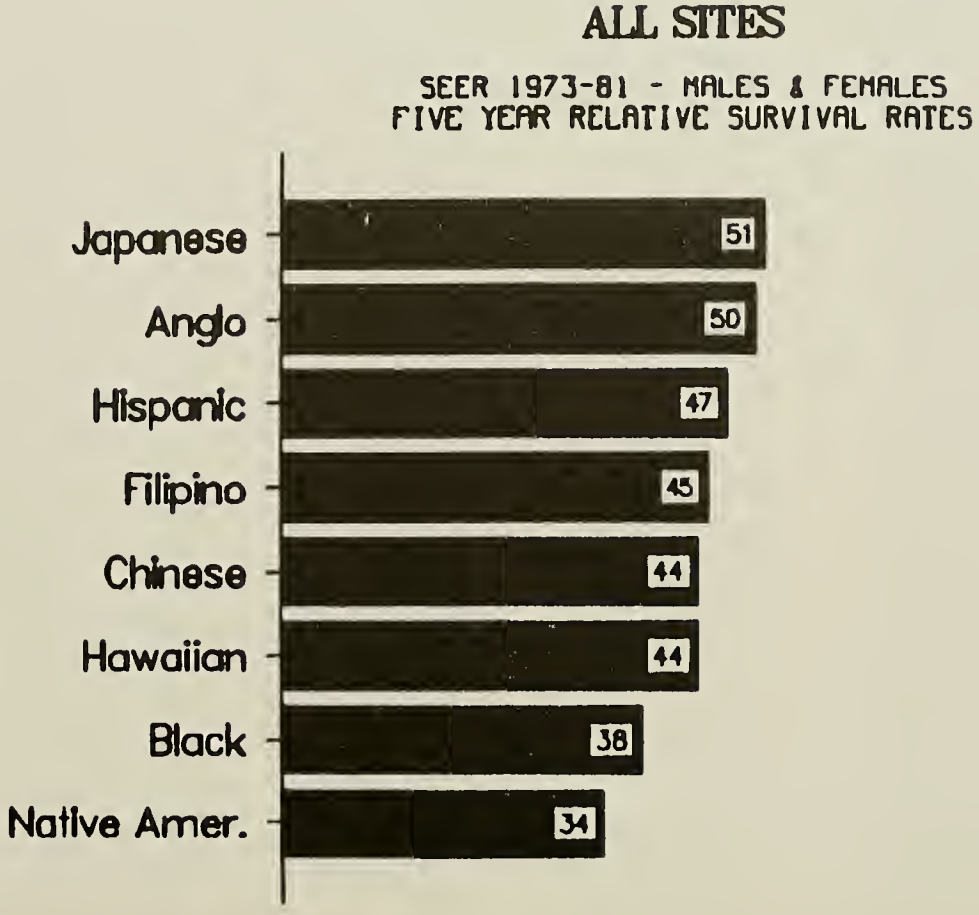
  - Filipinos had the lowest five-year relative survival rate for cancers of the colon, larynx, and lung and bronchus for women.

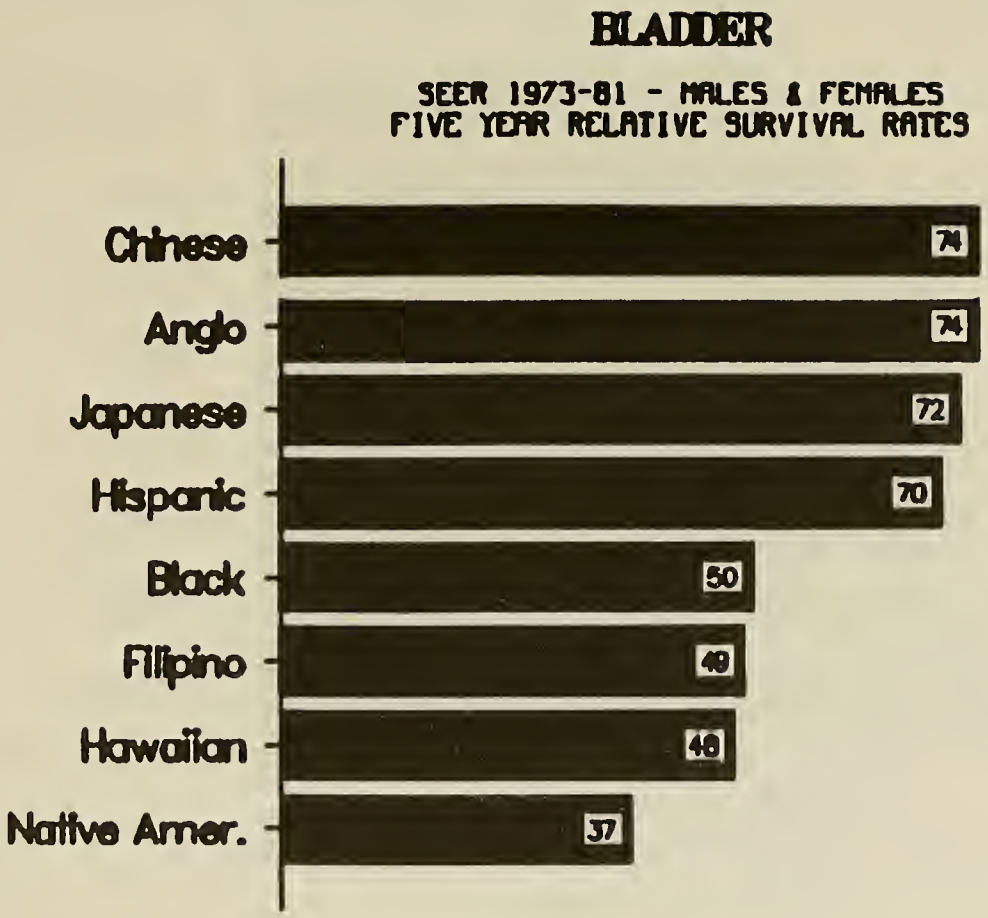
Highlights (Continued)

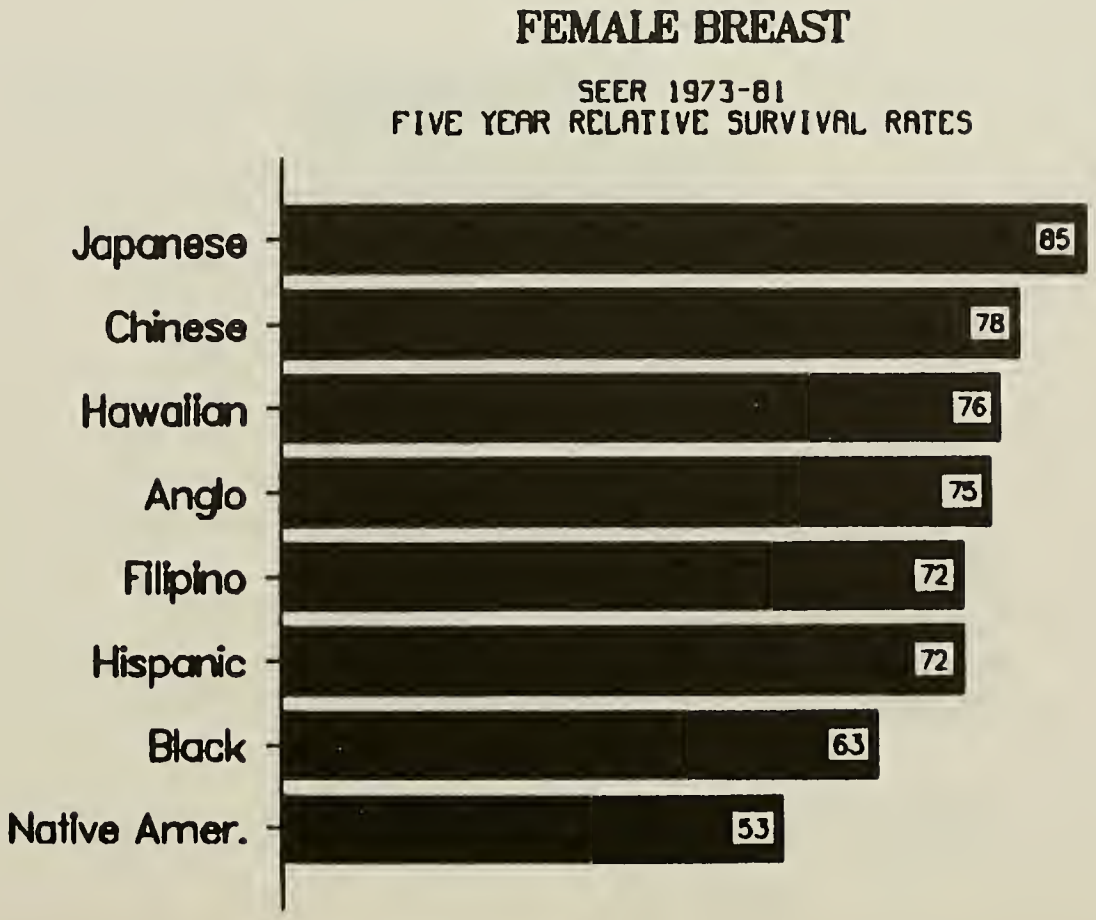
- Hispanics had the lowest five-year relative survival rate for multiple myeloma.

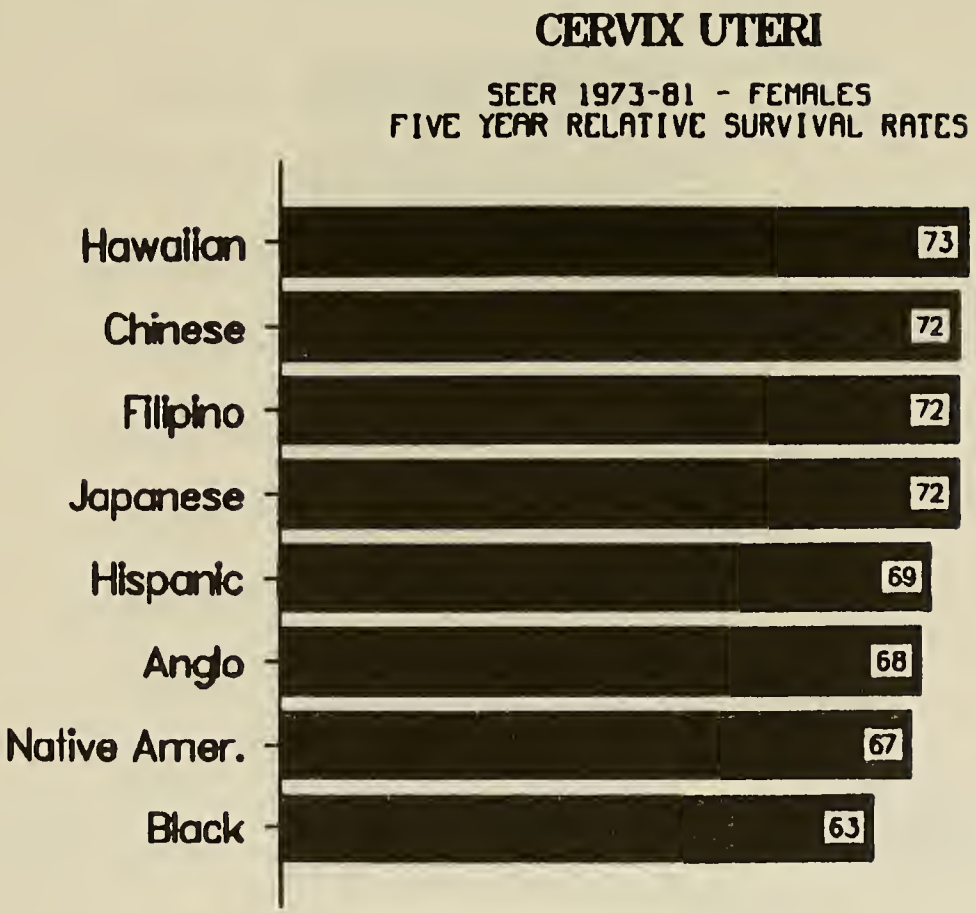
- Native Americans had the lowest five-year relative survival rate for cancers of the bladder, female breast, colon and rectum, lung and bronchus for men and women combined, lung and bronchus for men, prostate, rectum, and stomach.

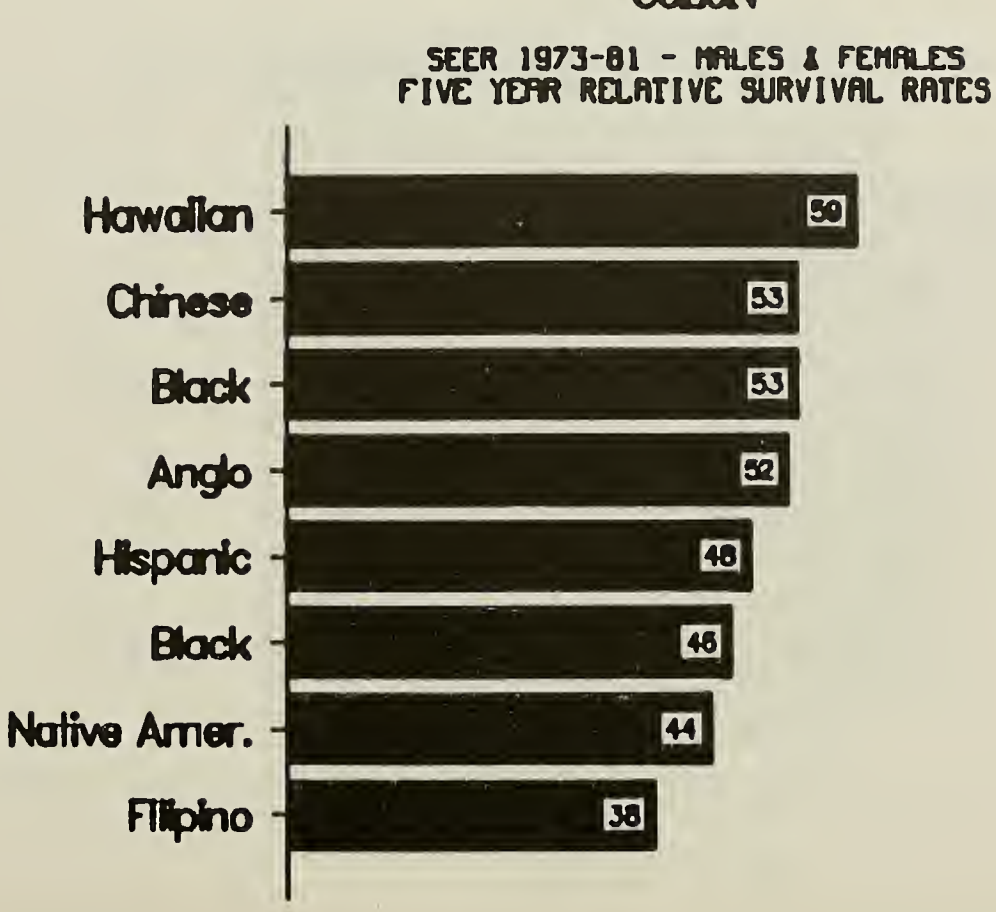
- The lowest five-year relative survival rates among all racial/ethnic groups were for cancers of the pancreas. Only 2 to 3 percent of persons diagnosed with pancreatic cancer within each group were alive after five years.

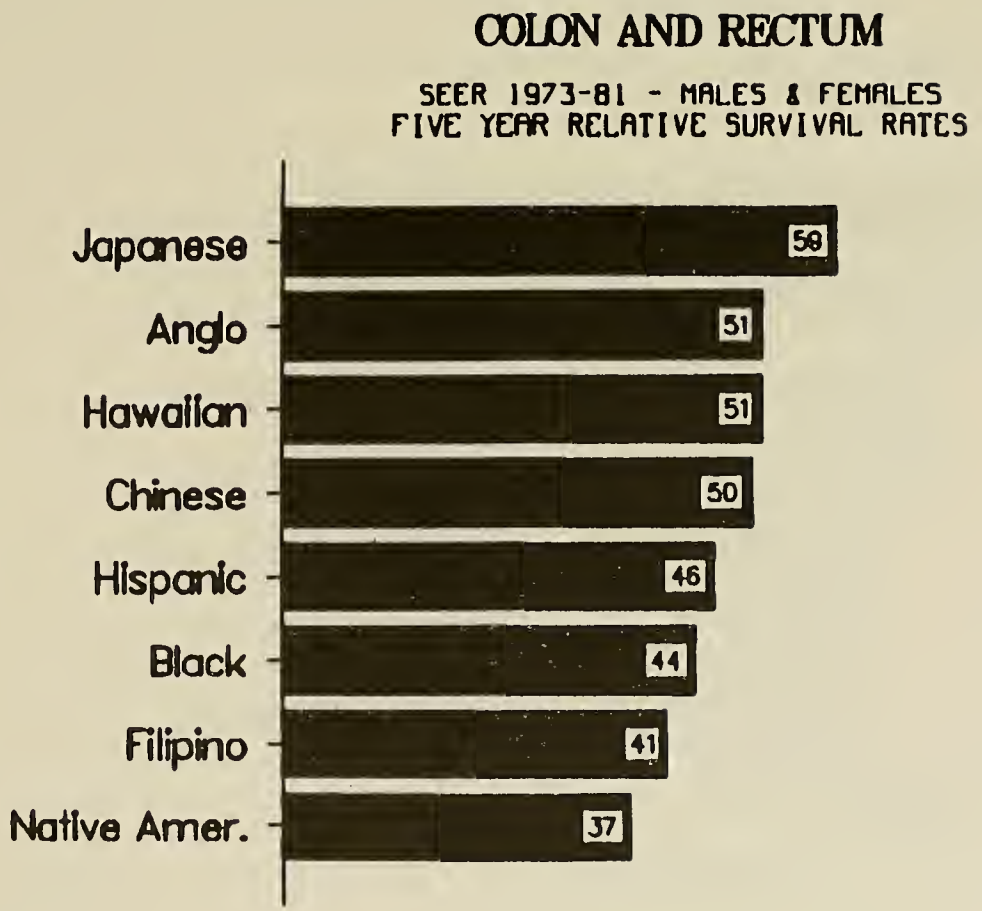

ALL SITES
SEER 1973-81 - MALES & FEMALES
FIVE YEAR RELATIVE SURVIVAL RATES
Japanese
51
Anglo
50
Hispanic
47
Filipino
45
Chinese
44
Hawaiian
44
Black
38
Native Amer.
34


BLADDER
SEER 1973-81 - MALES & FEMALES
FIVE YEAR RELATIVE SURVIVAL RATES
Chinese
74
Anglo
74
Japanese
72
Hispanic
70
Black
50
Filipino
49
Hawaiian
49
Native Amer.
37


FEMALE BREAST
SEER 1973-81
FIVE YEAR RELATIVE SURVIVAL RATES
Japanese
85
Chinese
78
Hawaiian
76
Anglo
75
Filipino
72
Hispanic
72
Black
63
Native Amer.
53


CERVIX UTERI
SEER 1973-81 - FEMALES
FIVE YEAR RELATIVE SURVIVAL RATES
Hawaiian
73
Chinese
72
Filipino
72
Japanese
72
Hispanic
69
Anglo
68
Native Amer.
67
Black
63


COLON
SEER 1973-81 - MALES & FEMALES
FIVE YEAR RELATIVE SURVIVAL RATES
Hawaiian
59
Chinese
53
Black
53
Anglo
52
Hispanic
48
Black
46
Native Amer.
44
Filipino
38

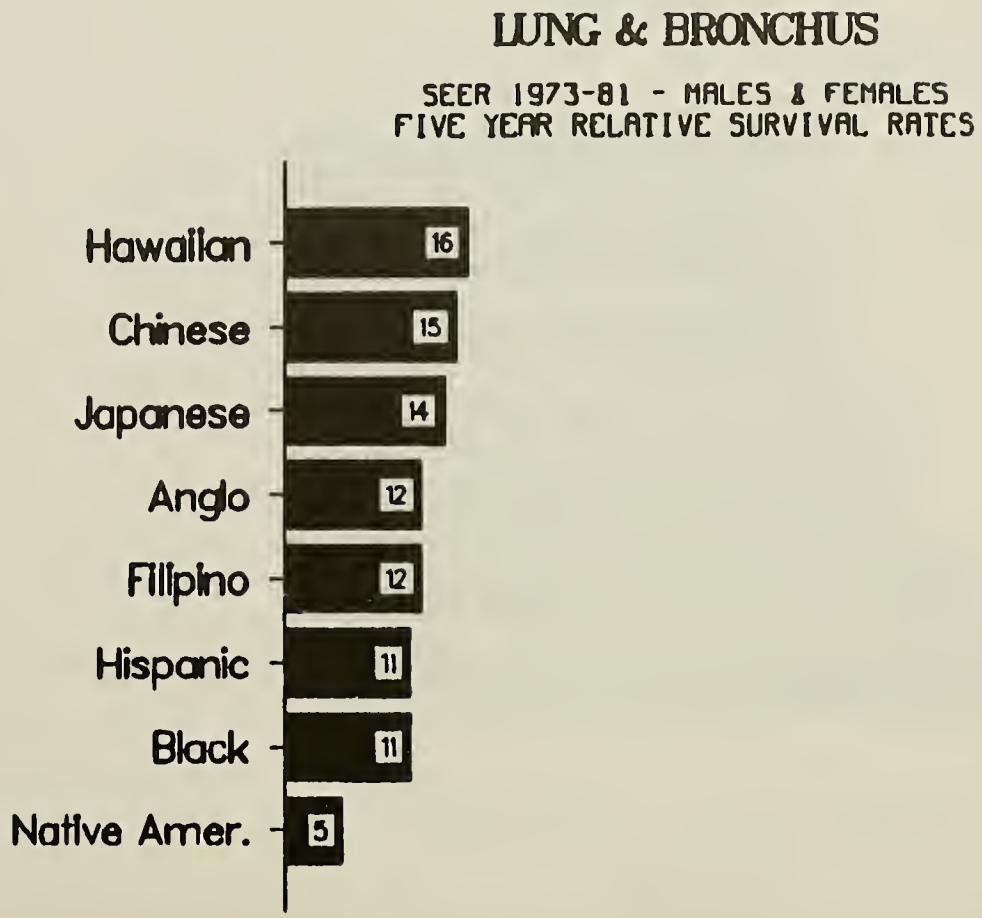

COLON AND RECTUM
SEER 1973-81 - MALES & FEMALES
FIVE YEAR RELATIVE SURVIVAL RATES
Japanese
58
Anglo
51
Hawaiian
51
Chinese
50
Hispanic
46
Black
44
Filipino
41
Native Amer.
37

ESOPHAGUS

SEER 1973-81 - MALES & FEMALES
FIVE YEAR RELATIVE SURVIVAL RATES

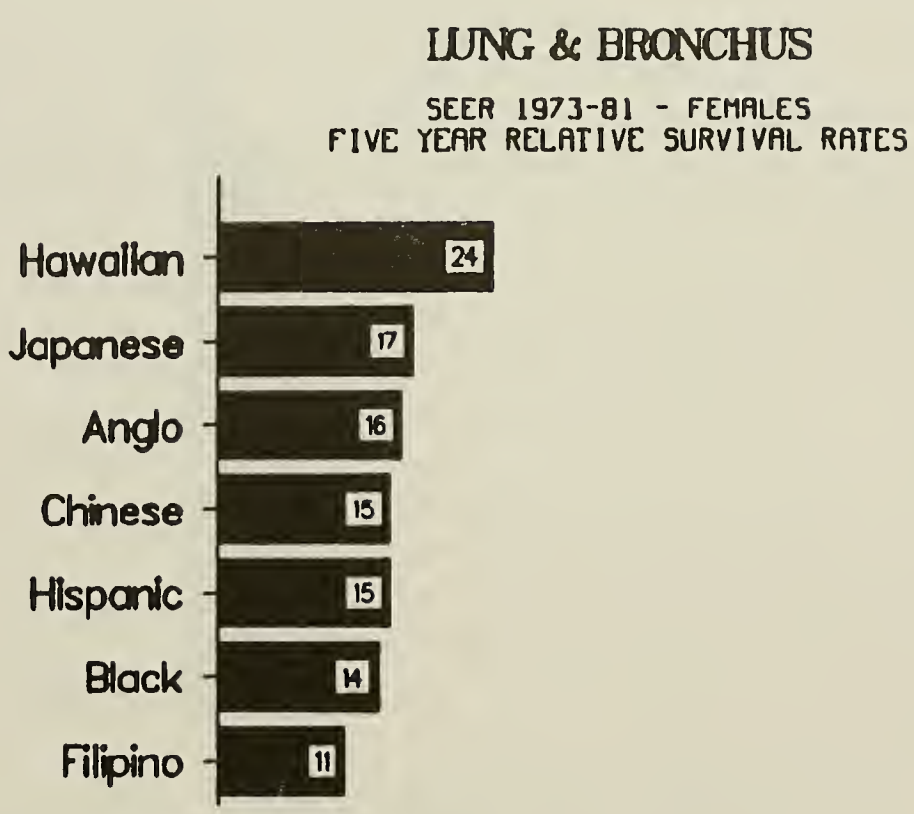
LARYNX

SEER 1973-81 - MALES & FEMALES
FIVE YEAR RELATIVE SURVIVAL RATES


LUNG & BRONCHUS
SEER 1973-81 - MALES & FEMALES
FIVE YEAR RELATIVE SURVIVAL RATES
Hawaiian
16
Chinese
15
Japanese
14
Anglo
12
Filipino
12
Hispanic
11
Black
11
Native Amer.
5

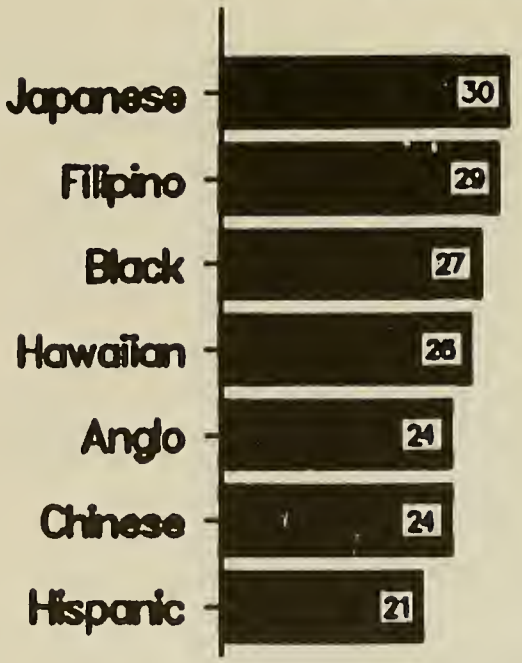
LUNG & BRONCHUS

SEER 1973-81 - MALES
FIVE YEAR RELATIVE SURVIVAL RATES


LUNG & BRONCHUS
SEER 1973-81 - FEMALES
FIVE YEAR RELATIVE SURVIVAL RATES
Hawaiian
24
Japanese
17
Anglo
16
Chinese
15
Hispanic
15
Black
14
Filipino
11

MULTIPLE MYELOMA

SEER 1973-81 - MALES & FEMALES
FIVE YEAR RELATIVE SURVIVAL RATES



PANCREAS

SEER 1973-81 - MALES & FEMALES
FIVE YEAR RELATIVE SURVIVAL RATES

PROSTATE

SEER 1973-81 - MALES
FIVE YEAR RELATIVE SURVIVAL RATES

STOMACH

SEER 1973-81 - MALES & FEMALES
FIVE YEAR RELATIVE SURVIVAL RATES

RECTUM

SEER 1973-81 - MALES & FEMALES
FIVE YEAR RELATIVE SURVIVAL RATES

SEER 1973-81
Five Year Relative Survival Rates

Primary Site	Anglo	Hispanic	Black	Native Amer.	Chinese	Japanese	Filipino	Hawaiian
All Sites	50	47	38	34	44	51	45	44
Esophagus	5	-	3	-	11*	-	-	-
Stomach	14	16	15	9	16	28	16	14
Colon & Rectum	51	46	44	37*	50	59	41	51*
Colon	52	48	46	44*	53	61	38	59*
Rectum	49	44	37	24*	44	55	45	42*
Pancreas	3	2	3	-	3	3	2	-
Larynx	67	60*	59	-	67**	75*	57**	79**
Lung & Bronchus	12	11	11	5	15	14	12	15
Male	11	9	10	2	15	13	12	13
Female	16	15	14	-	15	17	11	24
Breast - female	75	72	63	53*	78	85	72	76
Cervix Uteri	68	69	63	67*	72*	72	72*	73*
Prostate	69	71	59	47*	76*	76	73	85*
Urinary Bladder	74	70	50	37**	74*	72	49*	48**
Multiple Myeloma	24	21*	27	-	24*	30*	29*	26*

Section IV

Survival Trends: Five-year Relative Survival by Year of Diagnosis, Blacks and Whites. 1973-1975 and 1976-1981

Discussion 176

Figures:

Five-year Relative Survival Rates by Year of Diagnosis, Blacks and Whites, 1973-1975 and 1976-1981. All sites combined 177

Five-year Relative Survival Rates by Year of Diagnosis, Blacks and Whites, 1973-1975 and 1976-1981. Selected sites:

Bladder 178
Breast, female 179
Colon 180
Prostate 181
Rectum 182

Section IV - Survivial Trends: Five-year Relative Survival by Year of Diagnosis, 1973-75 and 1976-81, for Blacks and Whites

A. Discussion

The survival information presented in this section is based on SEER data collected from 1973-81. Cancer survival trends are shown by presenting a series of bar graphs comparing black and white five-year relative survival rates for two time periods, 1973-75 and 1976-81.

Organization of Figures and Tables

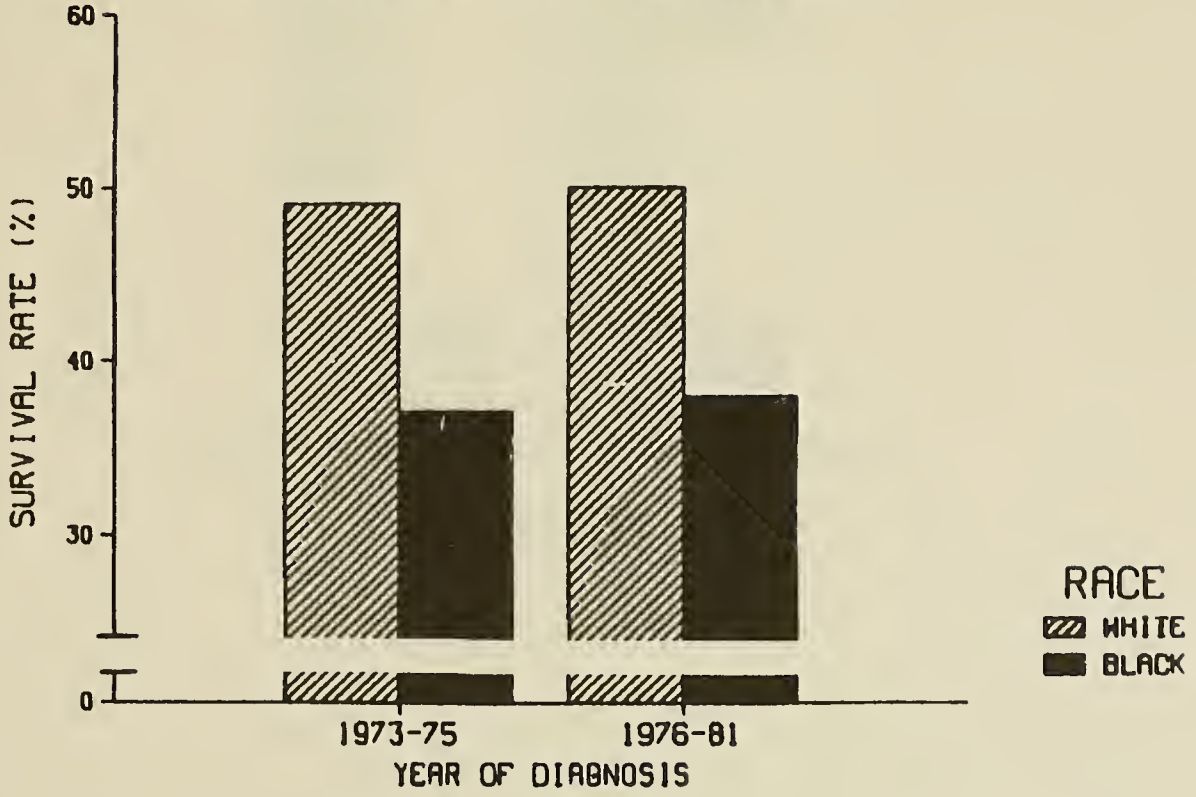
The first graph compares black and white five-year relative survival rates for cancer, all sites combined. The graphs that follow compare these rates for five selected cancer sites.

Highlights

- Overall survival rates for cancer increased slightly for both blacks and whites over the two time periods, 1973-75 and 1976-81.
- Blacks had substantial increases in survival rates for cancers of the bladder, prostate, and recturm.
- The gap in cancer survival rates between blacks and whites, where blacks had significantly lower survival rates than whites, narrowed from 1973-75 to 1976-81 for cancers of the bladder and rectum. The gap increased slightly for cancers of the female breast, colon, and prostate.

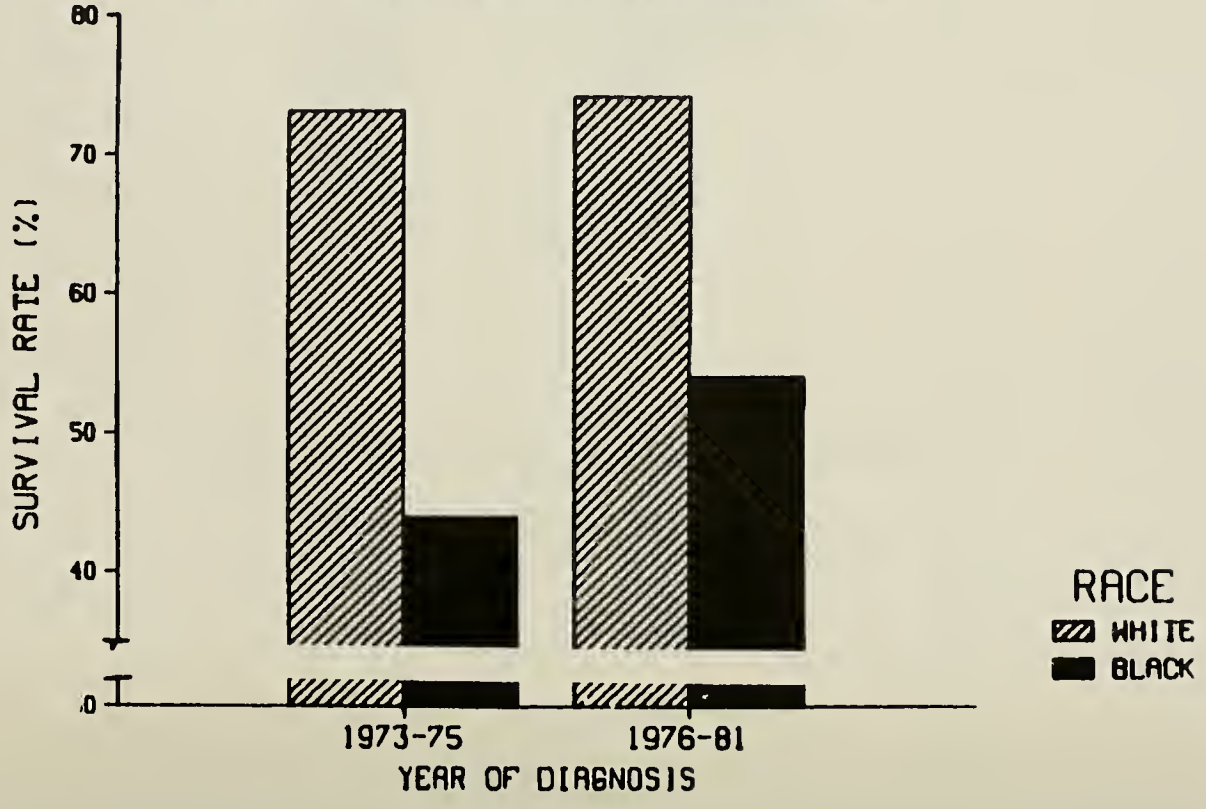
ALL SITES COMBINED

SEER 5-YEAR RELATIVE SURVIVAL RATES



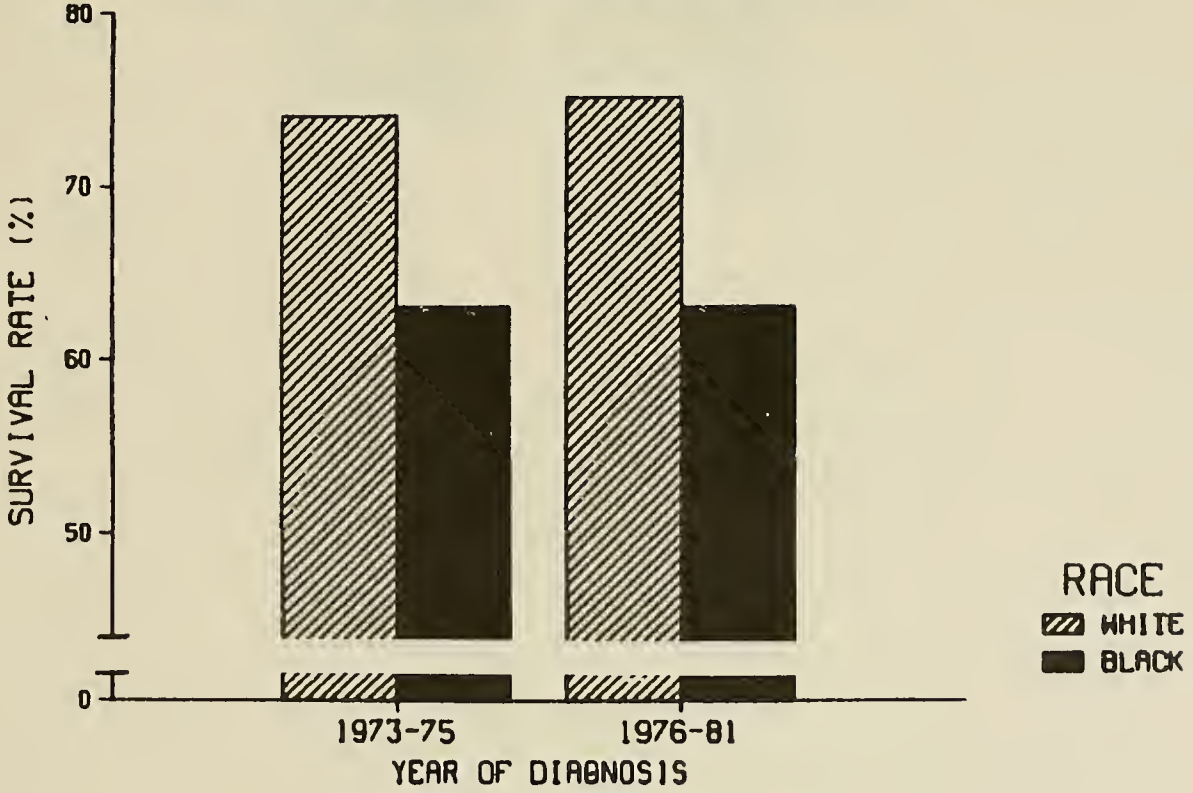
BLADDER

SEER 5-YEAR RELATIVE SURVIVAL RATES

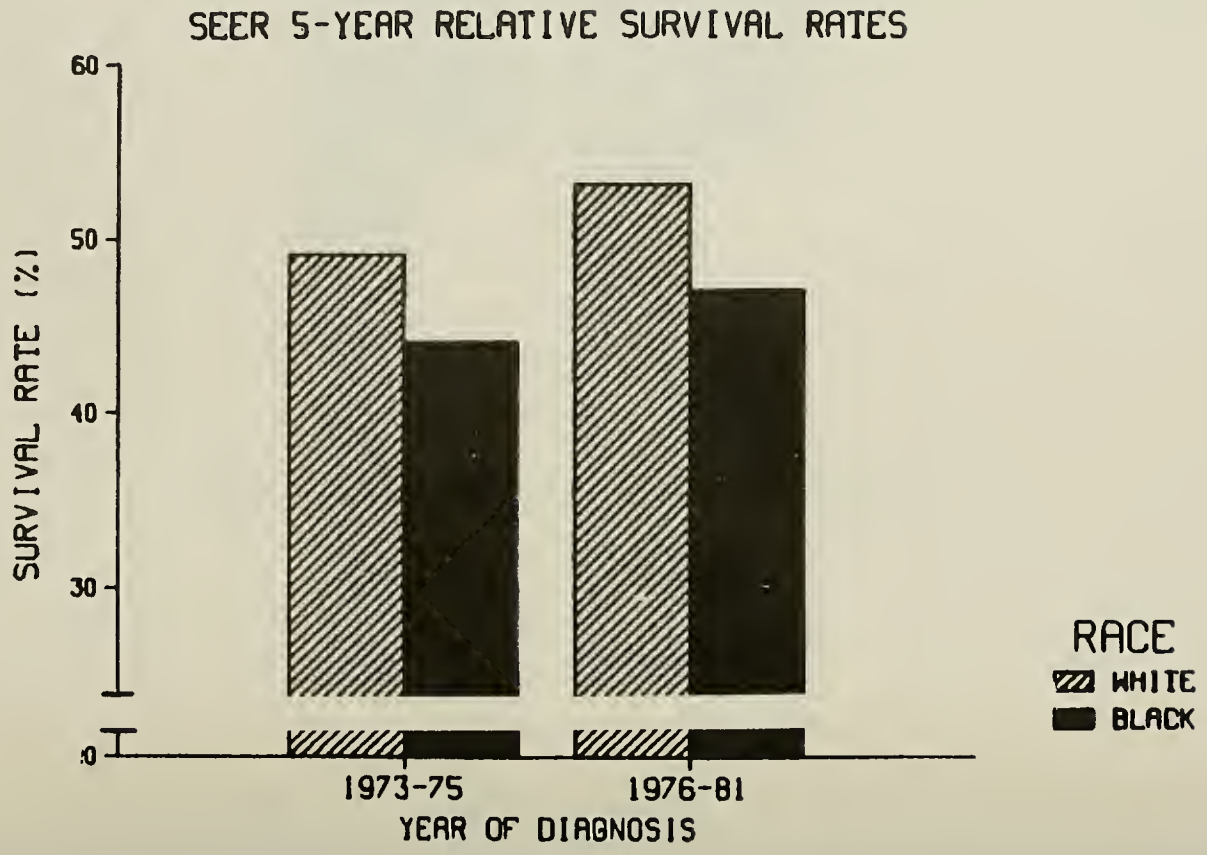


FEMALE BREAST

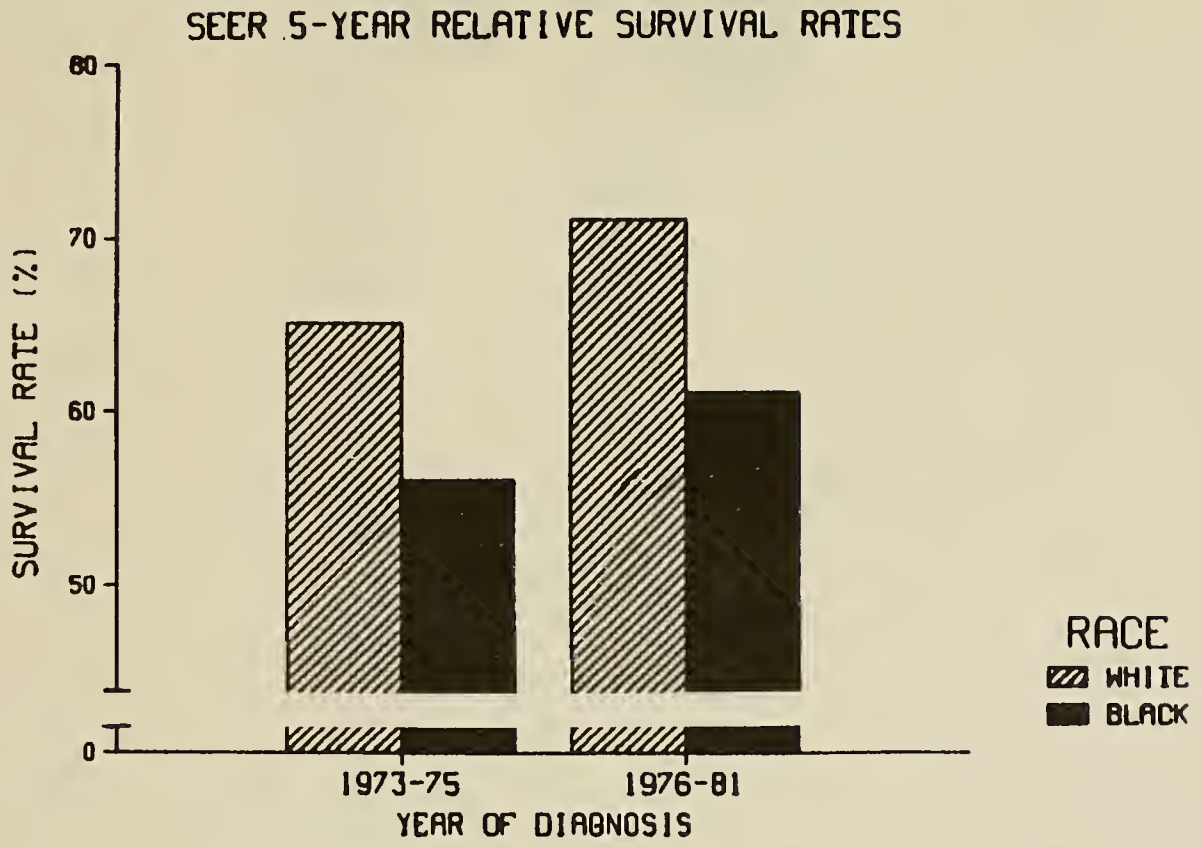
SEER 5-YEAR RELATIVE SURVIVAL RATES



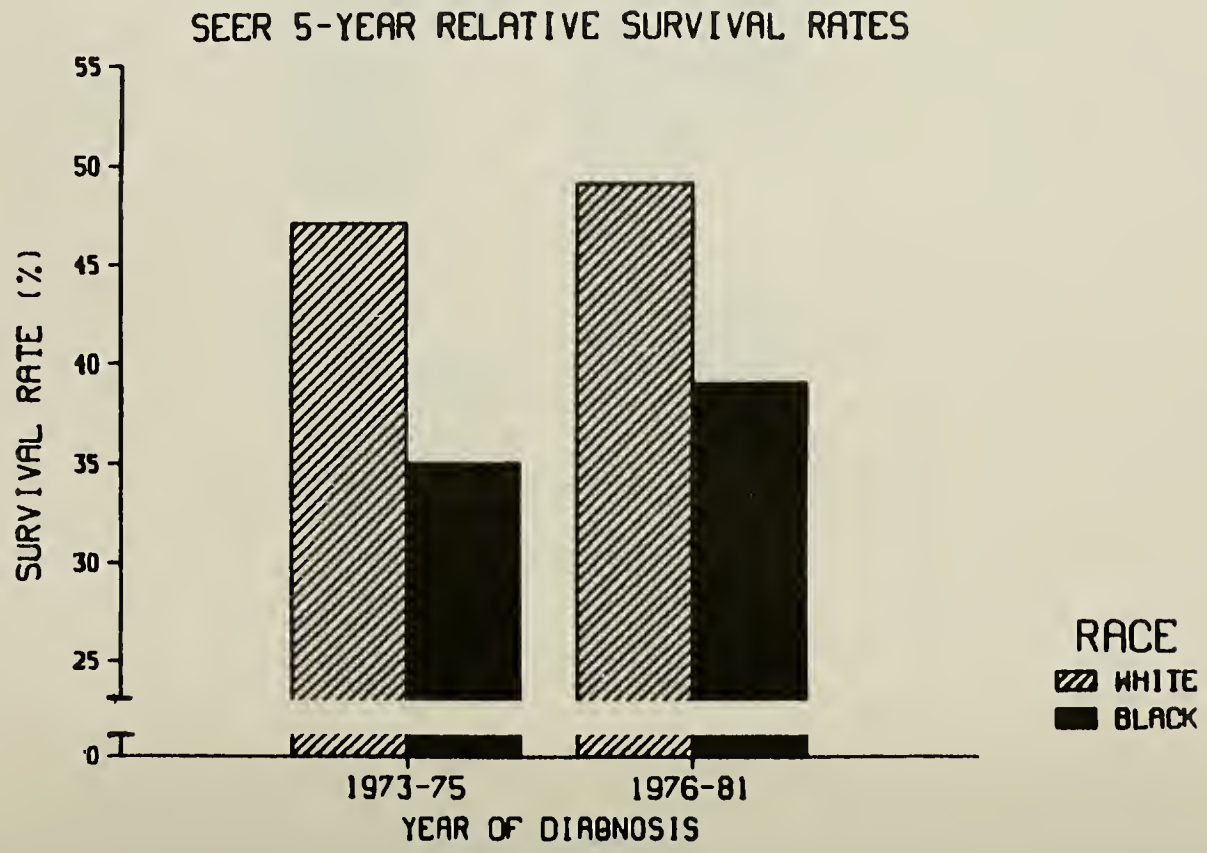
COLON


SEER 5-YEAR RELATIVE SURVIVAL RATES
SURVIVAL RATE (%)
60
50
40
30
0
1973-75
1976-81
YEAR OF DIAGNOSIS
RACE
WHITE
BLACK

PROSTATE


SEER 5-YEAR RELATIVE SURVIVAL RATES
SURVIVAL RATE (%)
80
70
60
50
0
1973-75
1976-81
YEAR OF DIAGNOSIS
RACE
WHITE
BLACK

RECTUM


SEER 5-YEAR RELATIVE SURVIVAL RATES
SURVIVAL RATE (%)
55
50
45
40
35
30
25
0
1973-75
1976-81
YEAR OF DIAGNOSIS
RACE
WHITE
BLACK

Section V

Survival Trends: Relative Survival by Year of Diagnosis and Number of Years After Diagnosis, Blacks and Whites, 1973-1975 and 1976-1981.

Discussion 185

Figures:

Relative Survival Rates by Year of Diagnosis and Number of Years After Diagnosis; 1973-1975 and 1976-1981. All sites:

Black 186
White 187

Relative Survival Rates by Year of Diagnosis and Number of Years After Diagnosis and 1973-1975 and 1976-1981. Selected sites:

Bladder
Black 188
White 189

Breast, female
Black 190
White 191

Cervix uteri
Black 192
White 193

Colon
Black 194
White 195

Colon and Rectum
Black 196
White 197

Esophagus
Black 198
White 199

Larynx
Black 200
White 201

Figures (continued)

Lung and Bronchus, male
Black 202
White 203

Lung and Bronchus, female
Black 204
White 205

Multiple Myeloma
Black 206
White 207

Pancreas
Black 208
White 209

Prostate
Black 210
White 211

Rectum
Black 212
White 213

Stomach
Black 214
White 215

Section V: Survival Trends:

Relative Survival by Year of Diagnosis and Number of Years after Diagnosis, 1973-1975 and 1976-1981, for Blacks and Whites

A. Discussion

In this section relative cancer survival rates for blacks and whites are presented by the number of years after a diagnosis of cancer is made. These rates are compared for two time periods 1973-75 and 1976-81. The data come from SEER reports.

Organization of Figures

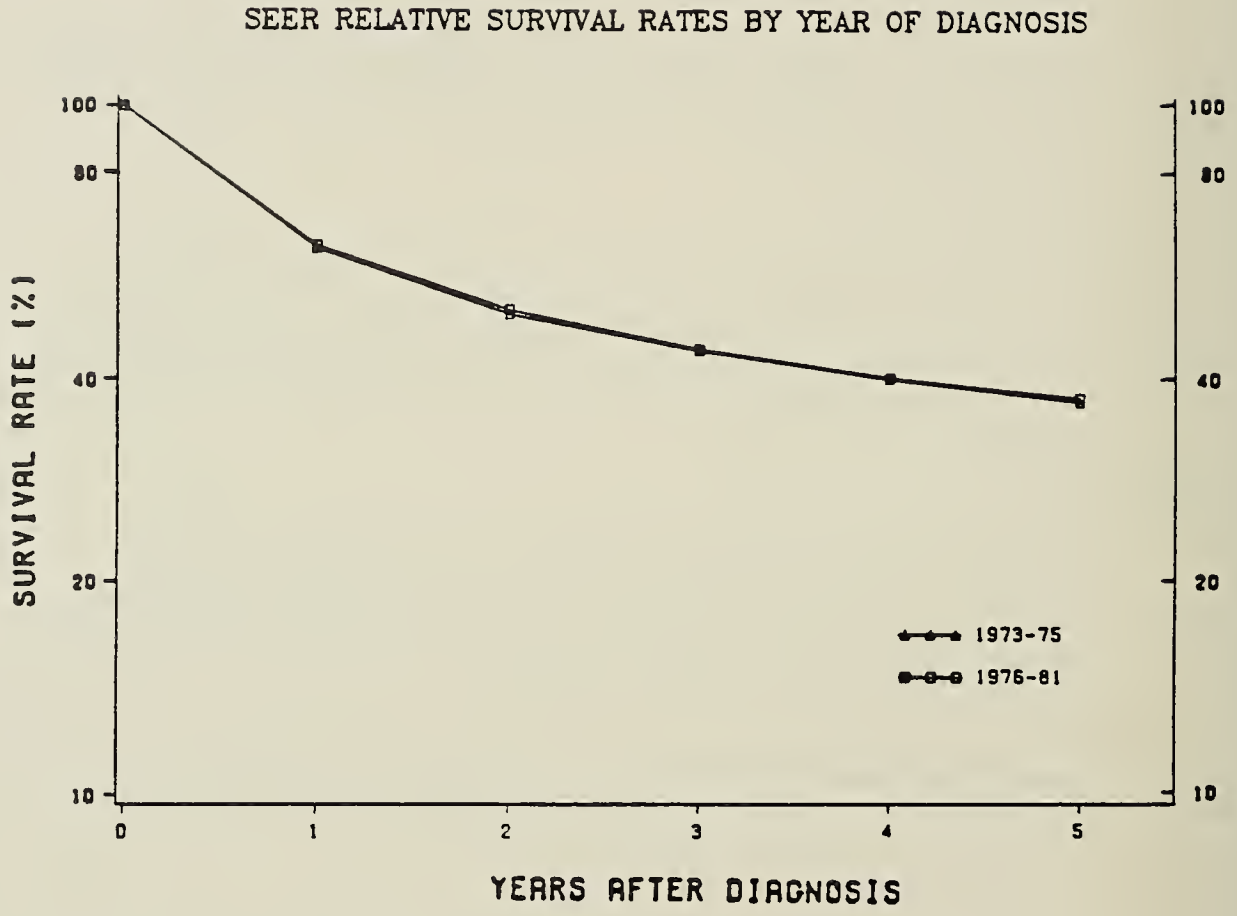
This section contains a set of line graphs that compare survival patterns for primary cancer sites for two time periods. Black and white survival patterns are shown on seperate graphs. The first two graphs present overall cancer survival patterns for blacks and whites. These are followed by a series of graphs showing black and white survival patterns for primary cancer sites.

Highlights

- The overall cancer survival pattern for blacks was virtually unchanged from 1973-75 to 1976-81. Blacks experienced similar survival rates each year after diagnosis for the two time periods. Whites, however, had slightly higher survival rates in 1976-81 than 1973-75 for each year after diagnosis.

- Blacks had substantial increases in survival from 1973-75 to 1976-81 three, four, and five years after diagnosis for cancer for the esophagus.

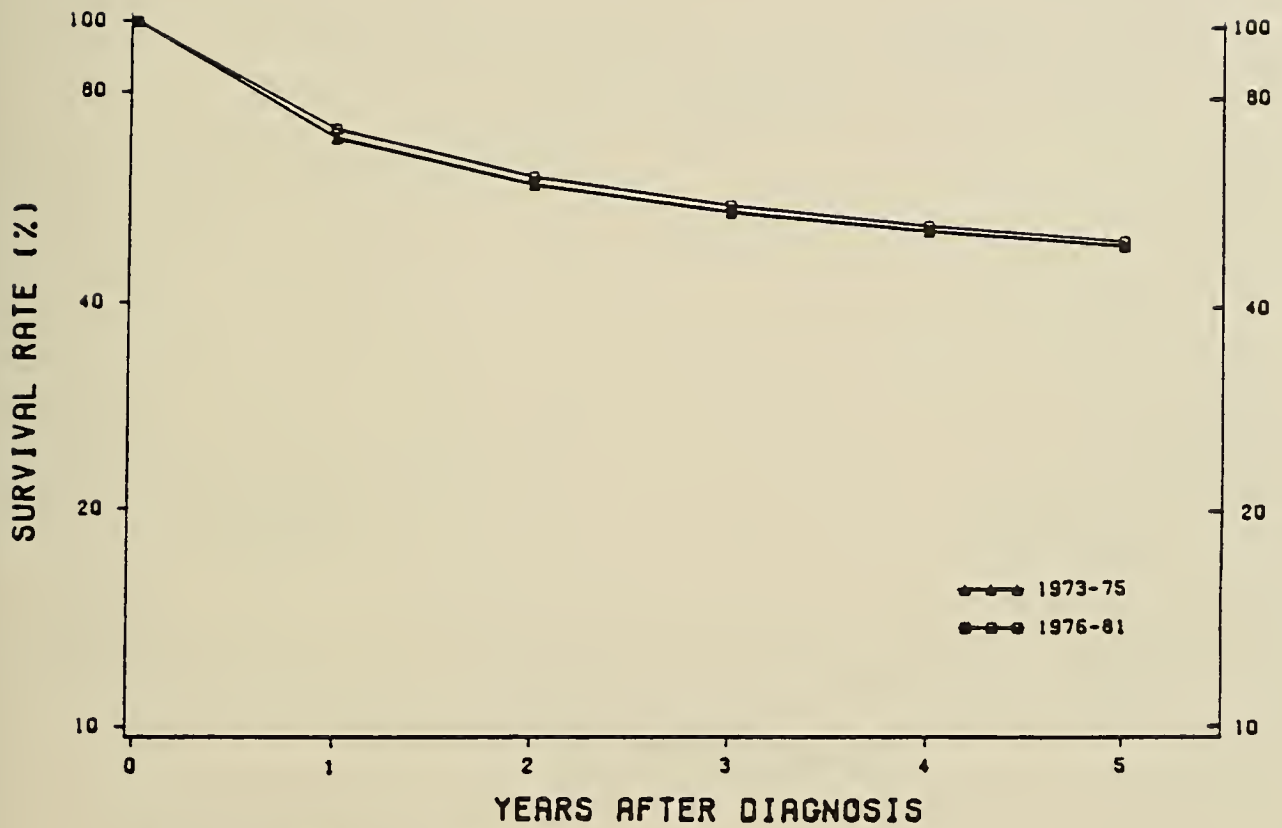
ALL SITES



NOTE: BLACK MALES & FEMALES

ALL SITES

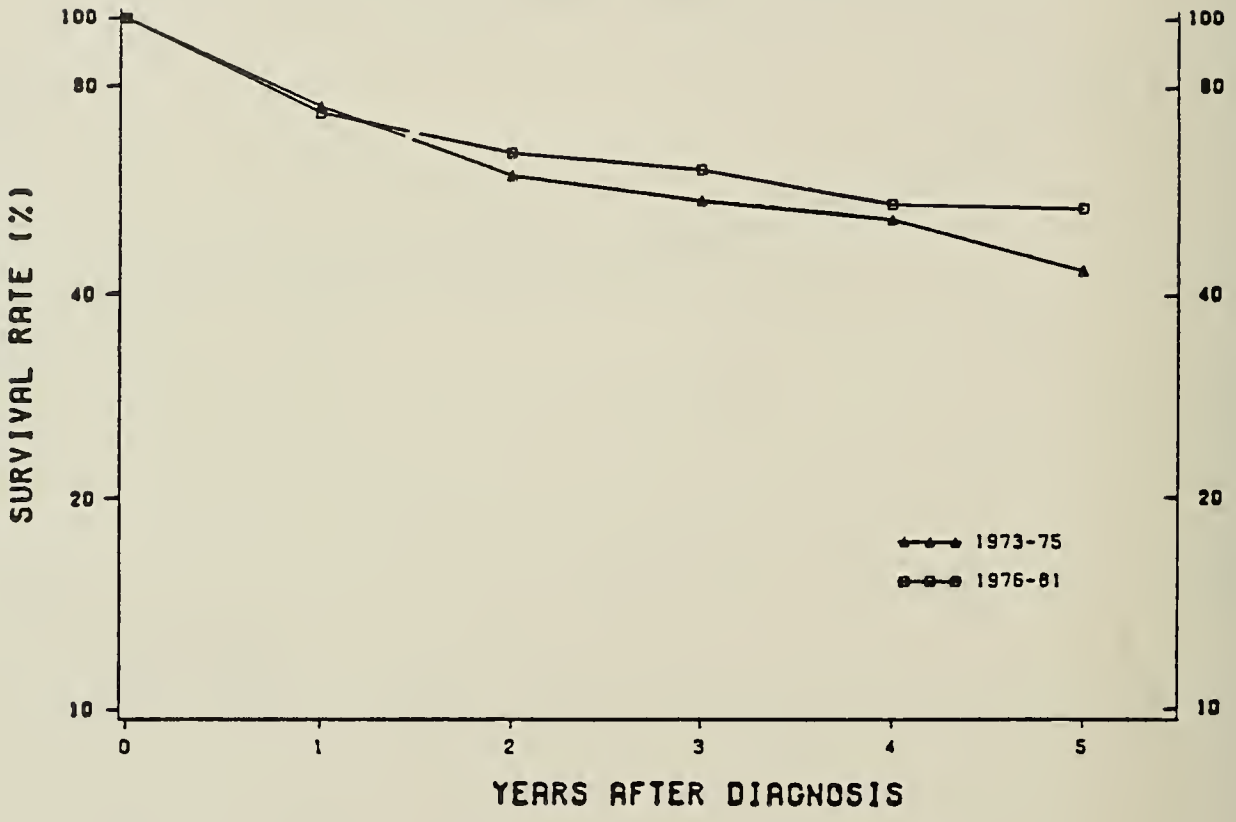
SEER RELATIVE SURVIVAL RATES BY YEAR OF DIAGNOSIS



NOTE: WHITE MALES & FEMALES

BLADDER

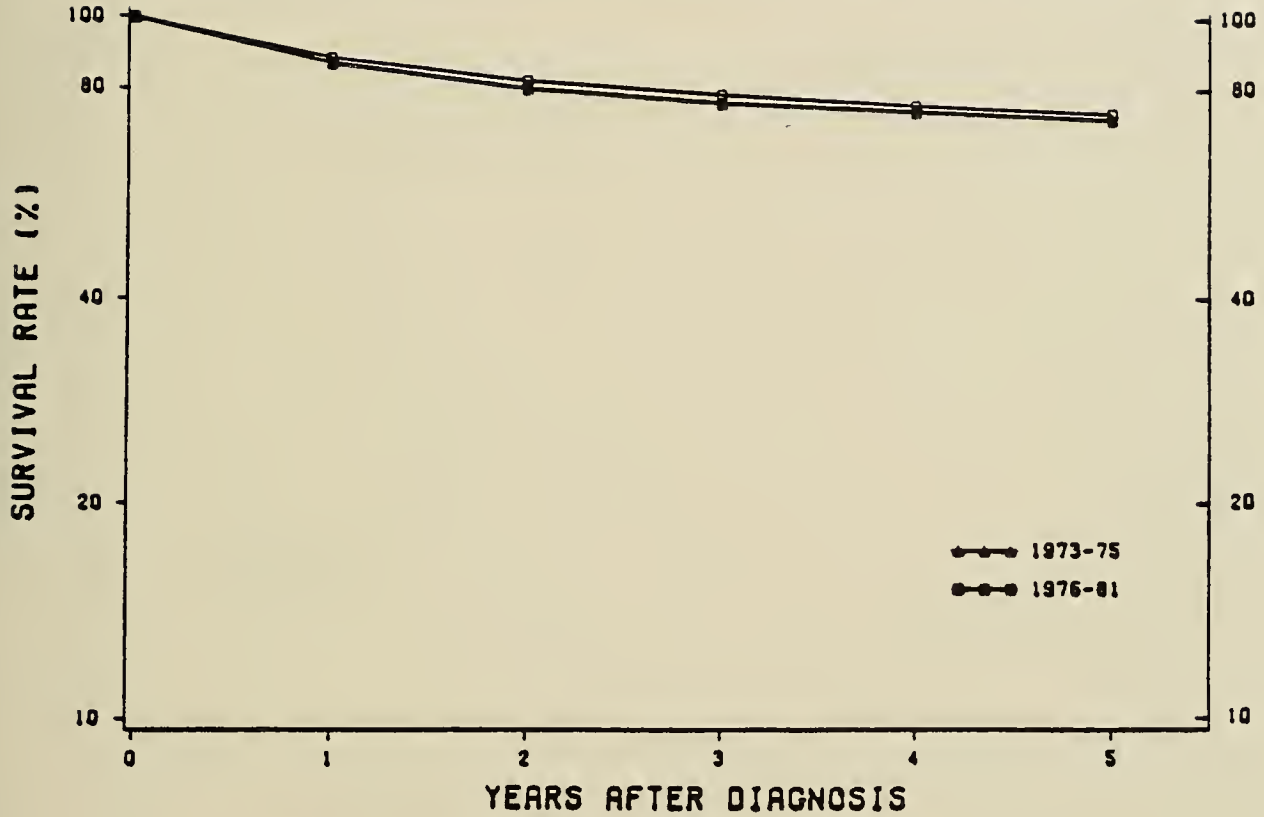
SEER RELATIVE SURVIVAL RATES BY YEAR OF DIAGNOSIS



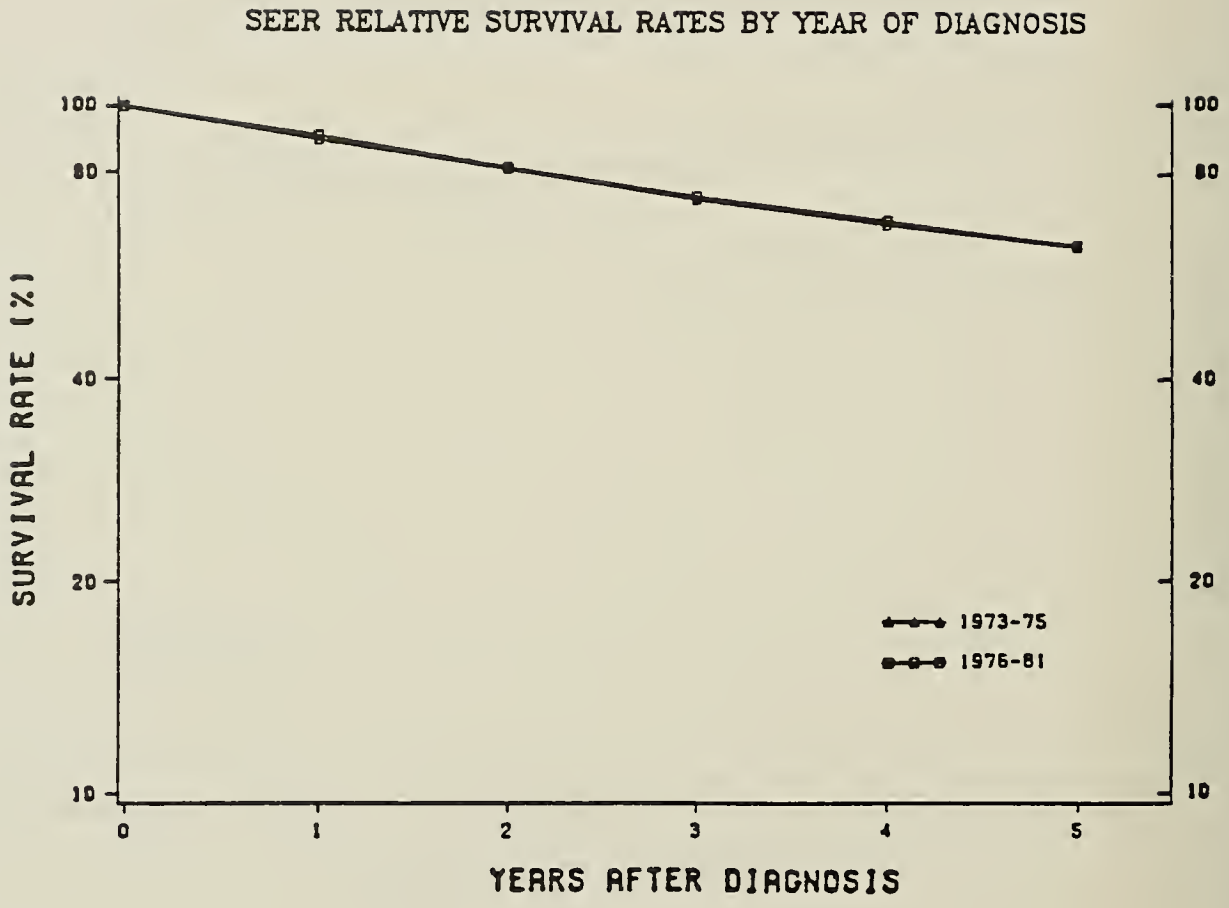
NOTE: BLACK MALES & FEMALES

BLADDER

SEER RELATIVE SURVIVAL RATES BY YEAR OF DIAGNOSIS

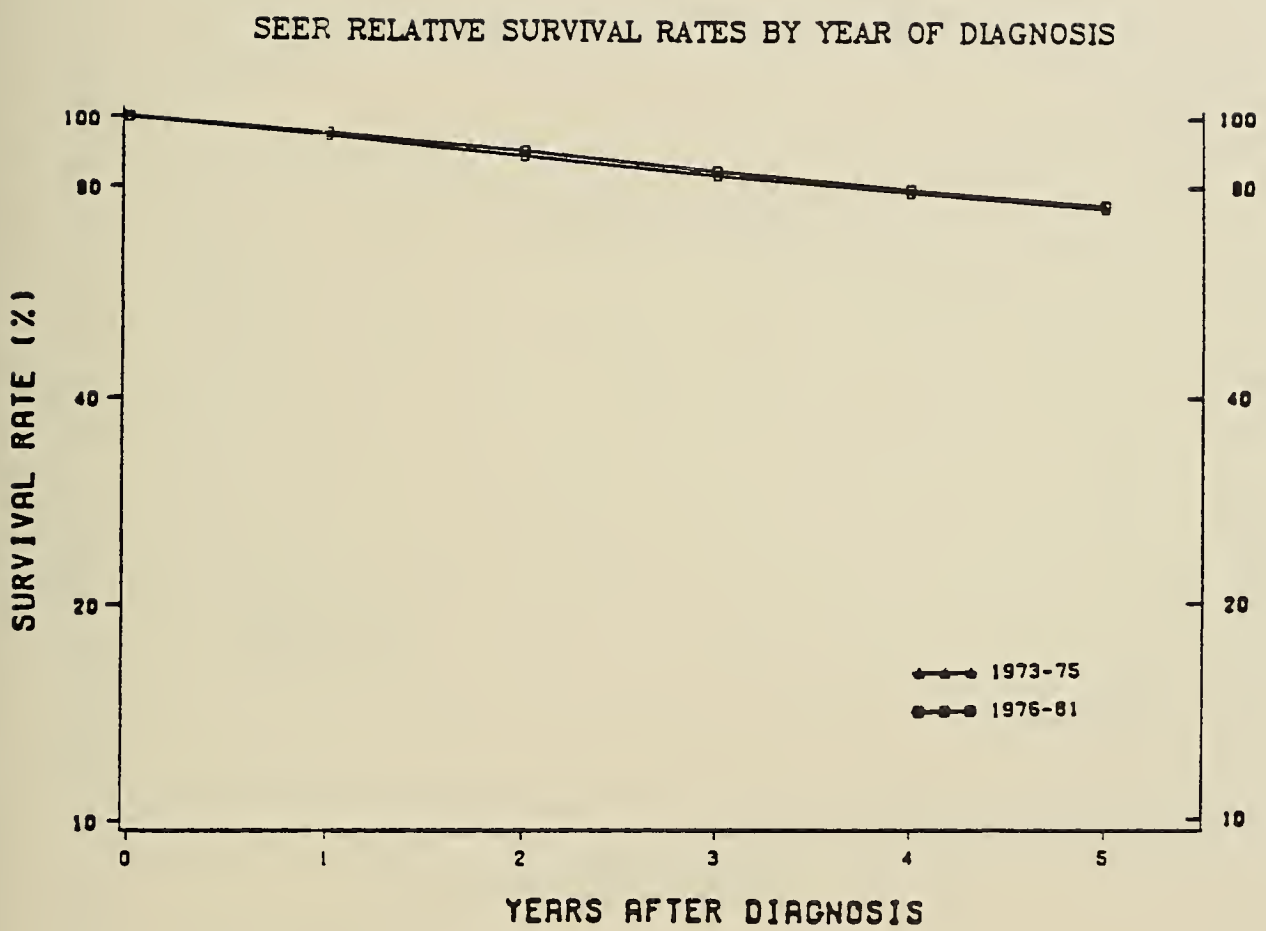


NOTE: WHITE MALES & FEMALES



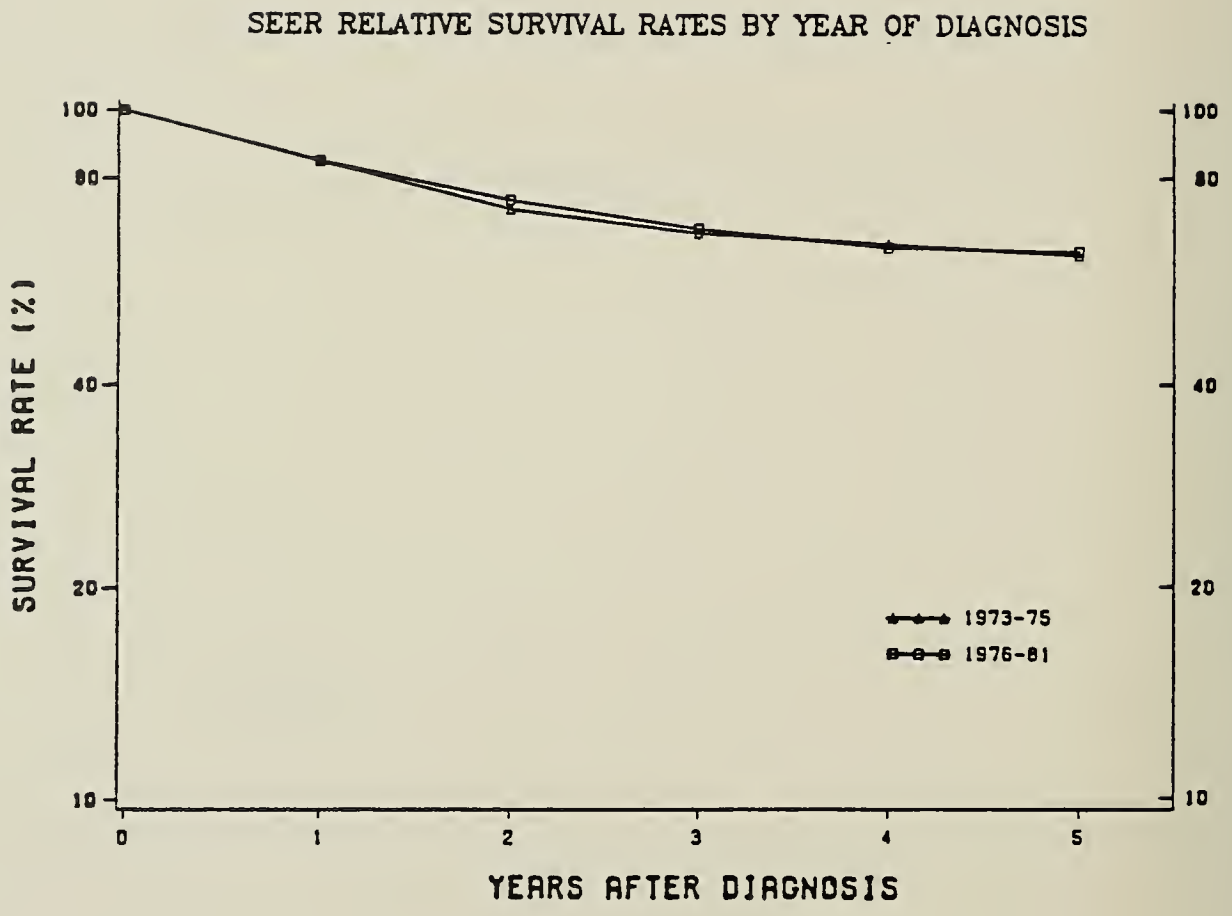
NOTE: BLACK FEMALES

BREAST



NOTE: WHITE FEMALES

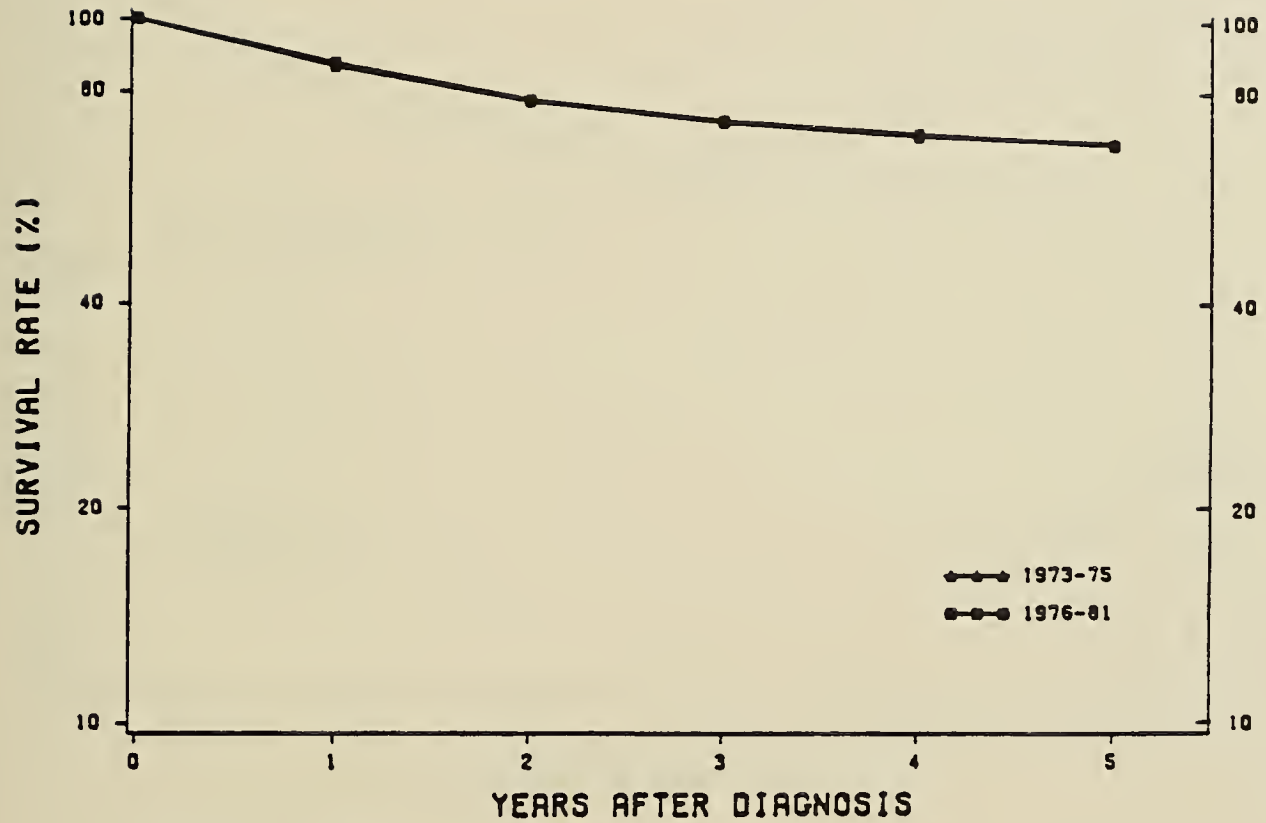
CERVIX UTERI



NOTE: BLACK FEMALES

CERVIX UTERI

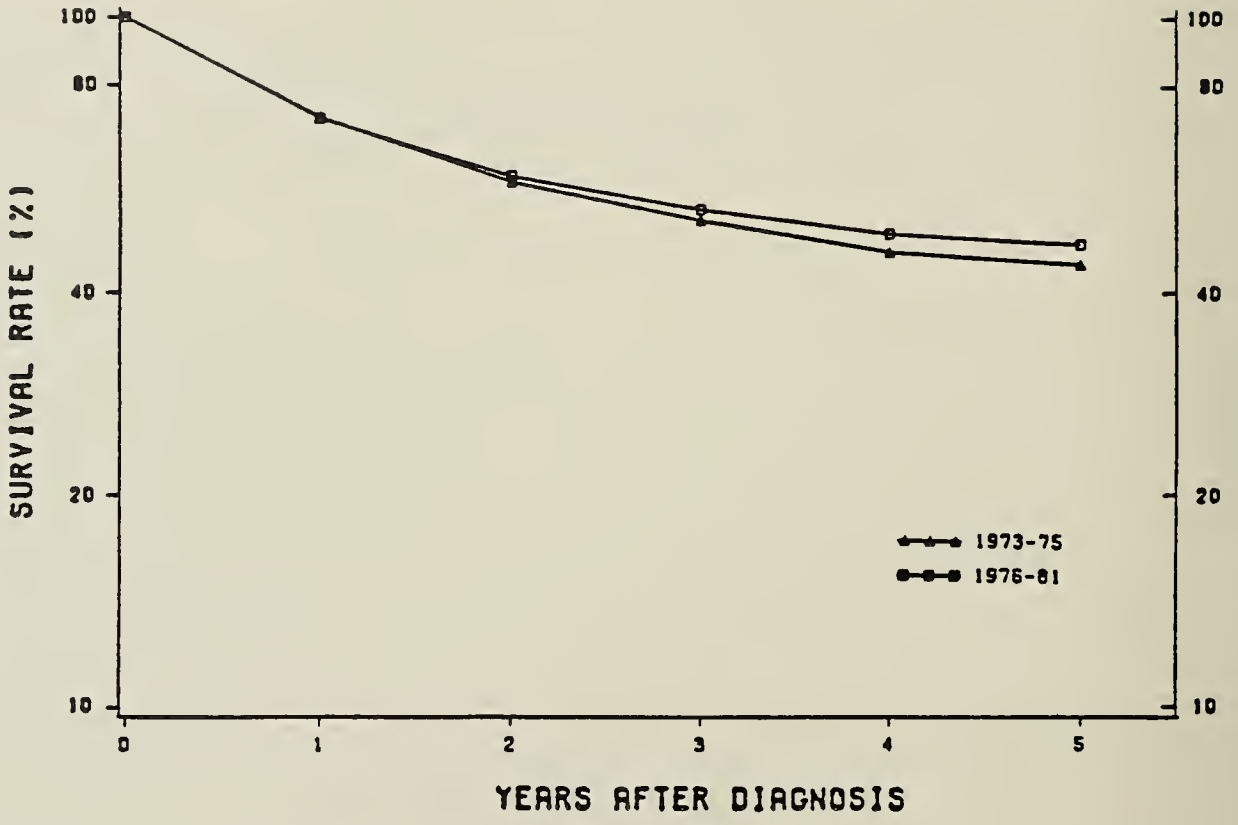
SEER RELATIVE SURVIVAL RATES BY YEAR OF DIAGNOSIS



NOTE: WHITE FEMALES

COLON

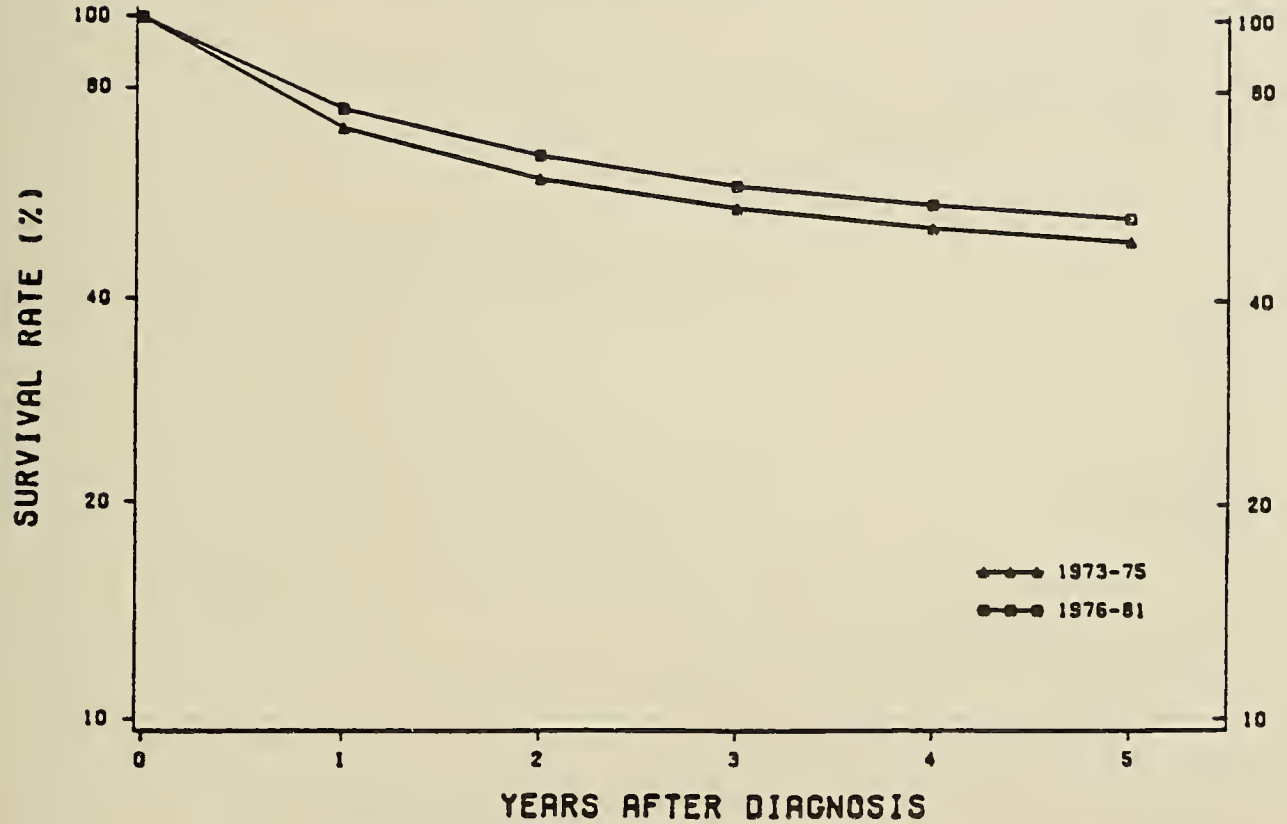
SEER RELATIVE SURVIVAL RATES BY YEAR OF DIAGNOSIS



NOTE: BLACK MALES & FEMALES

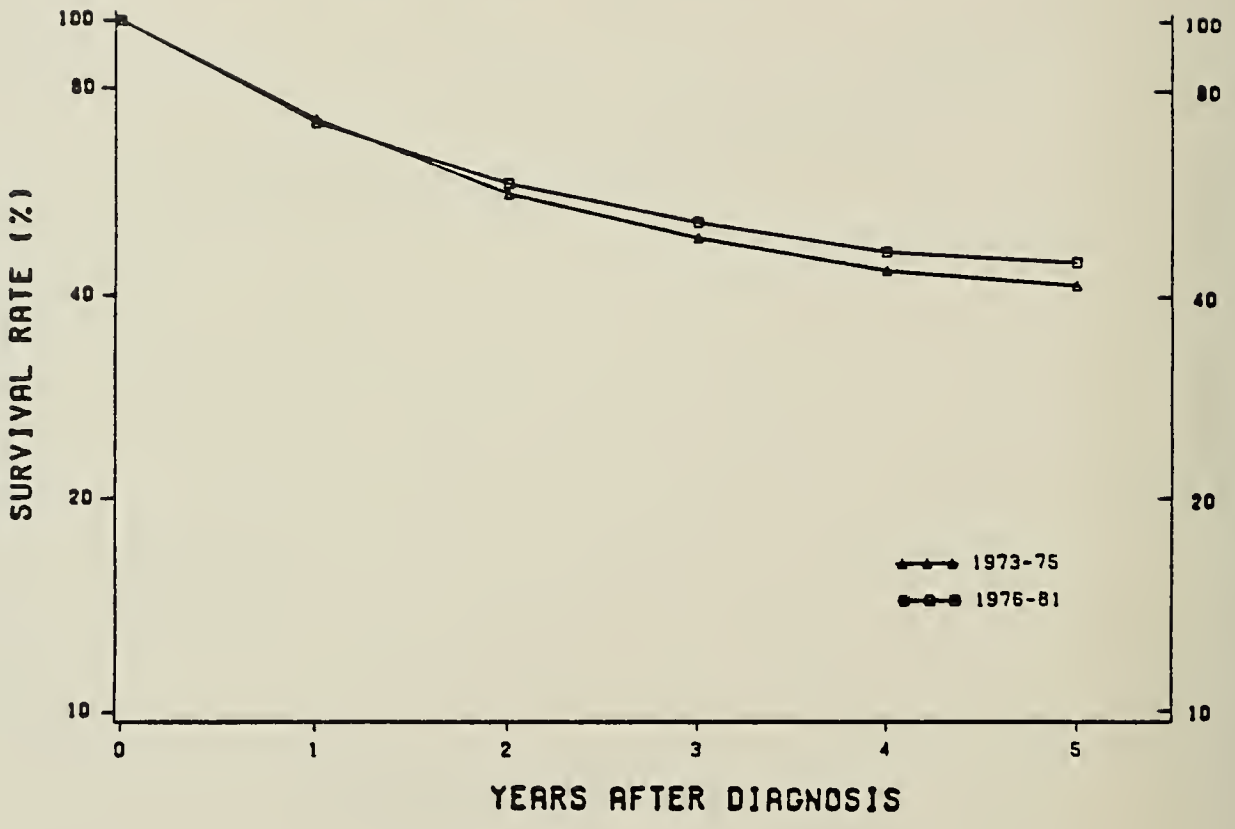
COLON

SEER RELATIVE SURVIVAL RATES BY YEAR OF DIAGNOSIS



NOTE: WHITE MALES & FEMALES

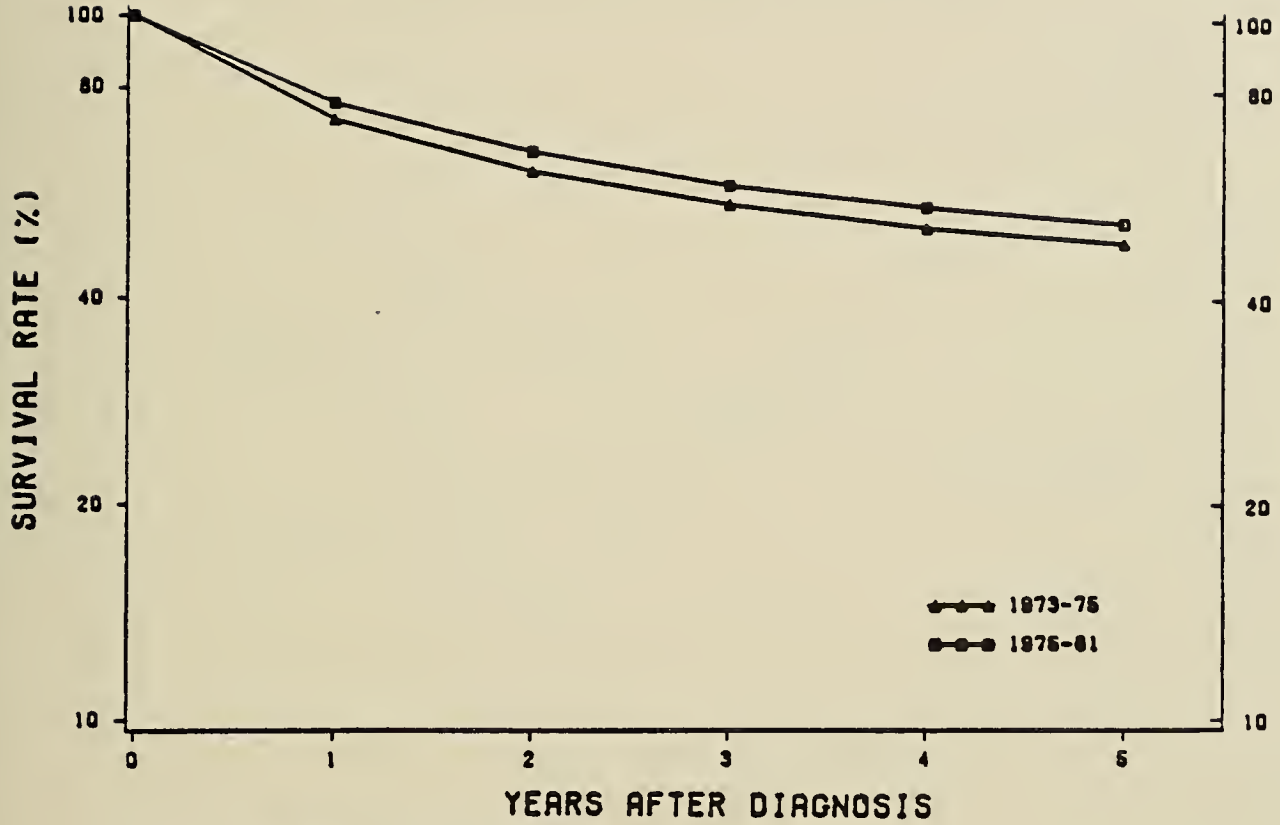
SEER RELATIVE SURVIVAL RATES BY YEAR OF DIAGNOSIS



NOTE: BLACK MALES & FEMALES

COLON/RECTUM

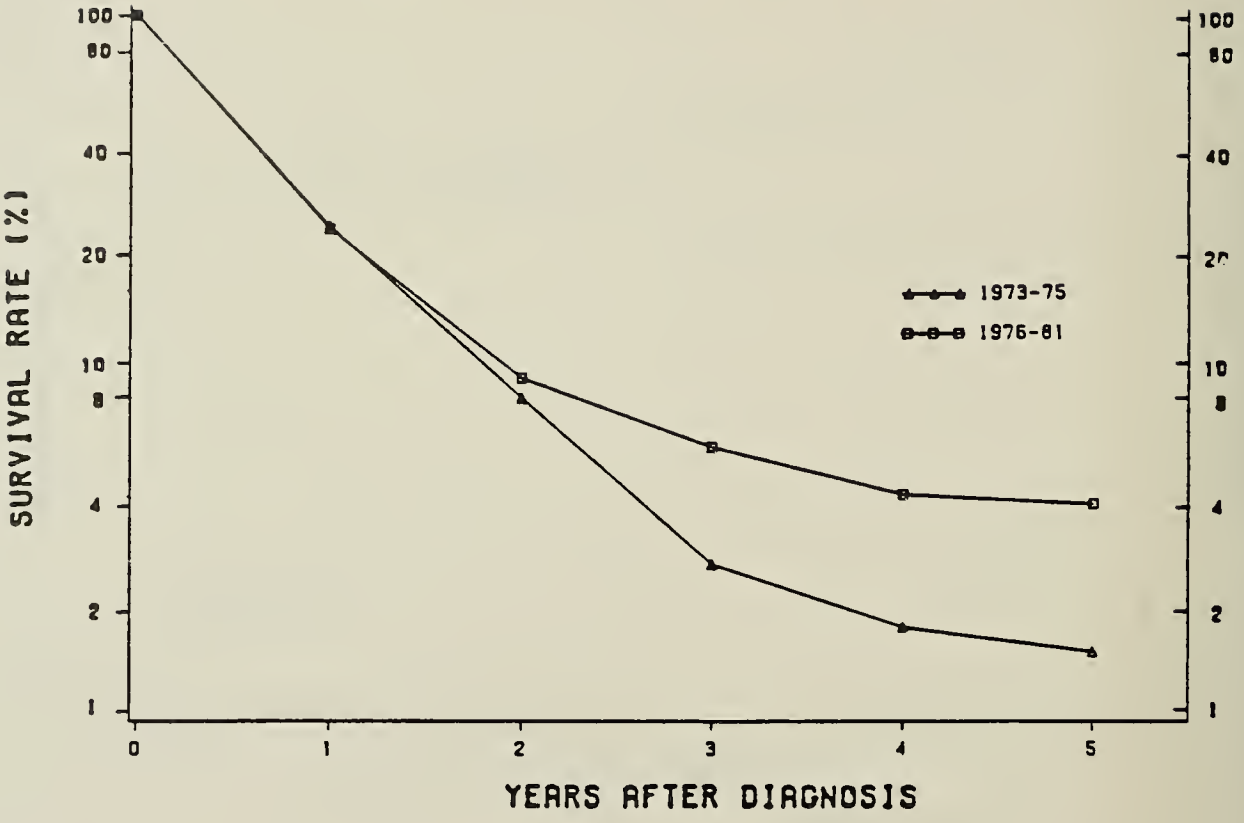
SEER RELATIVE SURVIVAL RATES BY YEAR OF DIAGNOSIS



NOTE: WHITE MALES & FEMALES

ESOPHAGUS

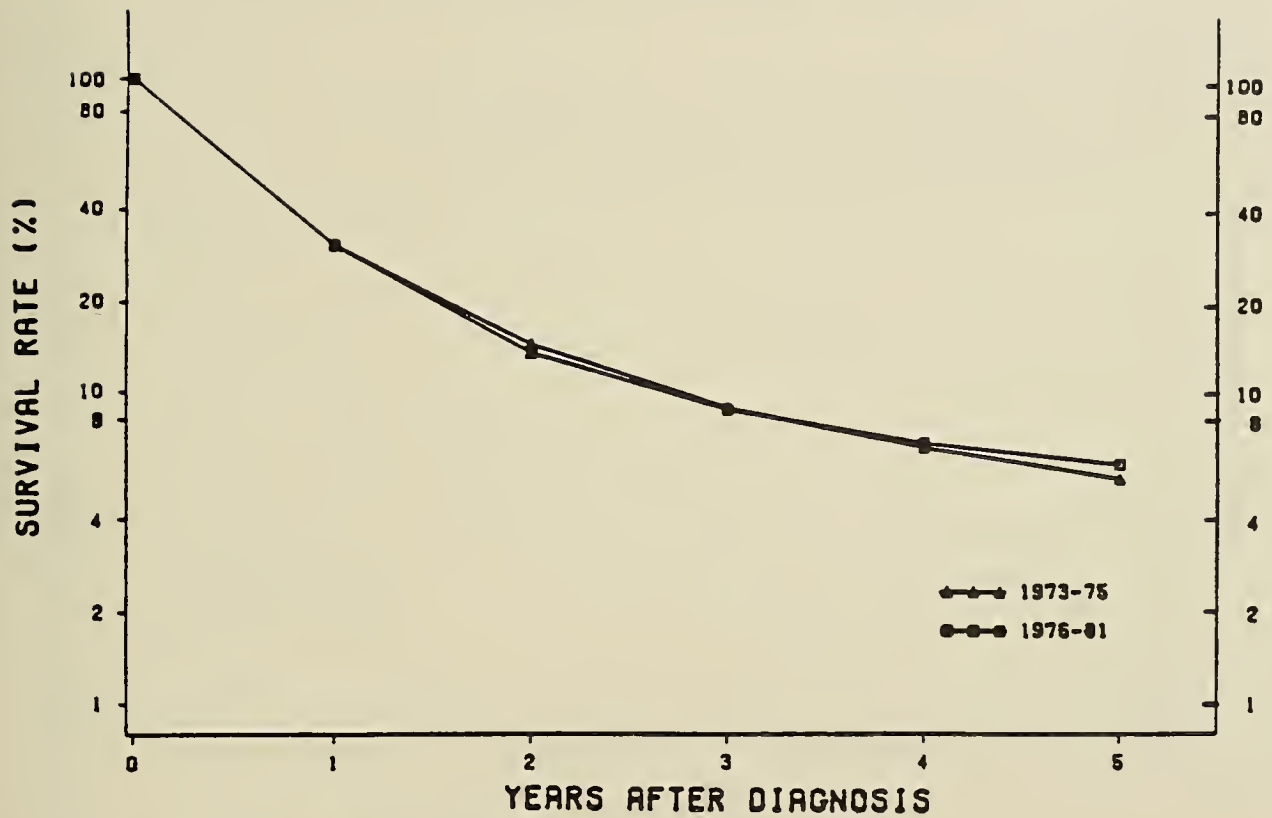
SEER RELATIVE SURVIVAL RATES BY YEAR OF DIAGNOSIS



NOTE: BLACK MALES & FEMALES

ESOPHAGUS

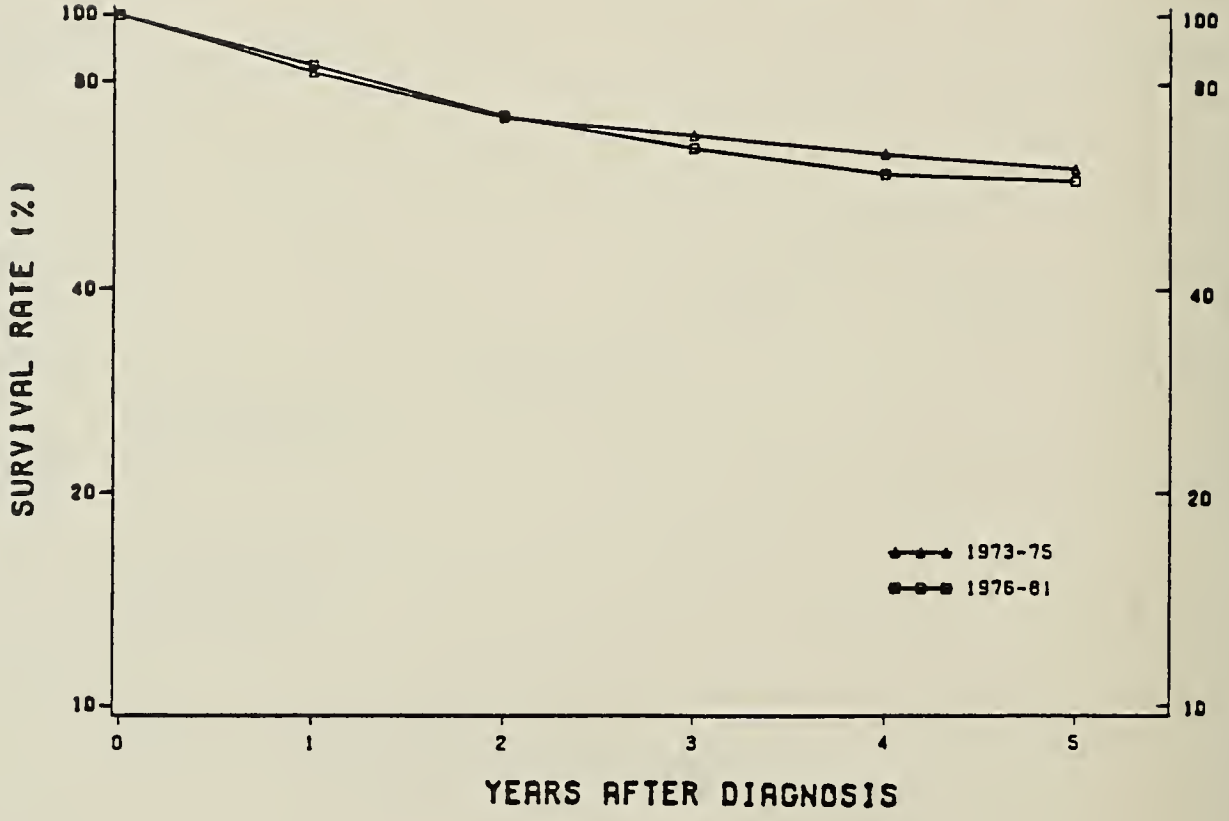
SEER RELATIVE SURVIVAL RATES BY YEAR OF DIAGNOSIS



NOTE: WHITE MALES & FEMALES

LARYNX

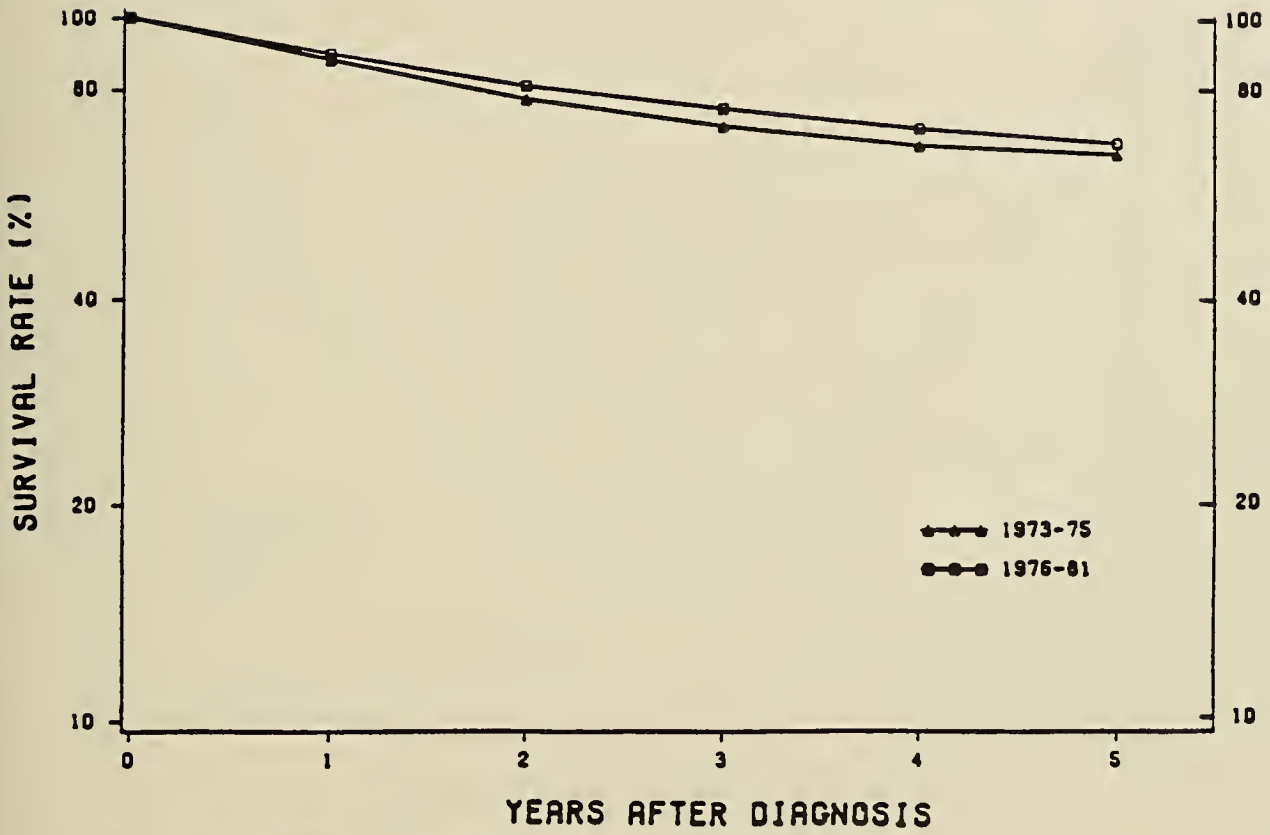
SEER RELATIVE SURVIVAL RATES BY YEAR OF DIAGNOSIS



NOTE: BLACK MALES & FEMALES

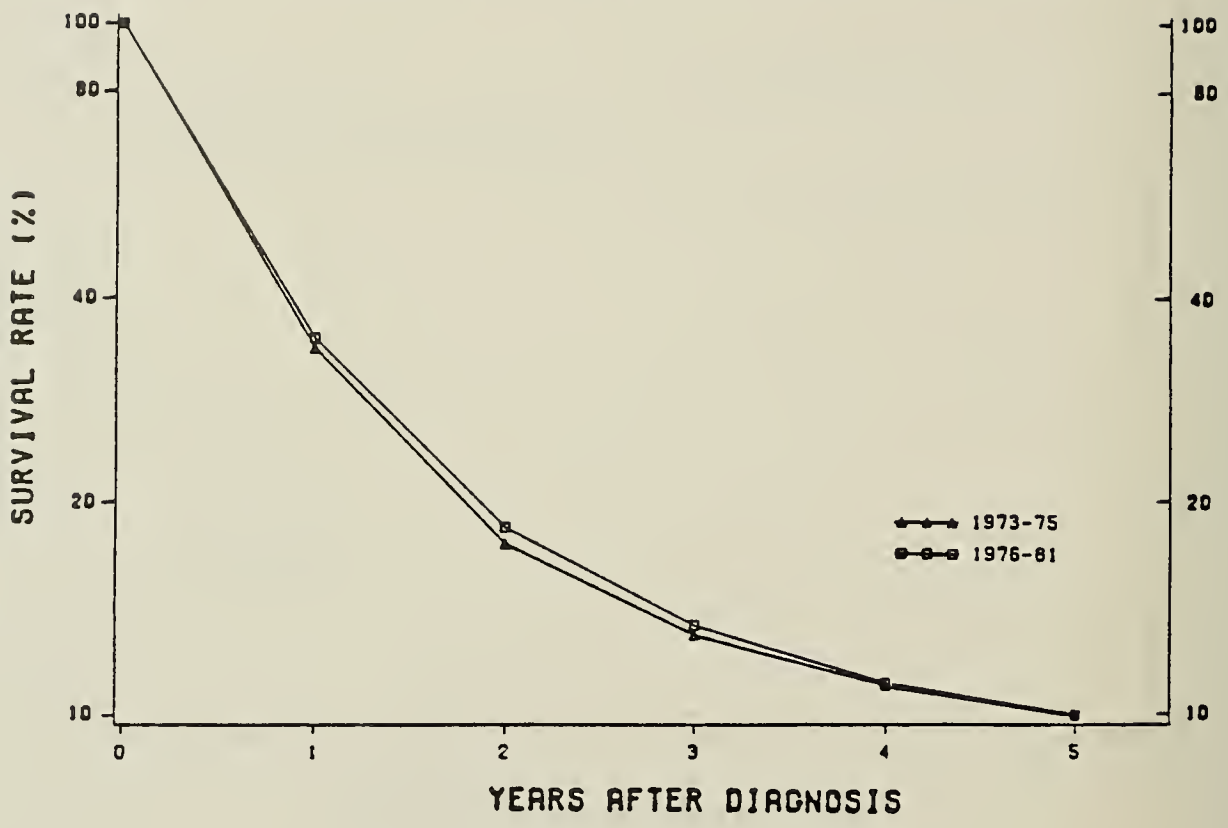
LARYNX

SEER RELATIVE SURVIVAL RATES BY YEAR OF DIAGNOSIS



NOTE: WHITE MALES & FEMALES

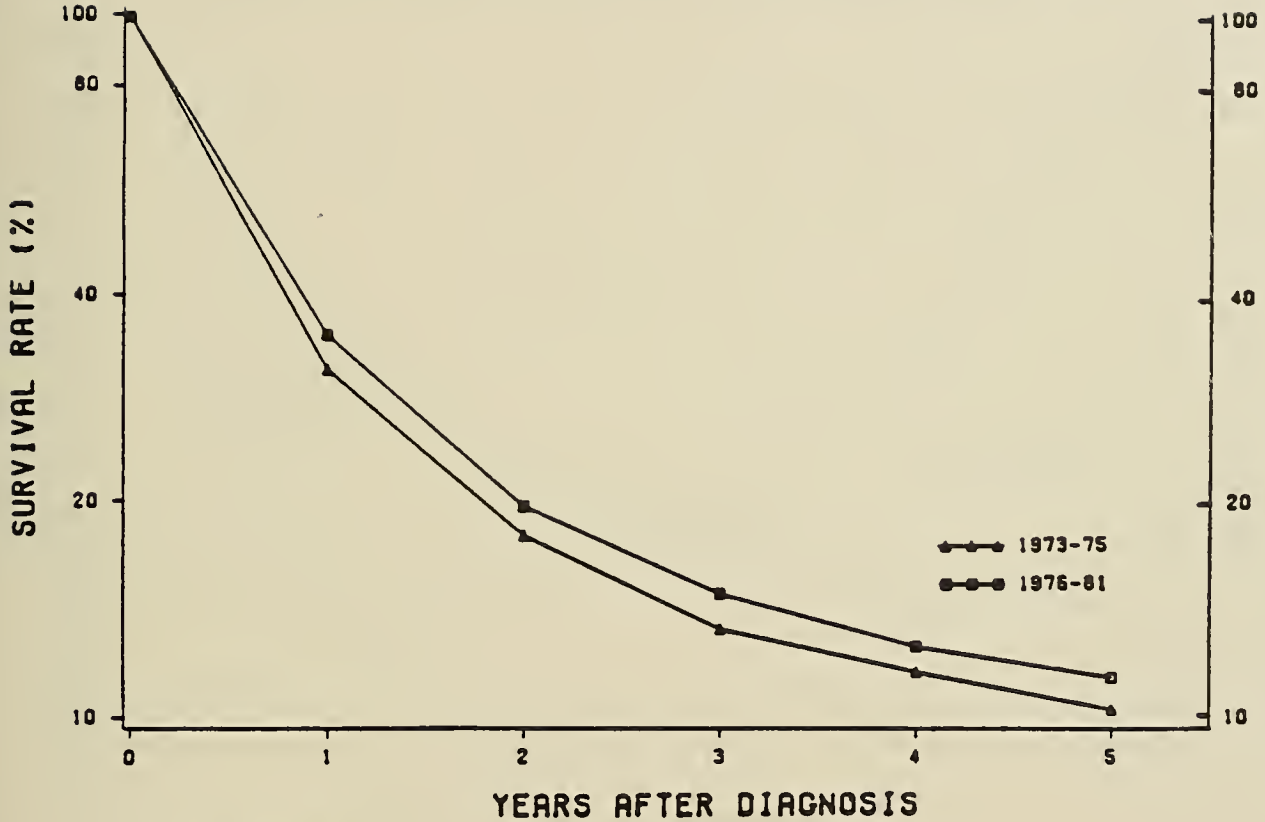
SEER RELATIVE SURVIVAL RATES BY YEAR OF DIAGNOSIS



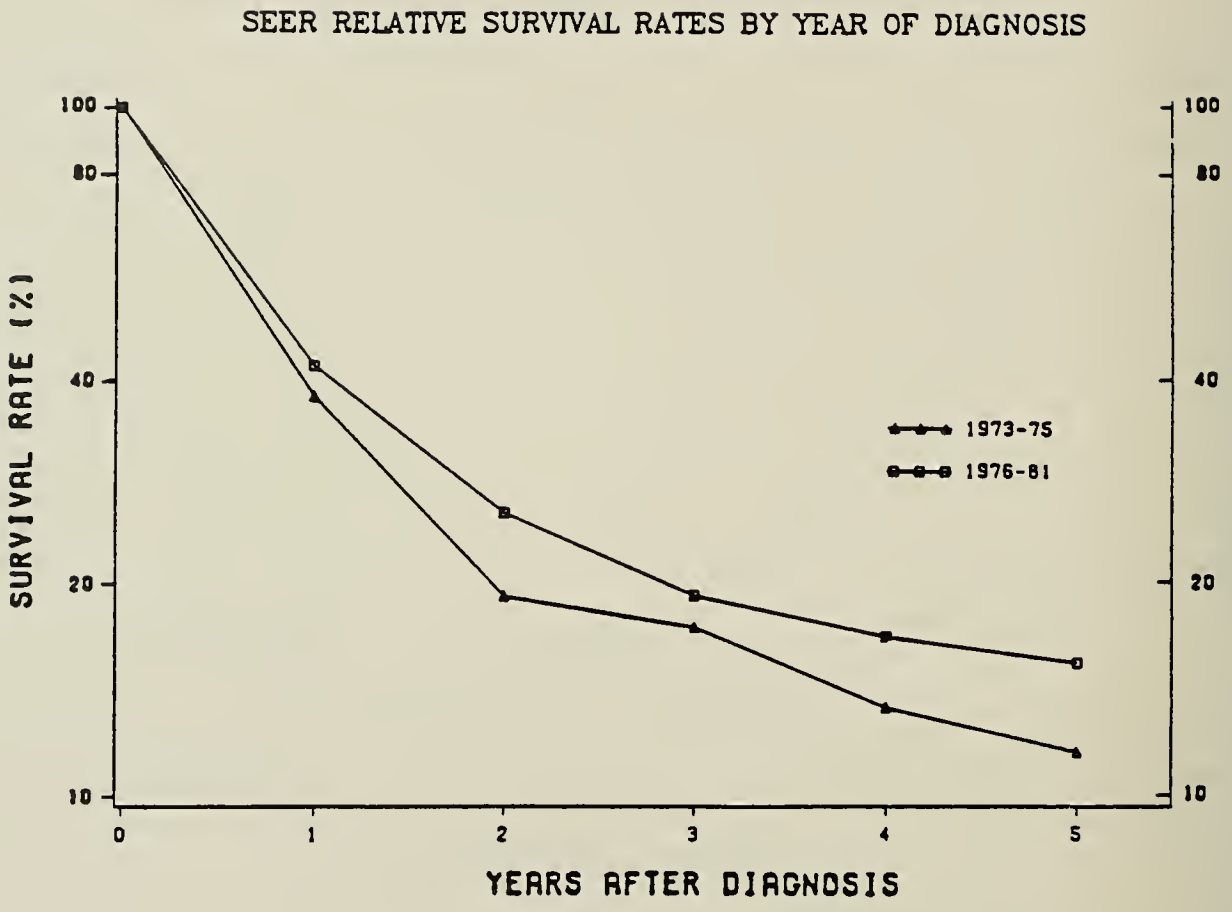
NOTE: BLACK MALES

LUNG & BRONCHUS

SEER RELATIVE SURVIVAL RATES BY YEAR OF DIAGNOSIS



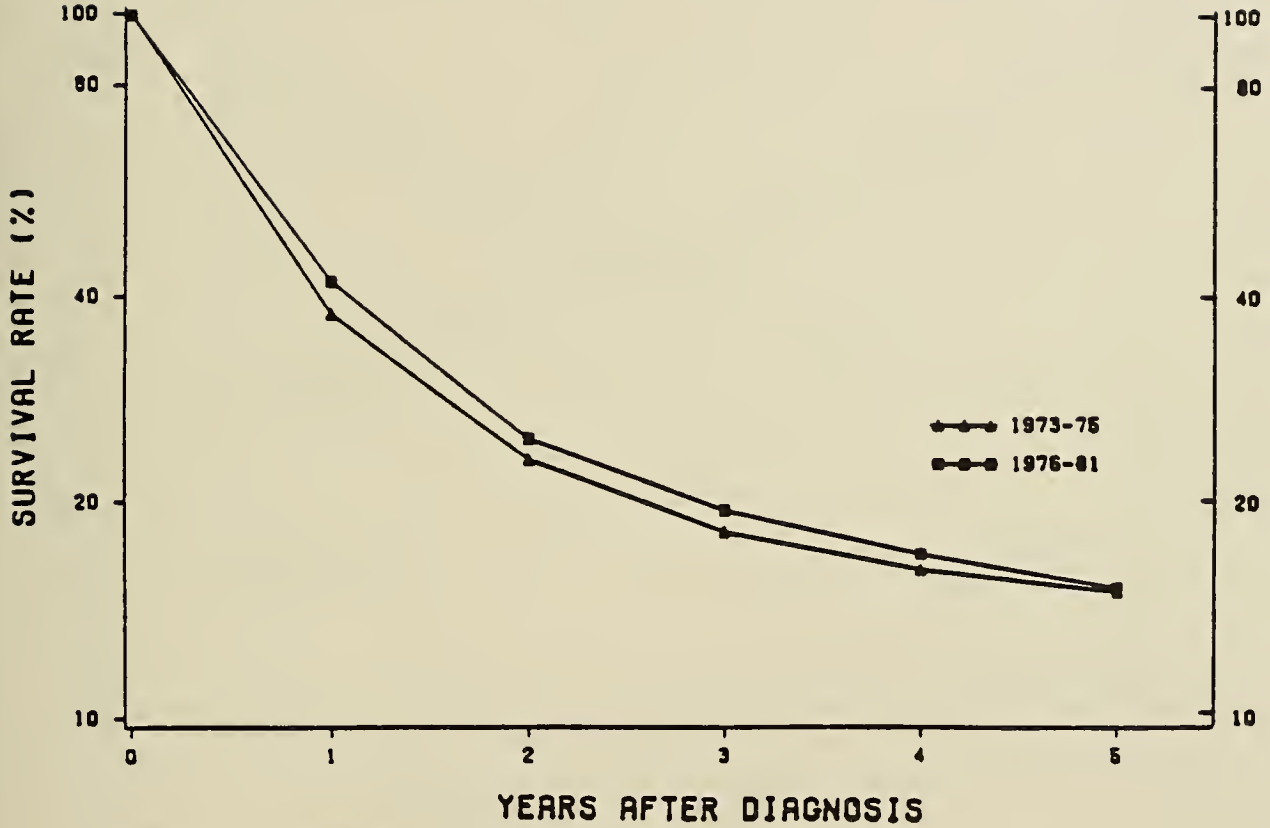
NOTE: WHITE MALES



NOTE: BLACK FEMALES

LUNG & BRONCHUS

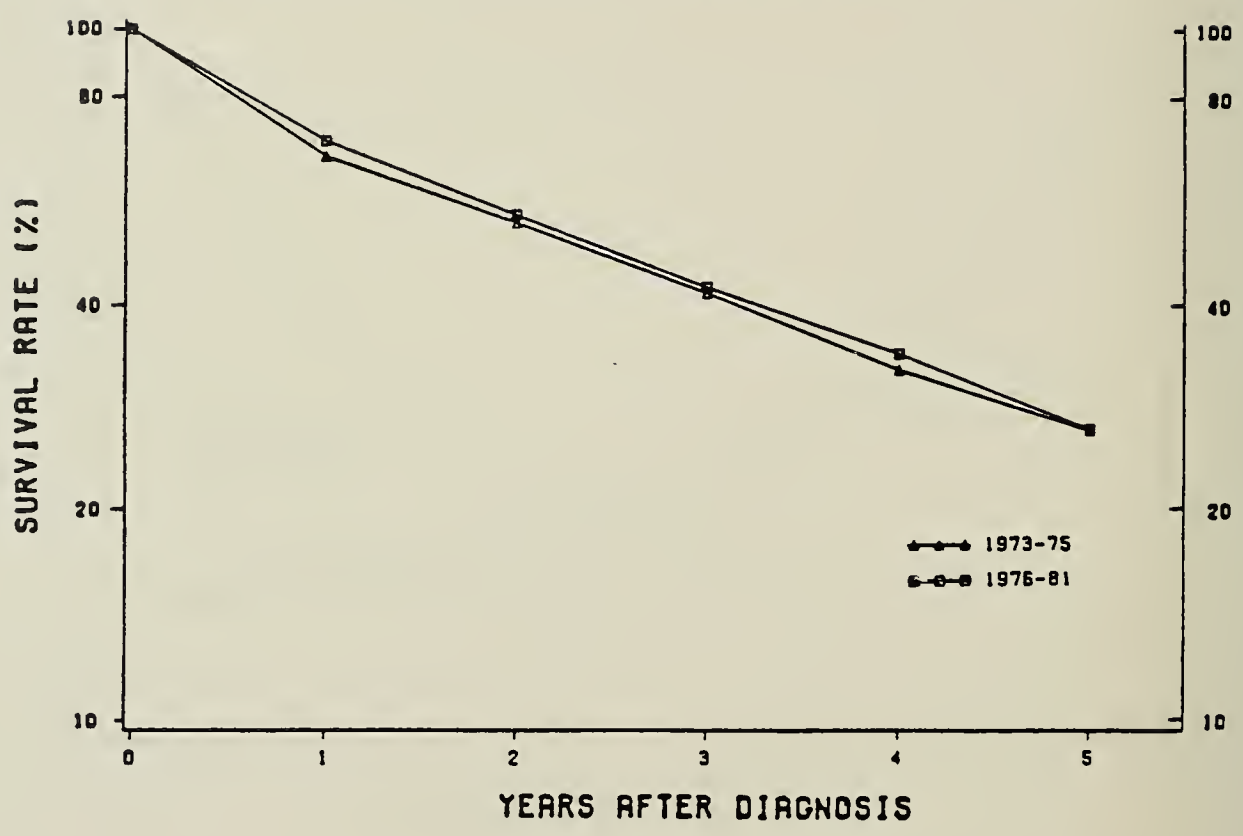
SEER RELATIVE SURVIVAL RATES BY YEAR OF DIAGNOSIS



NOTE: WHITE FEMALES

MULTIPLE MYELOMA

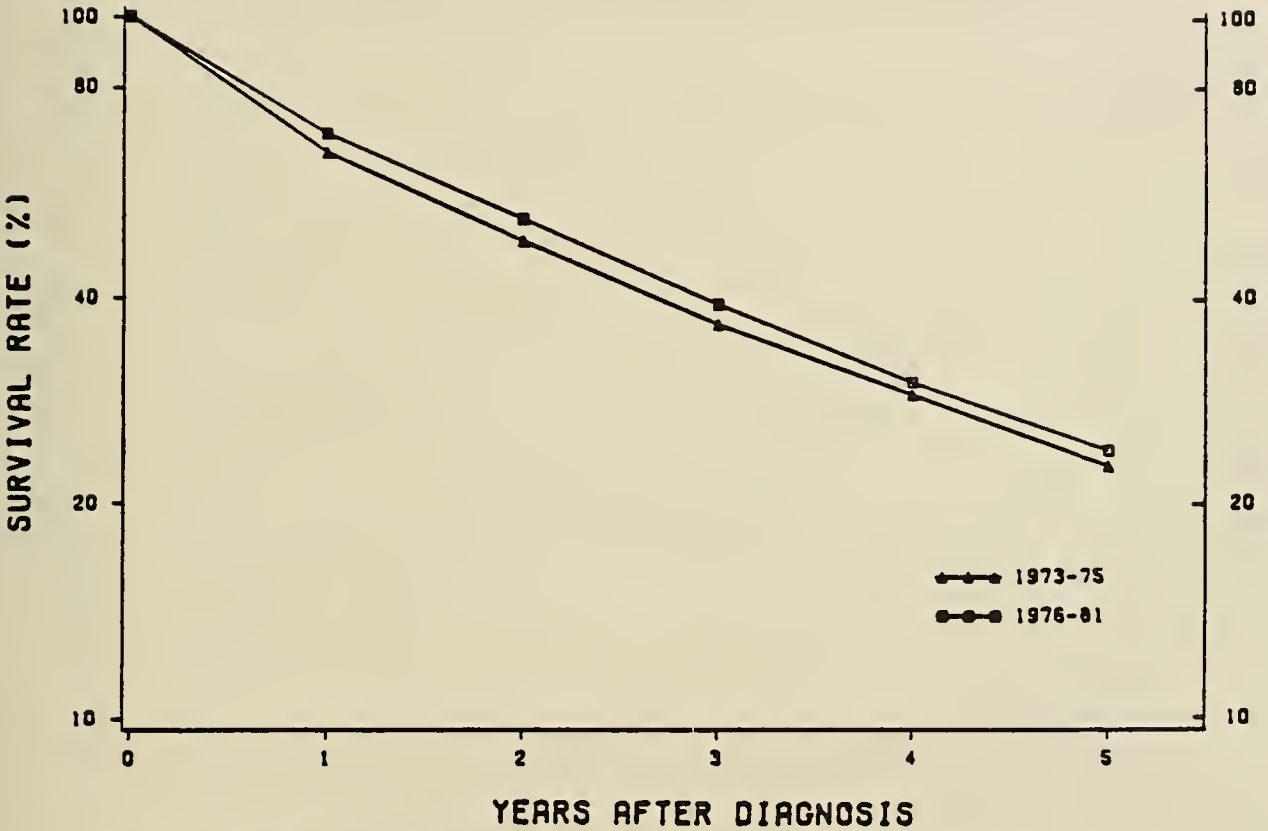
SEER RELATIVE SURVIVAL RATES BY YEAR OF DIAGNOSIS



NOTE: BLACK MALES & FEMALES

MULTIPLE MYELOMA

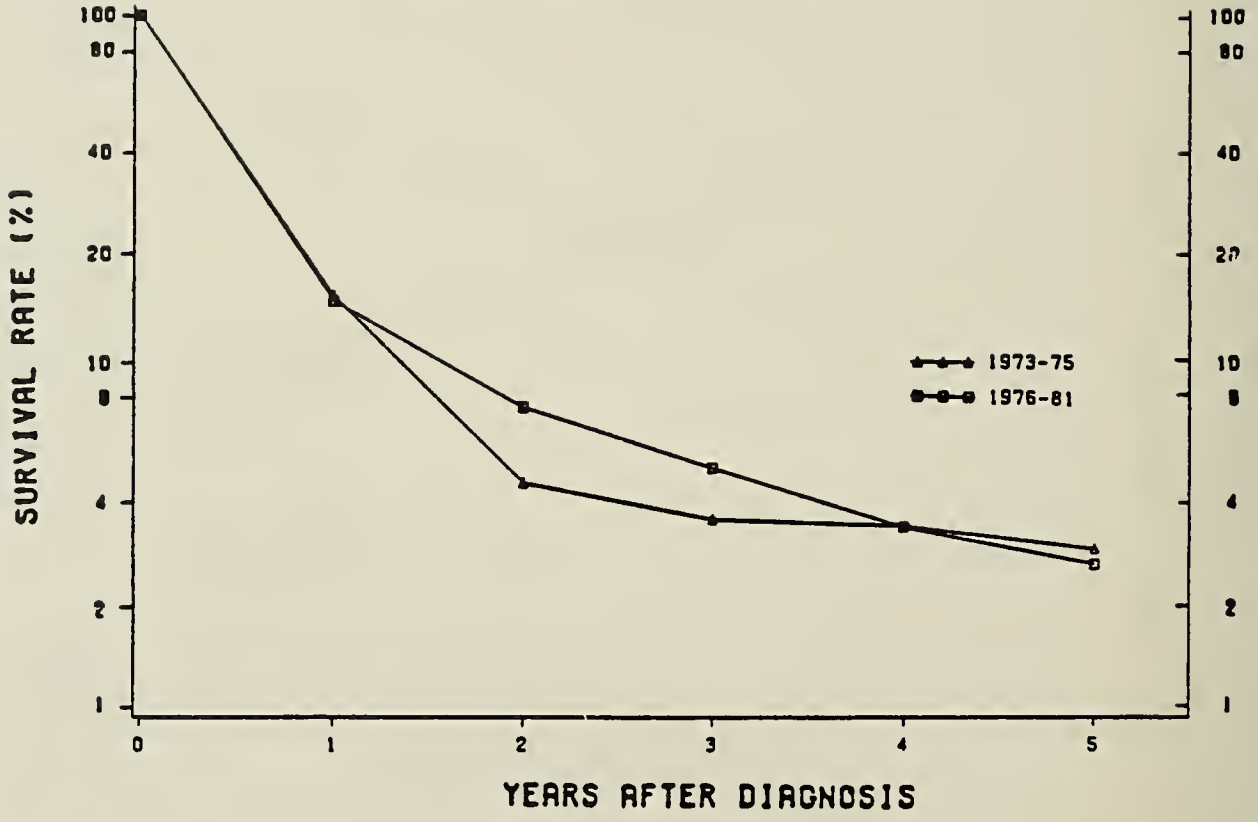
SEER RELATIVE SURVIVAL RATES BY YEAR OF DIAGNOSIS



NOTE: WHITE MALES & FEMALES

PANCREAS

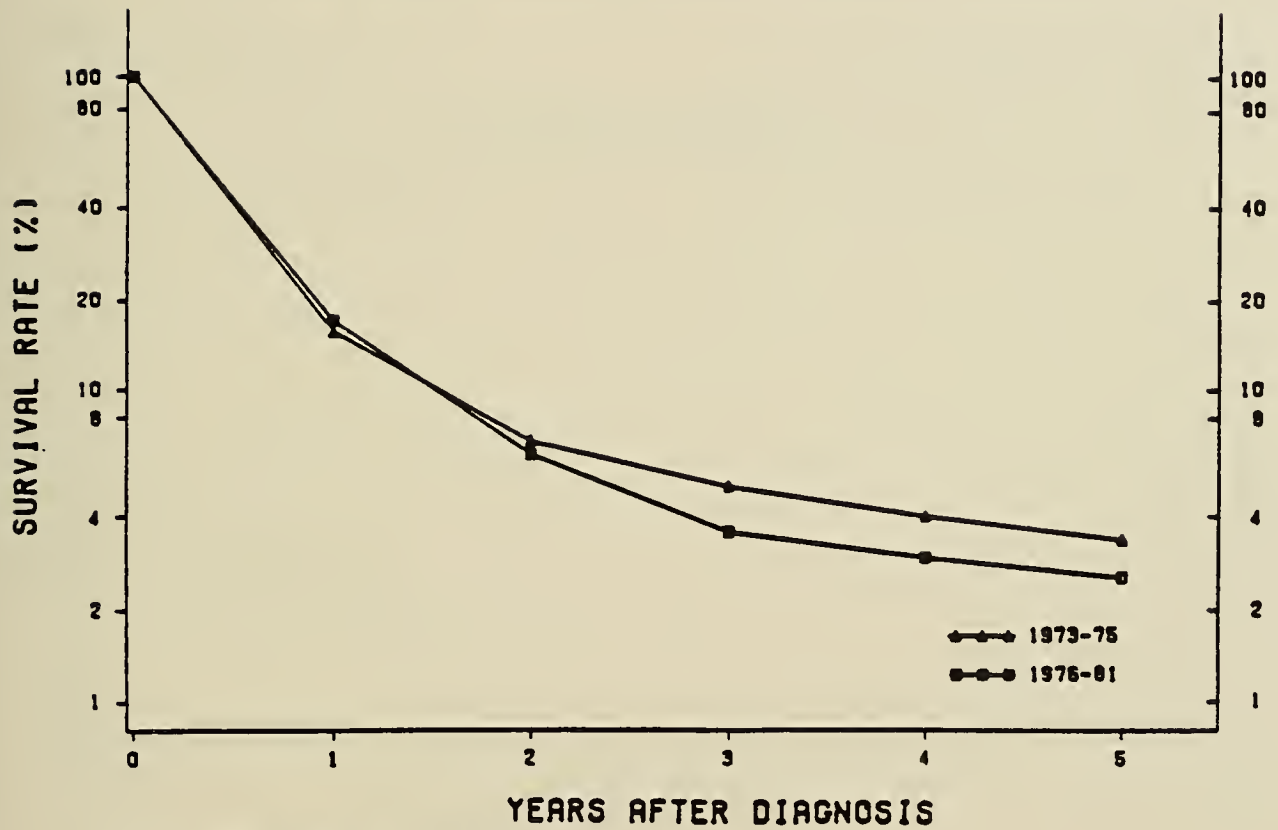
SEER RELATIVE SURVIVAL RATES BY YEAR OF DIAGNOSIS



NOTE: BLACK MALES & FEMALES

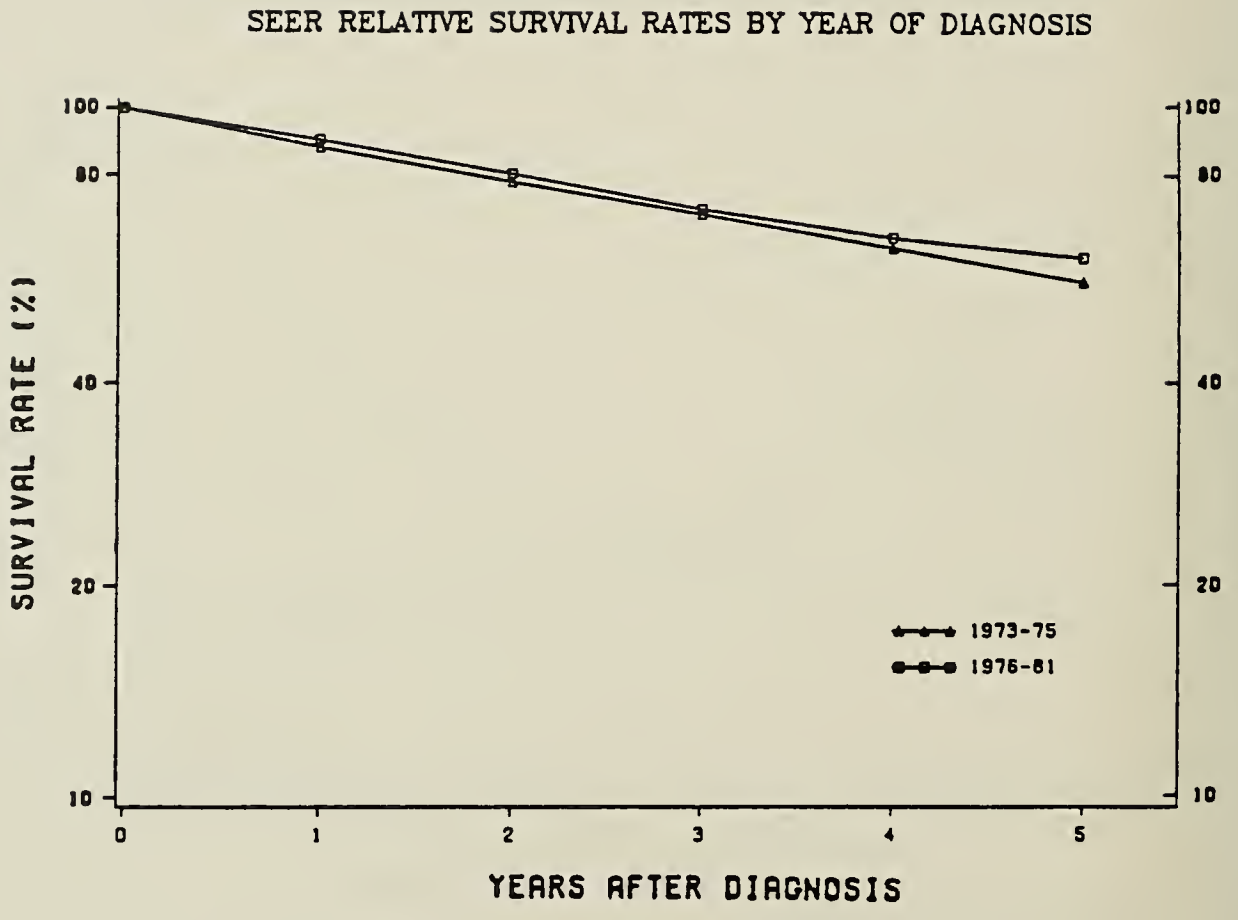
PANCREAS

SEER RELATIVE SURVIVAL RATES BY YEAR OF DIAGNOSIS



NOTE: WHITE MALES & FEMALES

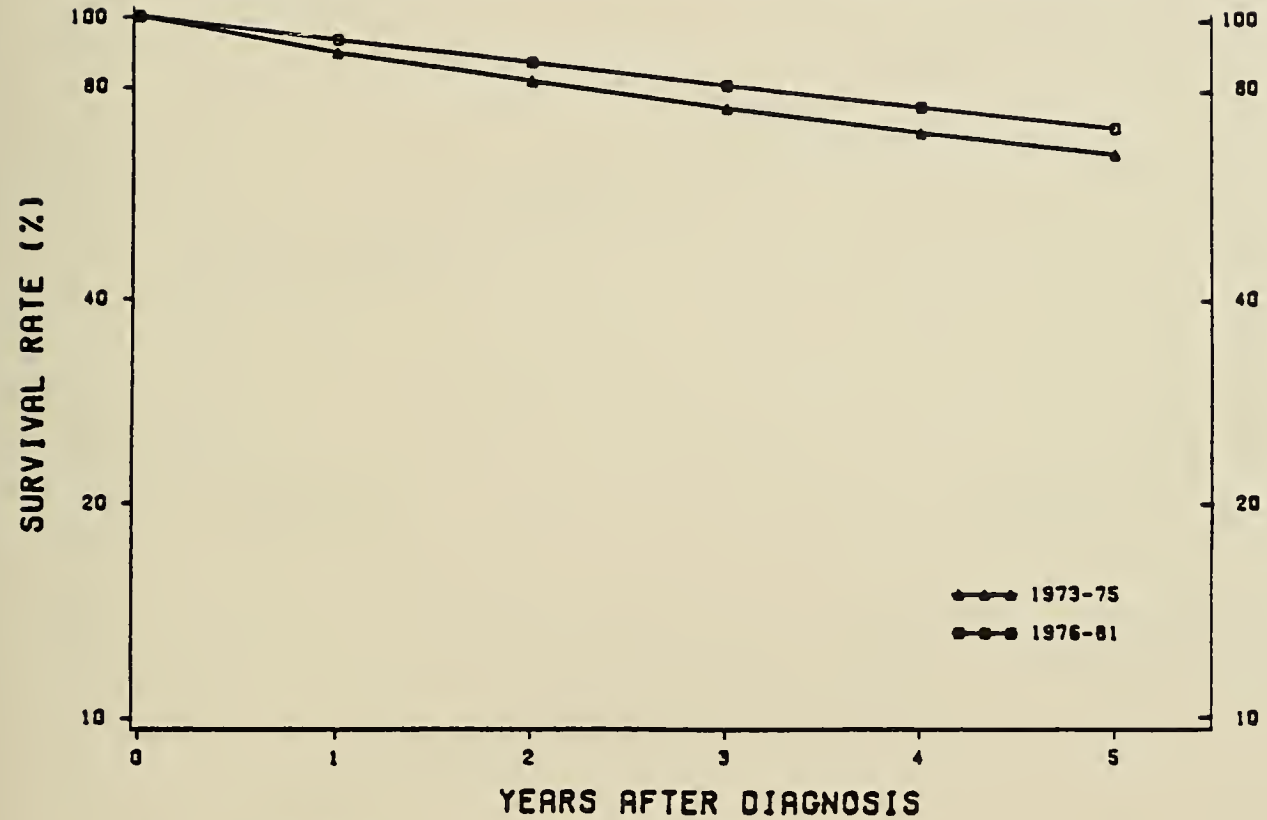
PROSTATE



NOTE: BLACK MALES

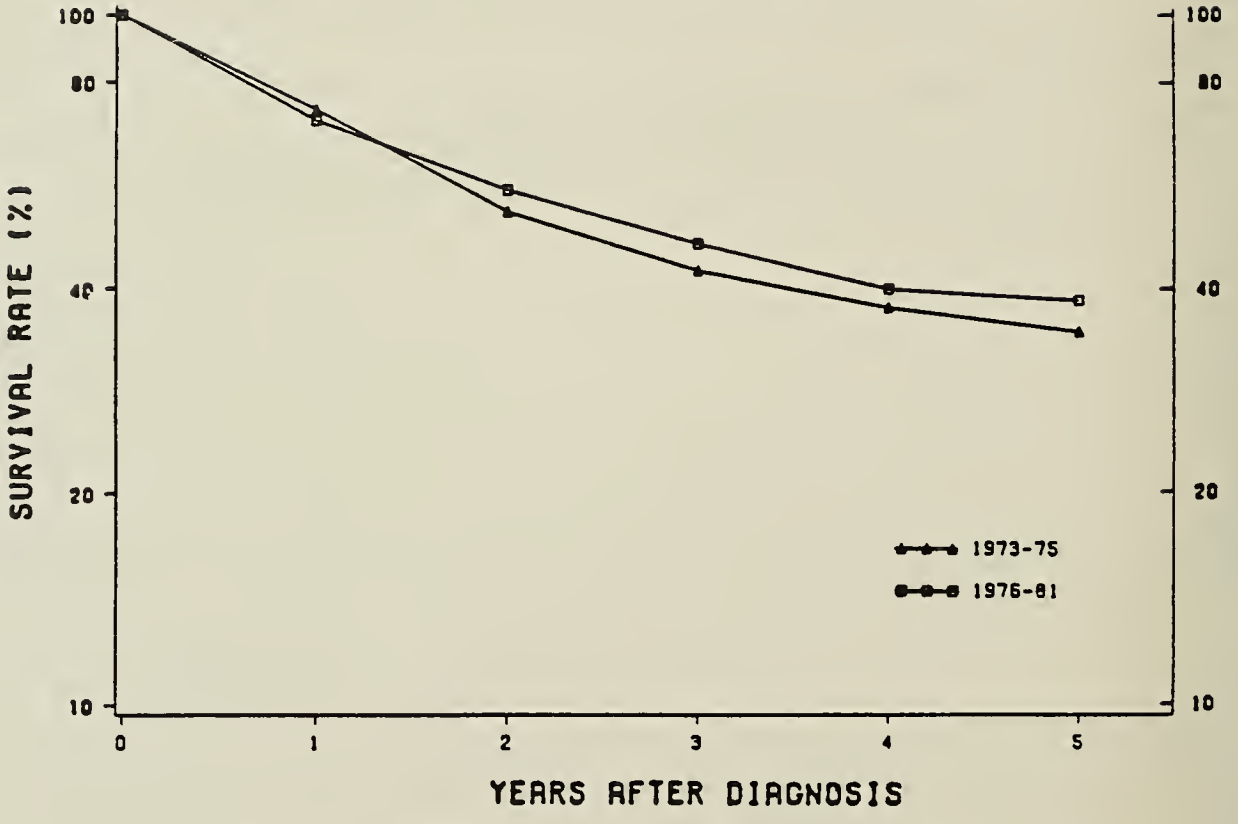
PROSTATE

SEER RELATIVE SURVIVAL RATES BY YEAR OF DIAGNOSIS



NOTE: WHITE MALES

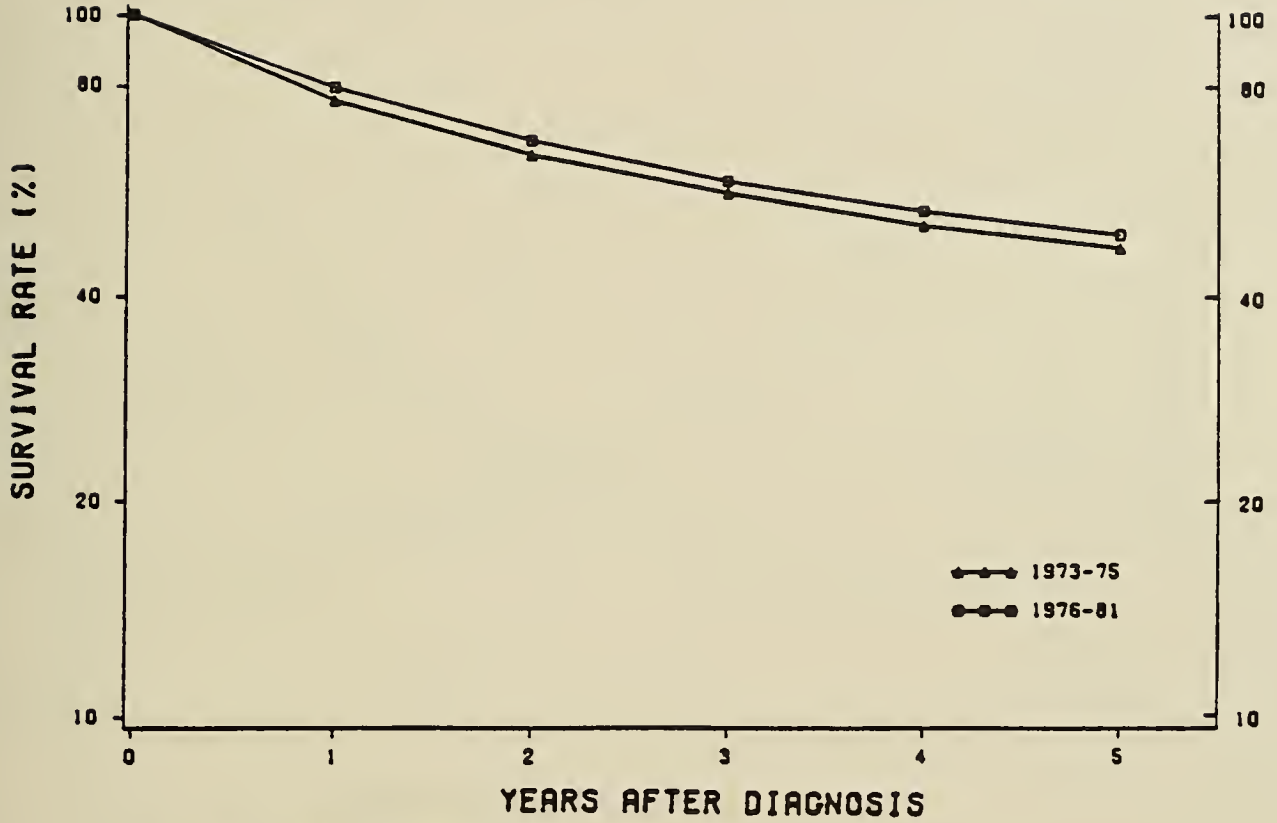
SEER RELATIVE SURVIVAL RATES BY YEAR OF DIAGNOSIS



NOTE: BLACK MALES & FEMALES

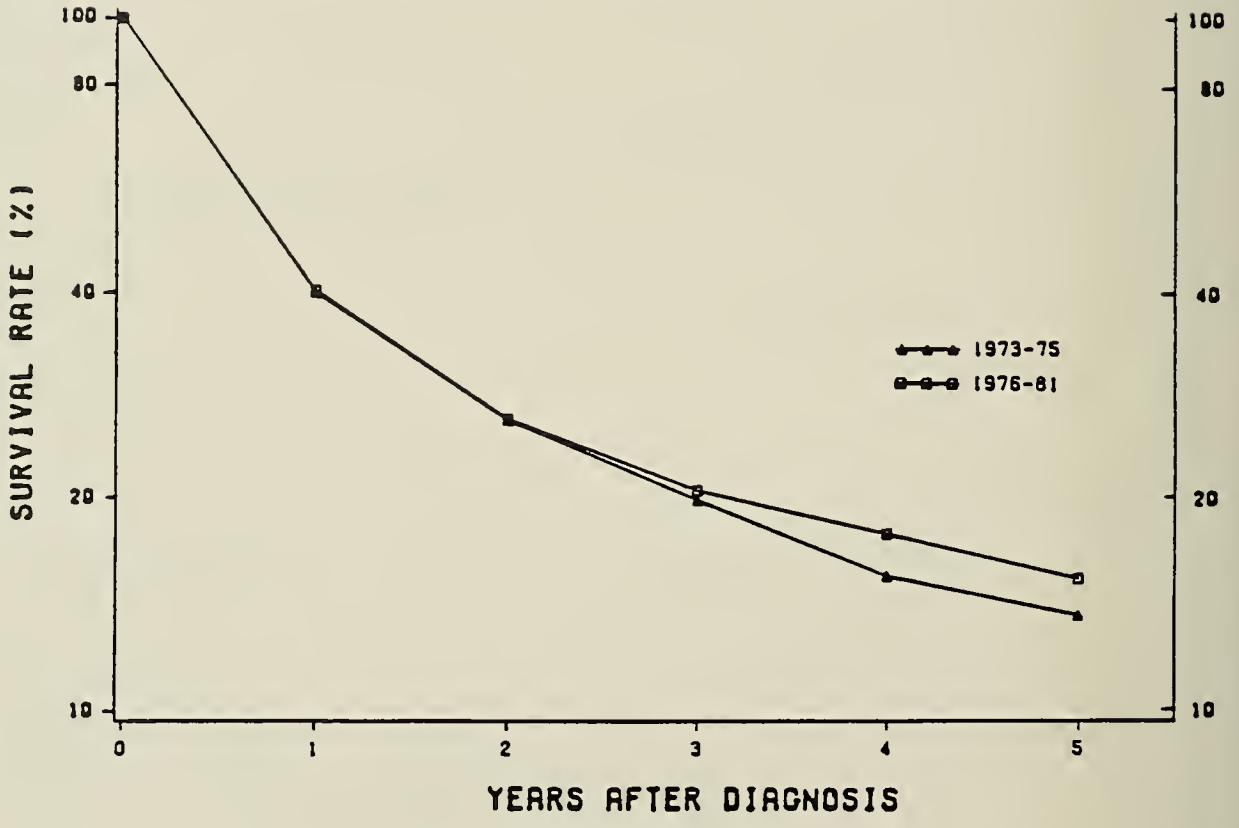
RECTUM

SEER RELATIVE SURVIVAL RATES BY YEAR OF DIAGNOSIS



NOTE: WHITE MALES & FEMALES

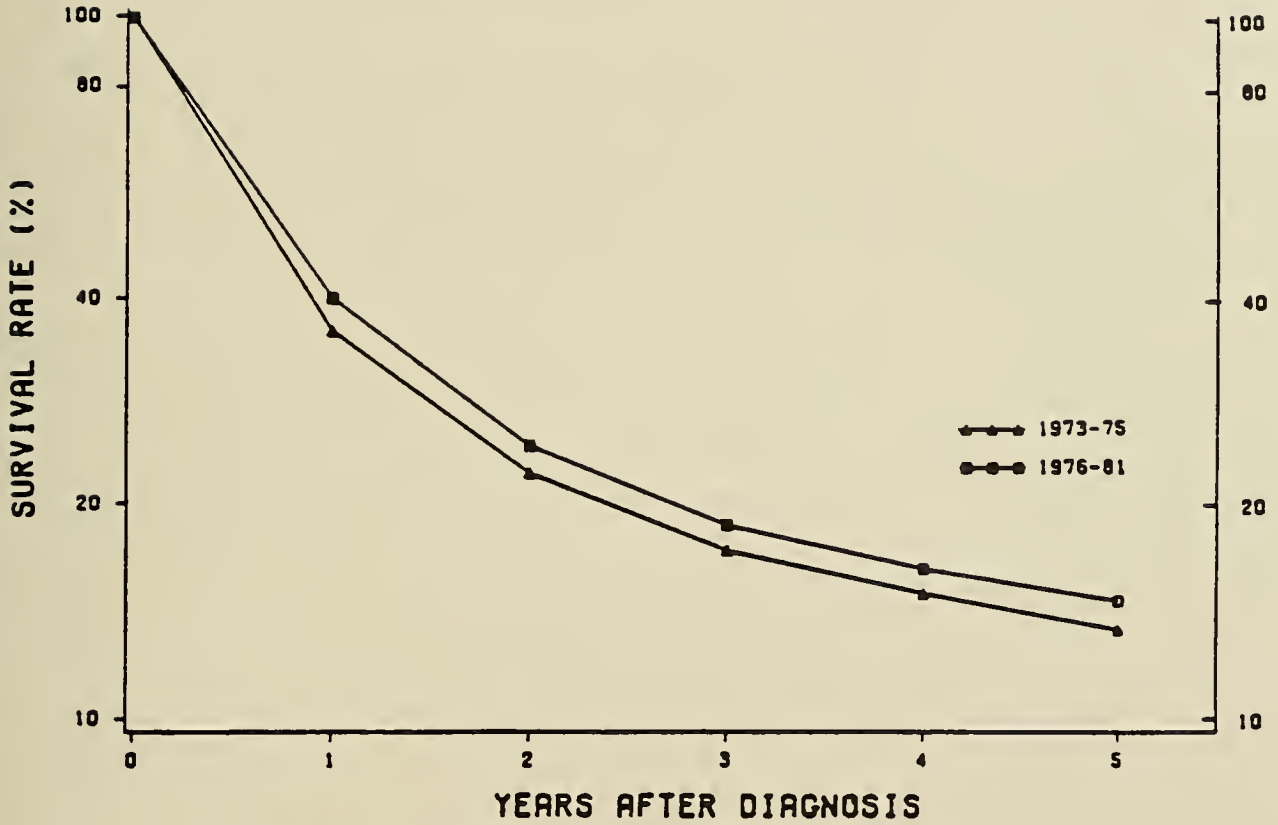
SEER RELATIVE SURVIVAL RATES BY YEAR OF DIAGNOSIS



NOTE: BLACK MALES & FEMALES

STOMACH

SEER RELATIVE SURVIVAL RATES BY YEAR OF DIAGNOSIS



NOTE: WHITE MALES & FEMALES

Discussion 218

Figures:

Annual Five-year Relative Survival Rates and
Annual Age-adjusted Incidence and Mortality Rates
by Year of Diagnosis.
All sites:

Black 220
White 221

Annual Five-year Relative Survival Rates and
Annual Age-adjusted Incidence and Mortality Rates
by Year of Diagnosis.
Selected sites:

Bladder
Black 222
White 223

Breast, female
White 224
Black 225

Cervix uteri
Black 226
White 227

Colon
Black 228
White 229

Colon/Rectum
Black 230
White 231

Esophagus
Black 232
White 233

Larynx
Black 234
White 235

Figures (continued)

Lung and Bronchus, male
Black 236
White 237

Lung and Bronchus, female
Black 238
White 239

Multiple Myeloma
Black 240
White 241

Pancreas
Black 242
White 243

Prostate
Black 244
White 245

Rectum
Black 246
White 247

Stomach
Black 248
White 249

Section VI: Trends: Comparison of Incidence, Mortality, and Survival for Blacks and Whites

A. Discussion

The purpose of this section is to illustrate the complex set of interrelationships among cancer incidence, survival, and mortality for blacks and whites. As indicated earlier, cancer incidence rates measure the rate of occurrence of new cases of cancer during a year per hundred thousand persons in the population; cancer patient survival rates measure the proportion of cases, first diagnosed during a particular period of time, surviving for specific lengths of time following diagnosis, usually adjusted for the effect of deaths from other causes; and cancer mortality rates, the rate of deaths during the year with cancer given as the underlying cause of death per hundred thousand population. The survival rate for a particular cancer can be affected by changes in the incidence of that cancer. Changes in incidence and/or survival for a particular cancer over time can result in changes in the mortality rate for that cancer. The following are examples that will illustrate some of the relationships among these measures.

1) The incidence rate for a specific cancer can change over time due to changes in the prevalence of risk factors for that cancer. For example, increases in the prevalence of cigarette smoking among white males during the first half of this century has resulted in sharp increases in the incidence of lung cancer. Changes in the smoking practices in this group, particularly following the Surgeon General's report on smoking in 1964, has resulted in a decrease in the incidence of lung cancer among white males under 45 years of age in the past few years and there is an indication that this trend is beginning to extend to older age groups.

2) For a cancer with a low survival rate, such as lung cancer, an increase in the incidence rate is accompanied, with a very short time lag, by a corresponding increase in the mortality rate.

3) If an increasing number of less severe cases of a particular cancer are identified, this will have the effect of increasing the 5-year relative survival rate for that cancer. This may be the explanation for example, for the rapid increase in incidence of melanomas among whites over the past few years, accompanied by an increase in 5-year relative survival rates.

4) An improvement in survival rates over time, particularly in the absence of any changes in the incidence rate, will result in decreases in the mortality rate. A dramatic example of this was a sharp reduction in mortality from testicular cancer due to a huge increase in the survival rate for that cancer in the mid 1970's.

Data Sources

The data presented in this section pertain entirely to the period covered by the SEER Program. For each cancer, the 5-year relative survival

Data Sources (Continued)

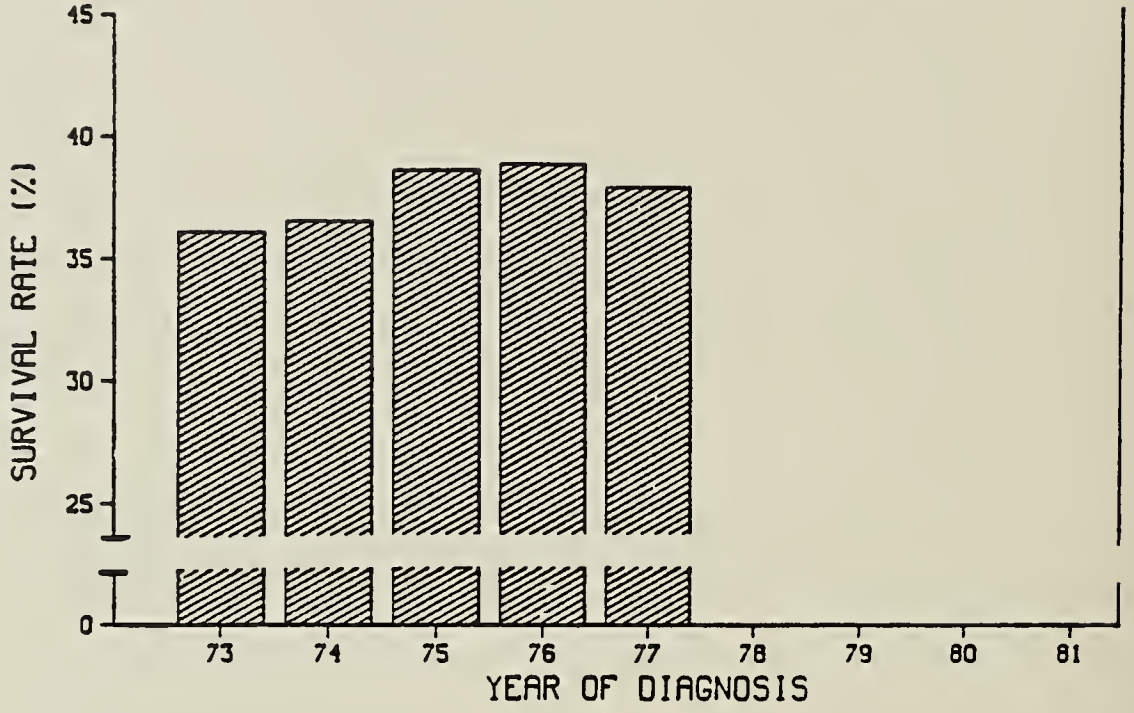
rate is presented for black and white patients first diagnosed during each year 1973-77. The corresponding SEER incidence rates and U.S. mortality rates are presented for each year from 1973-81. (Mortality rates for all SEER areas combined for each cancer, follow very closely those for the United States). By examining these three measures on a single page, for a given cancer, the reader can obtain a better understanding of the trends for that cancer than would be possible by examining each of these measures in isolation. The reader should be cautioned, however, that the observed measures for a particular time period are also influenced by events occurring during that time period. Because of long latent periods for the effect of some risk factors to appear as cancers, the incidence rate for a particular cancer may increase or decrease due to changes in the risk factors a number of years earlier. The number of persons dying of a particular cancer during a given year include not only those who were first diagnosed during that year but also a number who had been diagnosed in earlier years. Care should be used when comparing the graphs between blacks and whites because the vertical axes are not always identical. These factors must be kept in mind when reviewing the data on the following pages.

Organization of Figures

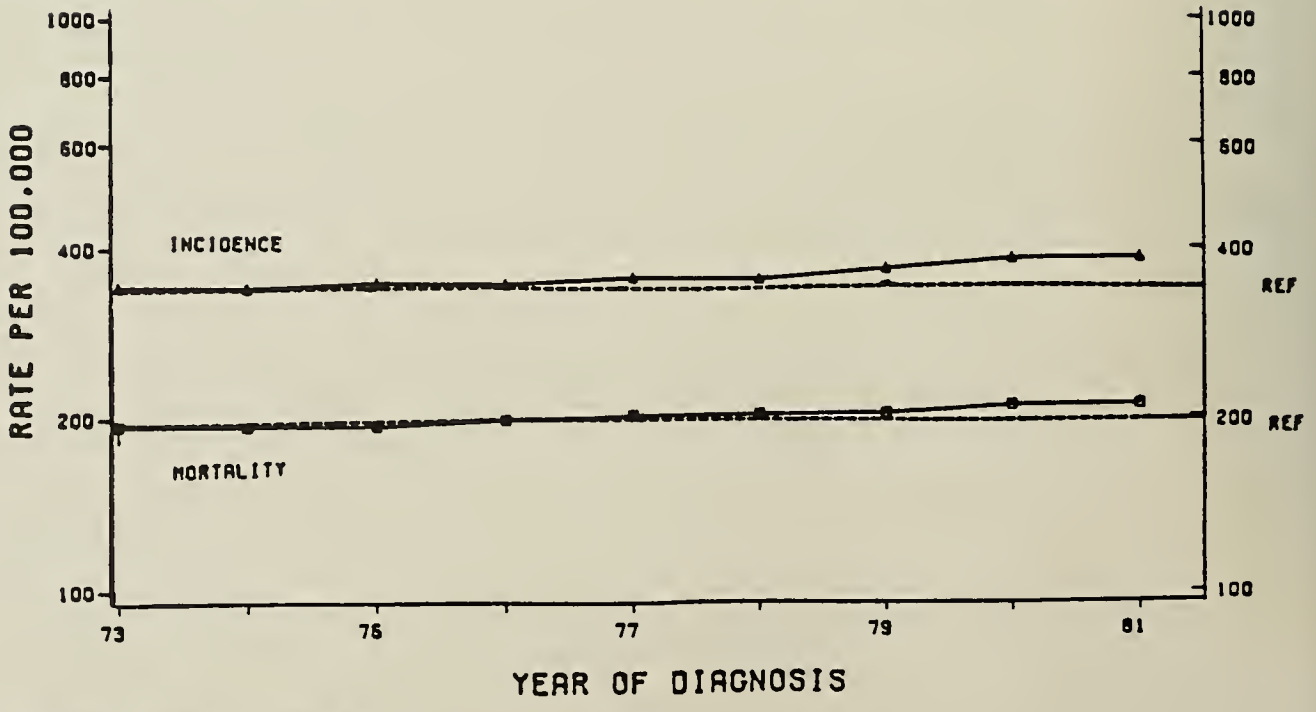
In this section a set of figures are presented that contain incidence, mortality, and five-year survival information by year of diagnosis. Black and white data are shown seperately. The first two figures present this data for all sites of cancer, combined, for blacks and whites; these are followed by similar figures for selected cancer sites.

ALL SITES

FIVE YEAR RELATIVE SURVIVAL RATES



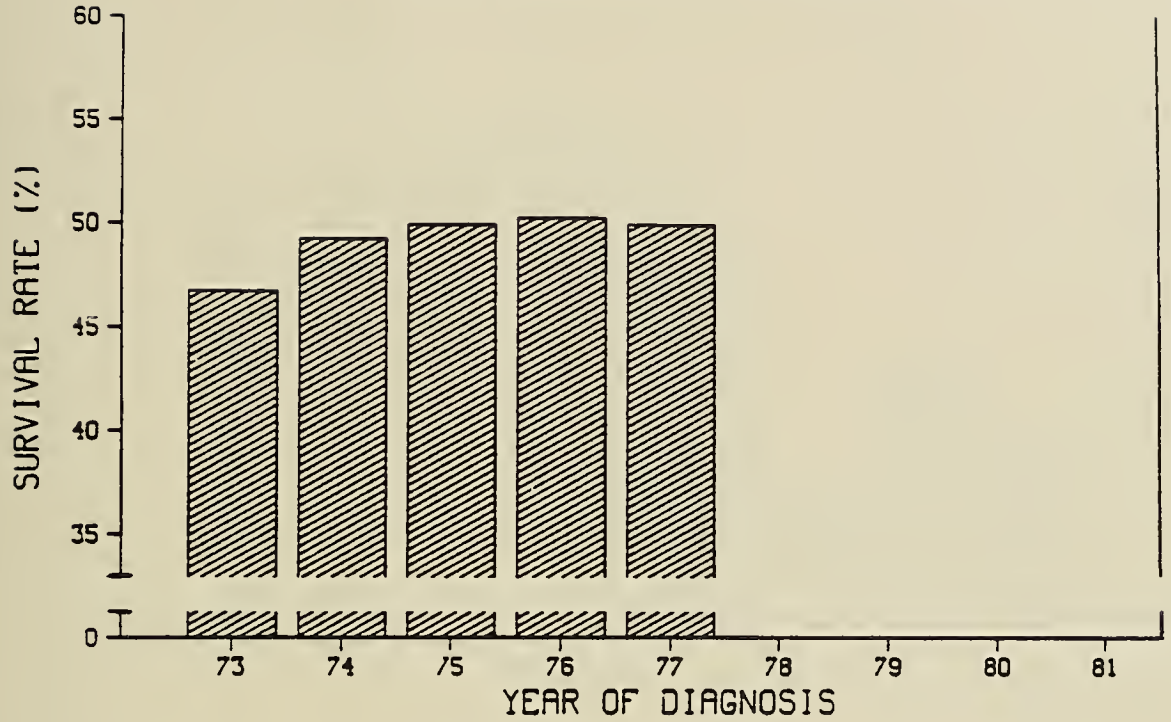
AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES



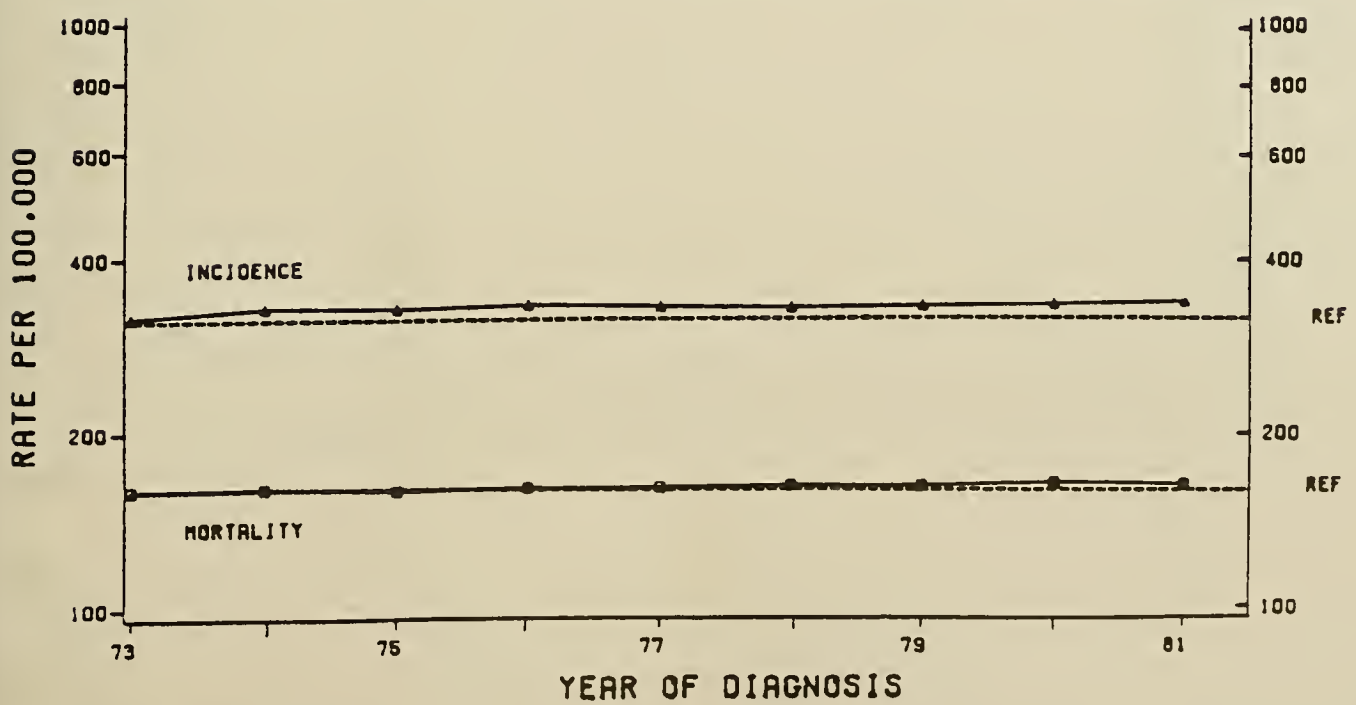
NOTE: BLACK MALES & FEMALES

ALL SITES

FIVE YEAR RELATIVE SURVIVAL RATES



AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES

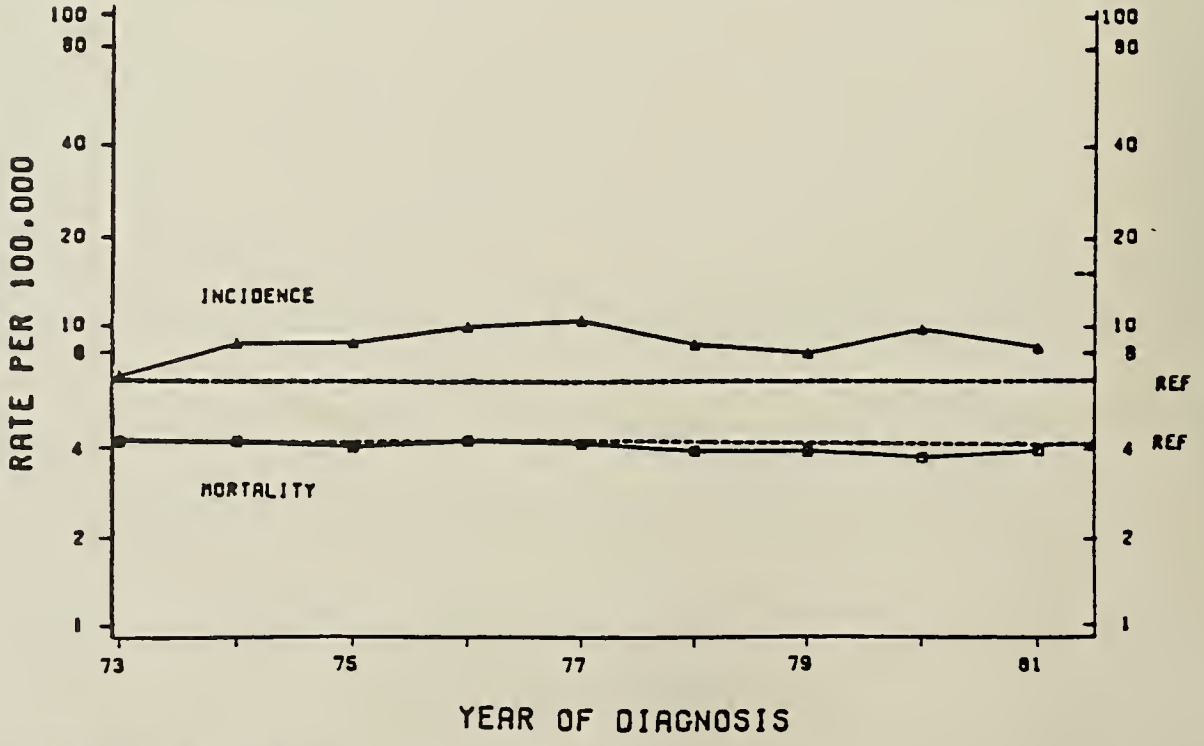


NOTE: WHITE MALES & FEMALES

BLADDER

FIVE YEAR RELATIVE SURVIVAL RATES

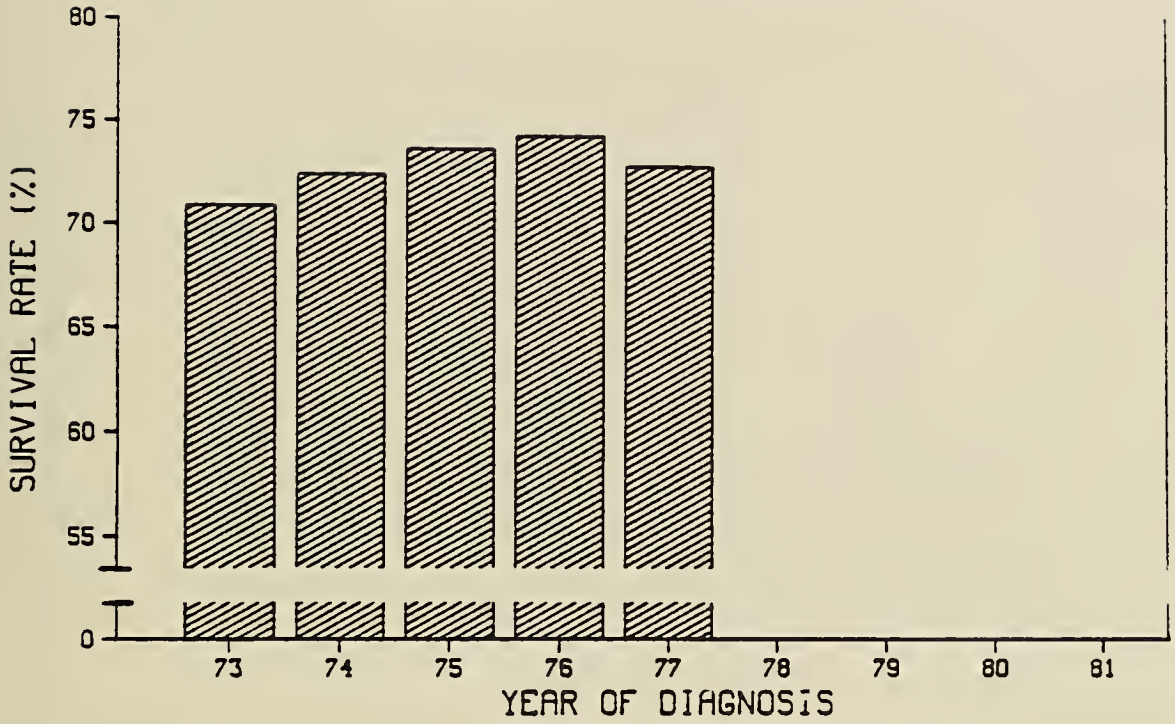
AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES



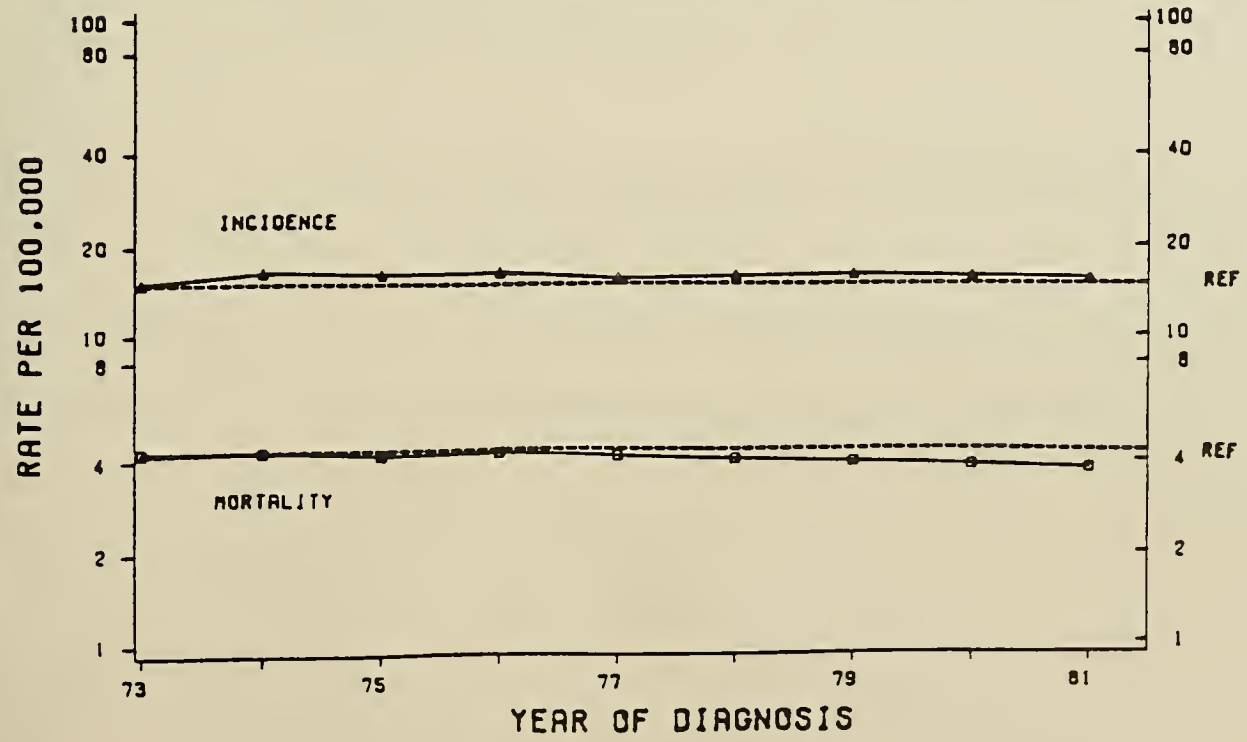
NOTE: BLACK MALES & FEMALES

BLADDER

FIVE YEAR RELATIVE SURVIVAL RATES



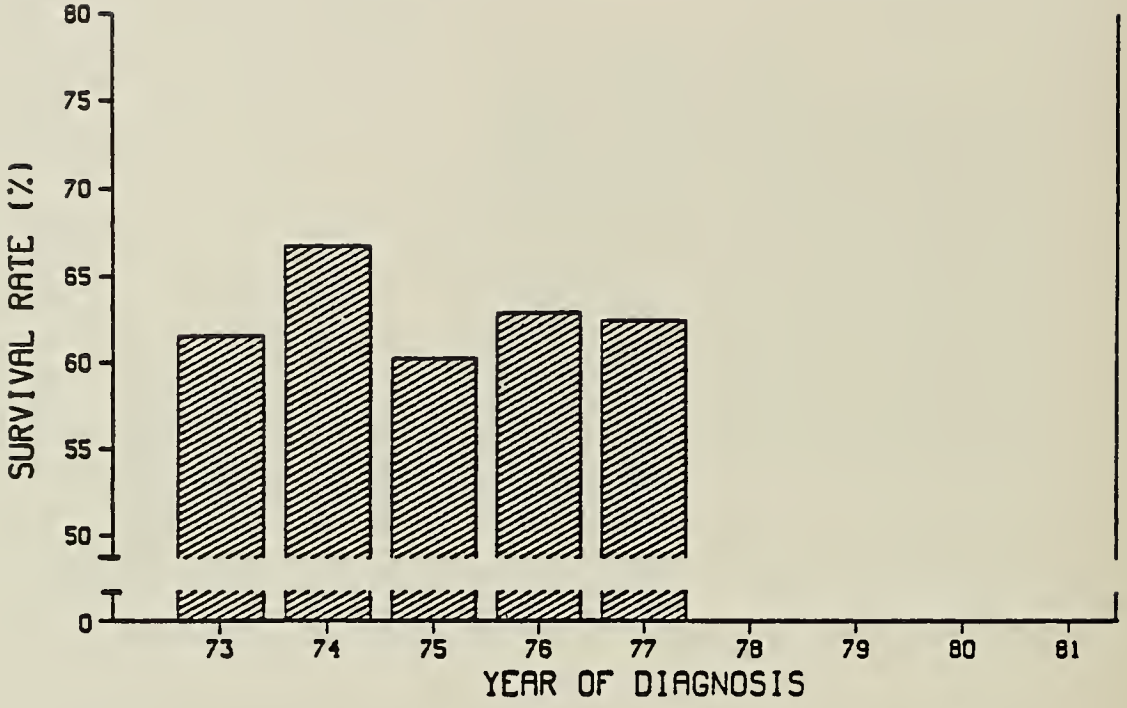
AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES



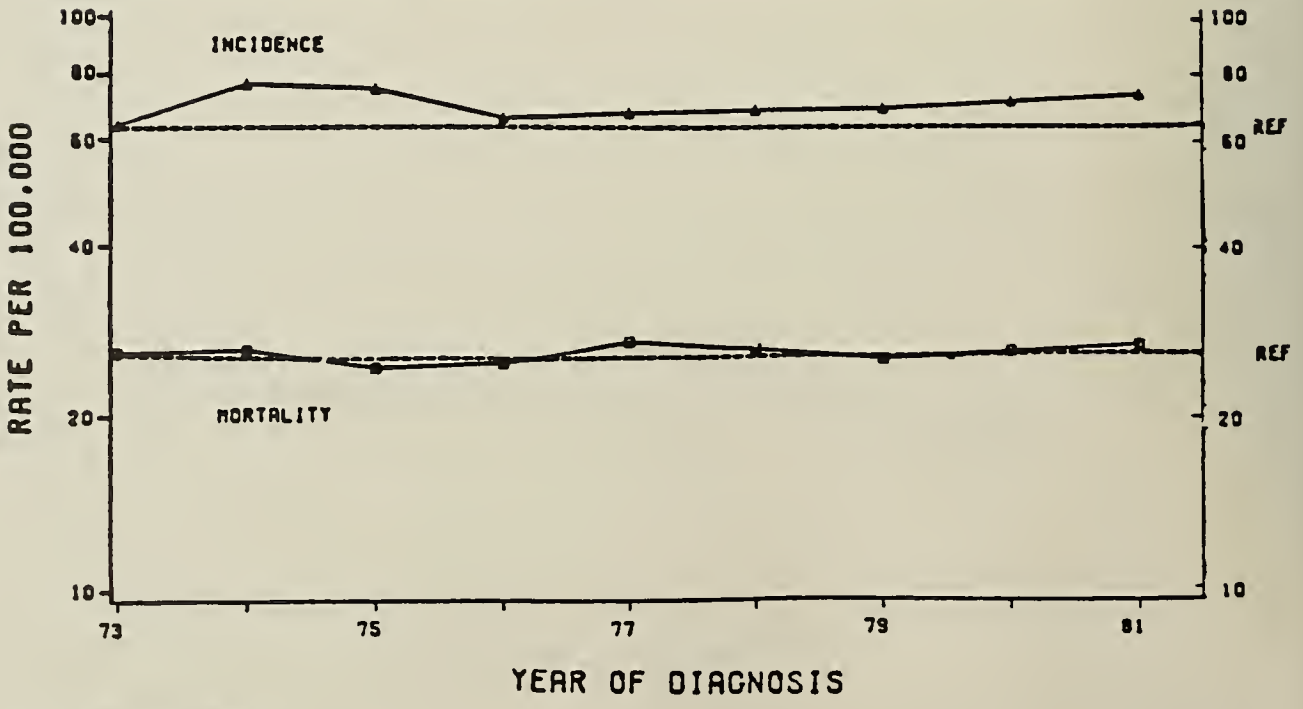
NOTE: WHITE MALES & FEMALES

BREAST

FIVE YEAR RELATIVE SURVIVAL RATES



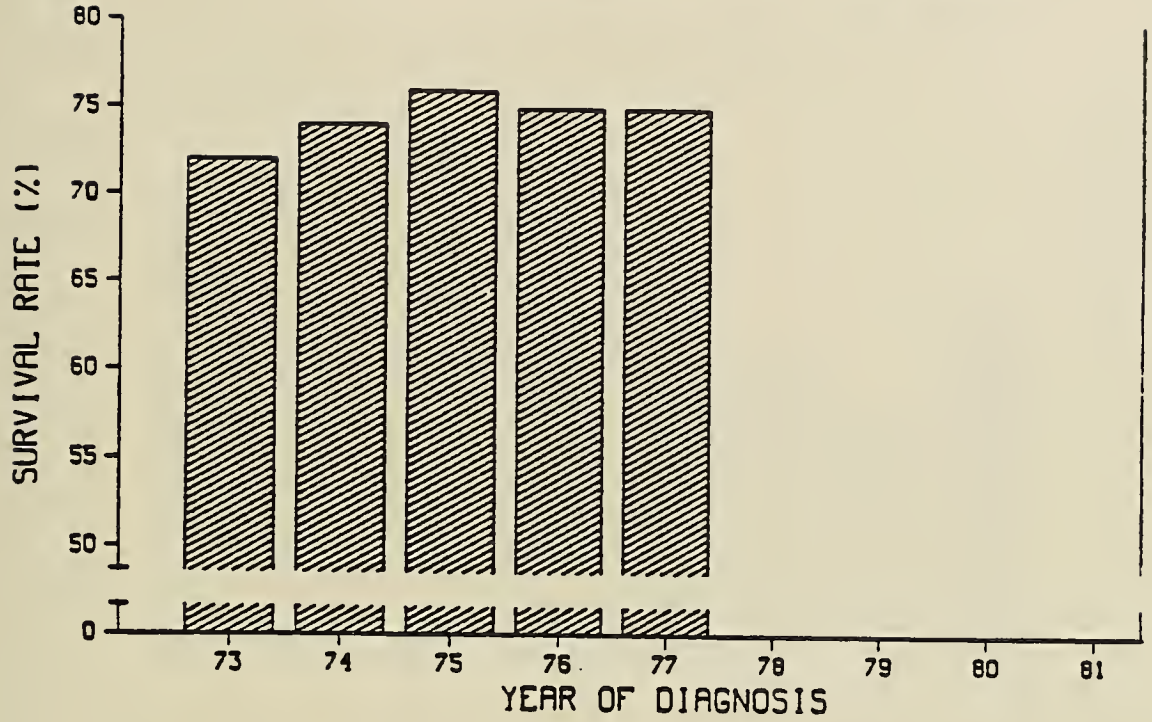
AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES



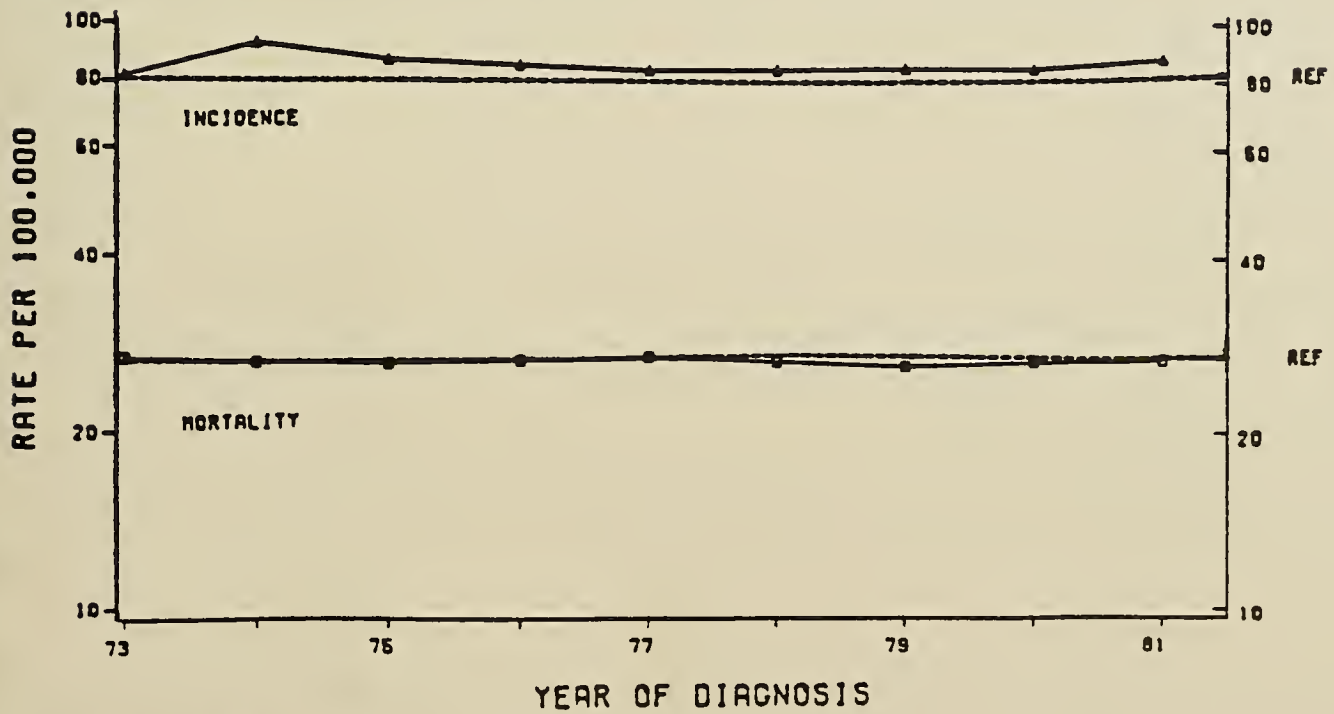
NOTE: BLACK FEMALES

BREAST

FIVE YEAR RELATIVE SURVIVAL RATES



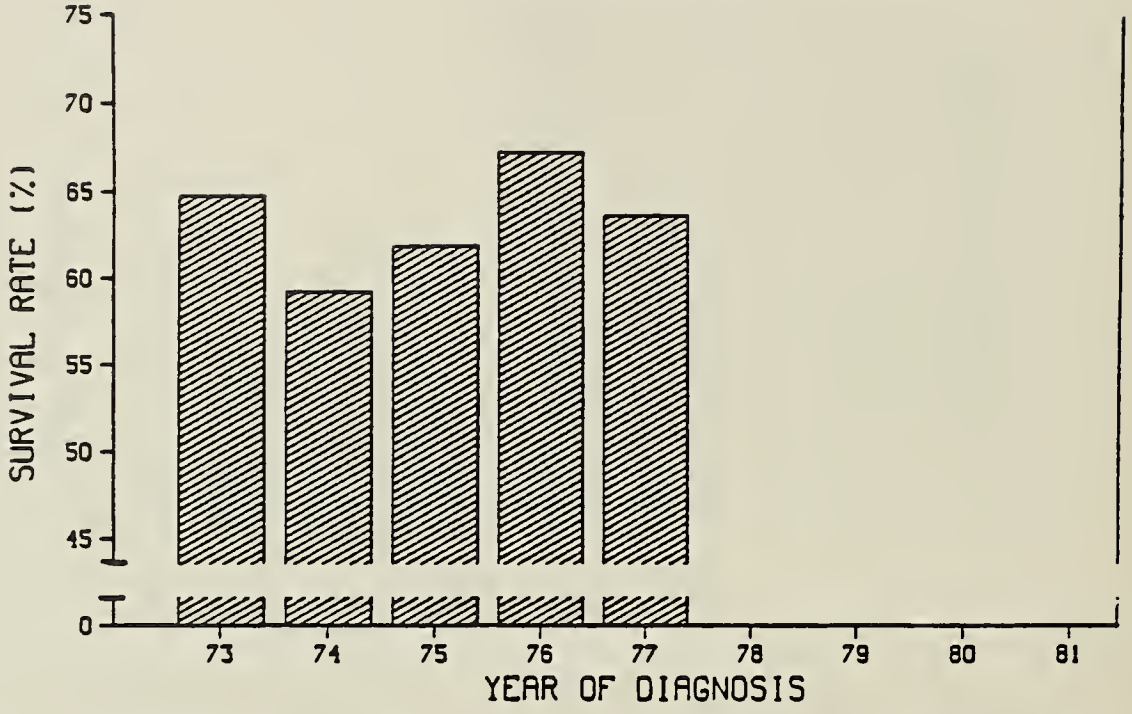
AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES



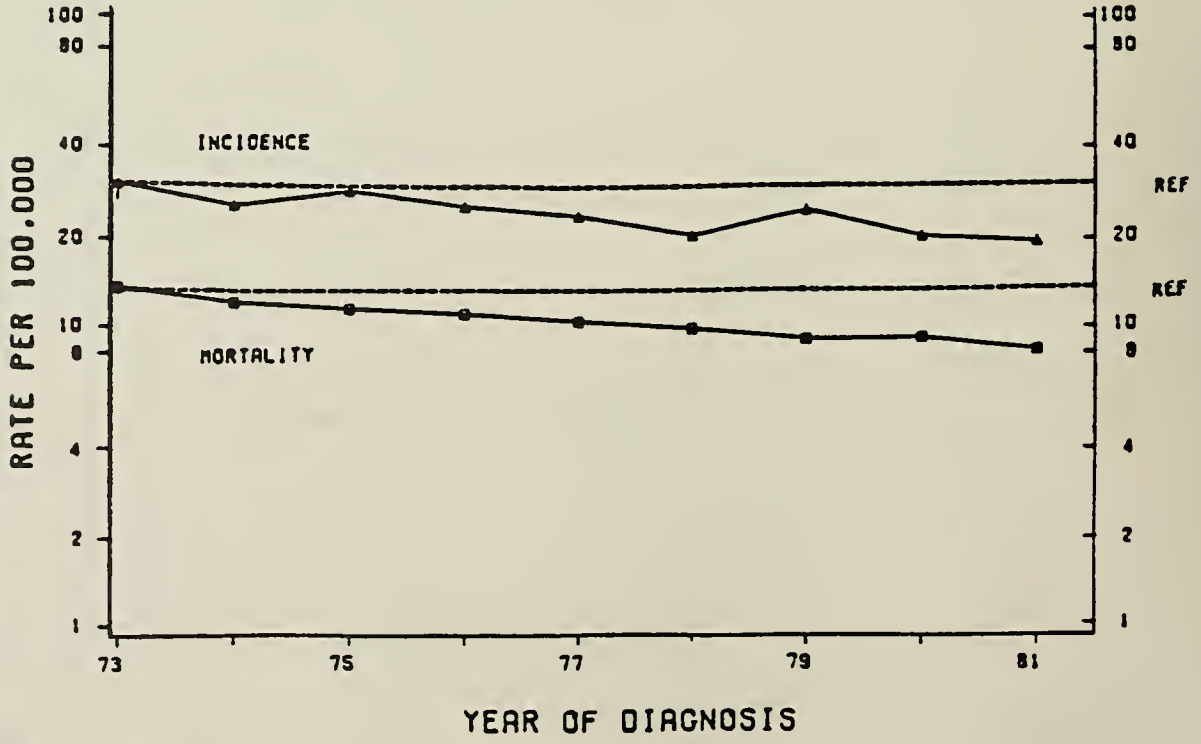
NOTE: WHITE FEMALES

CERVIX UTERI

FIVE YEAR RELATIVE SURVIVAL RATES



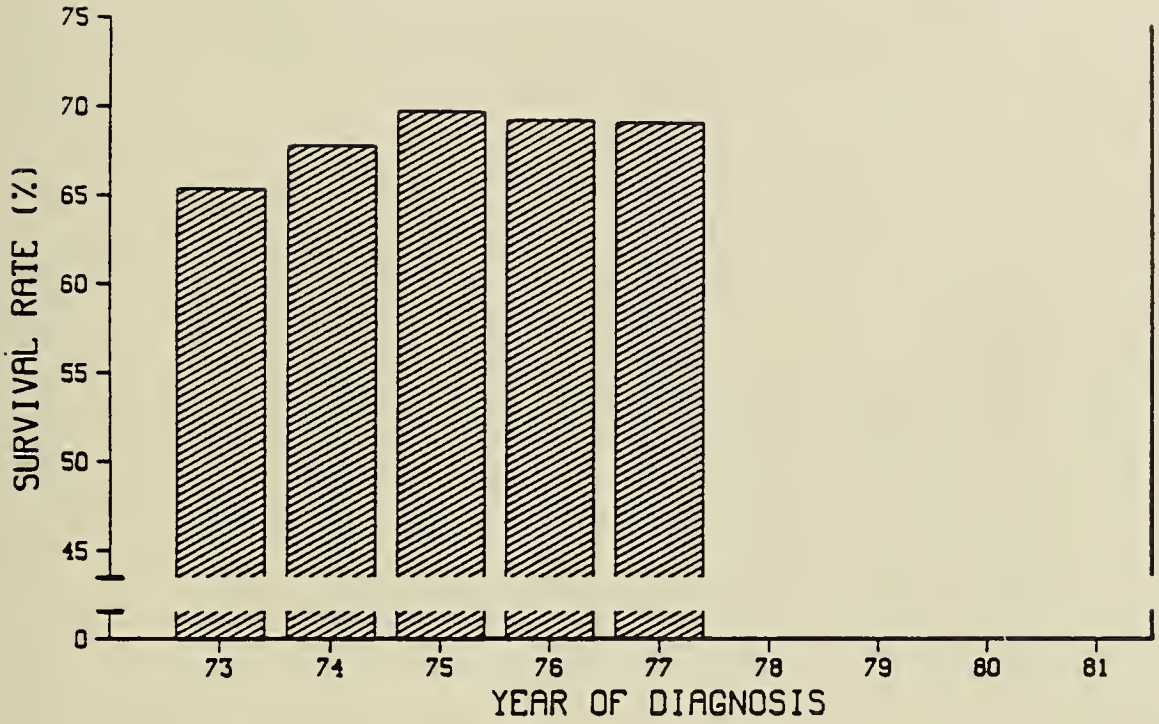
AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES



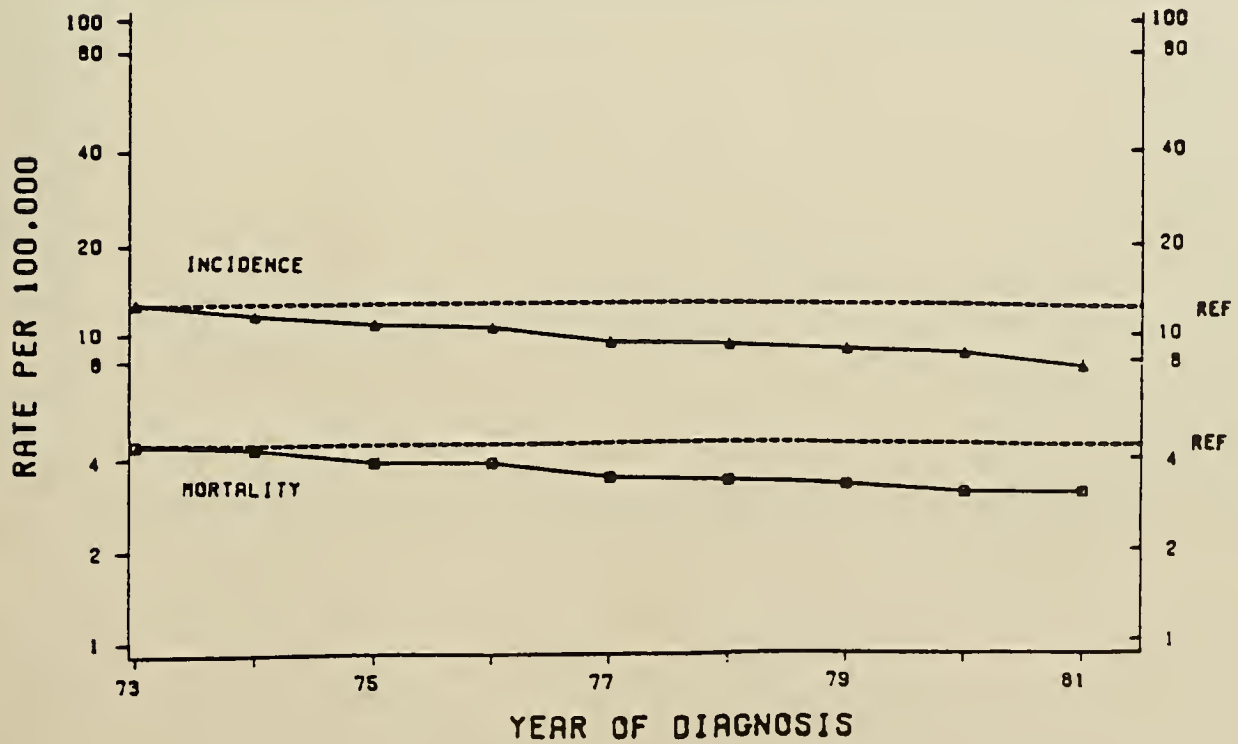
NOTE: BLACK FEMALES

CERVIX UTERI

FIVE YEAR RELATIVE SURVIVAL RATES



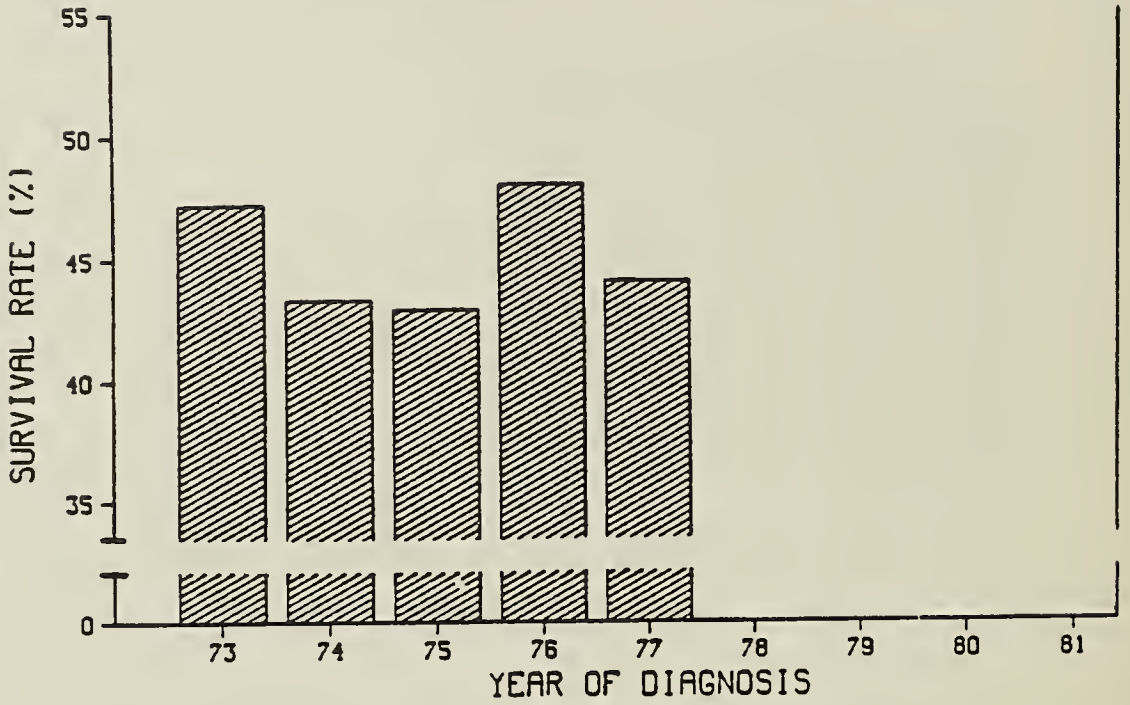
AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES



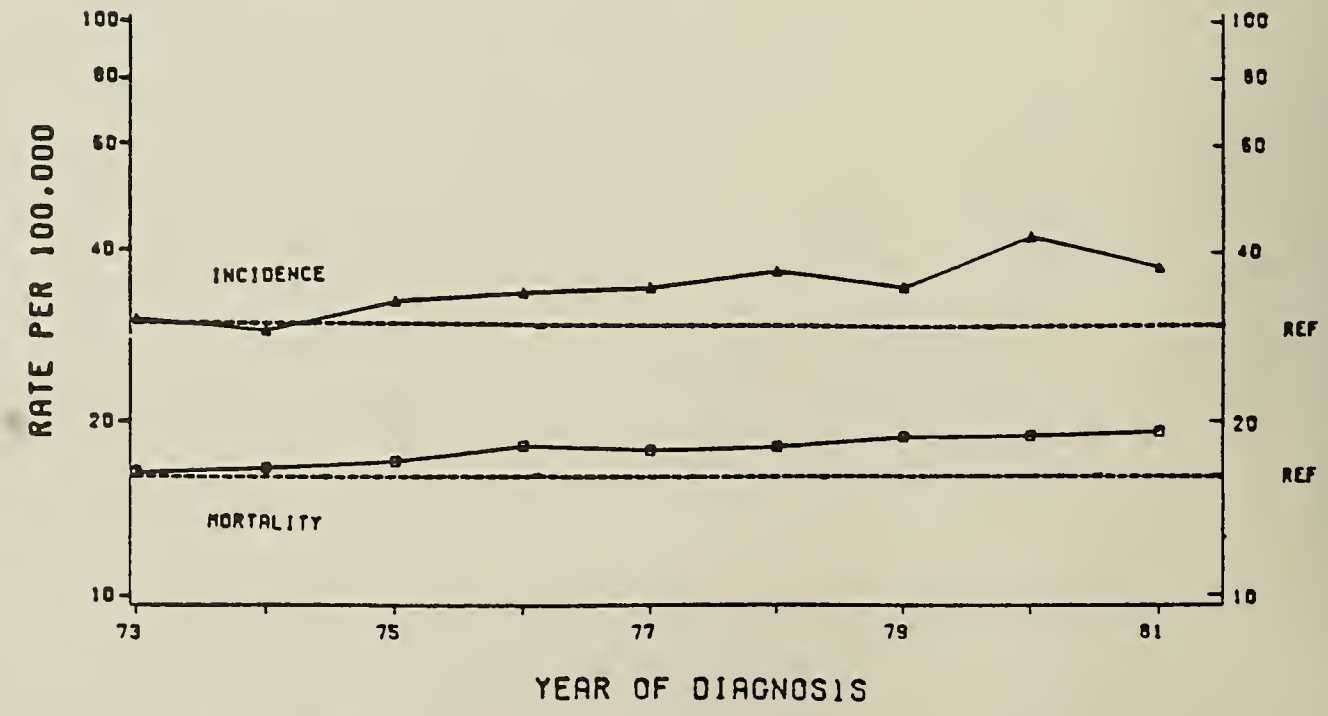
NOTE: WHITE FEMALES

COLON

FIVE YEAR RELATIVE SURVIVAL RATES



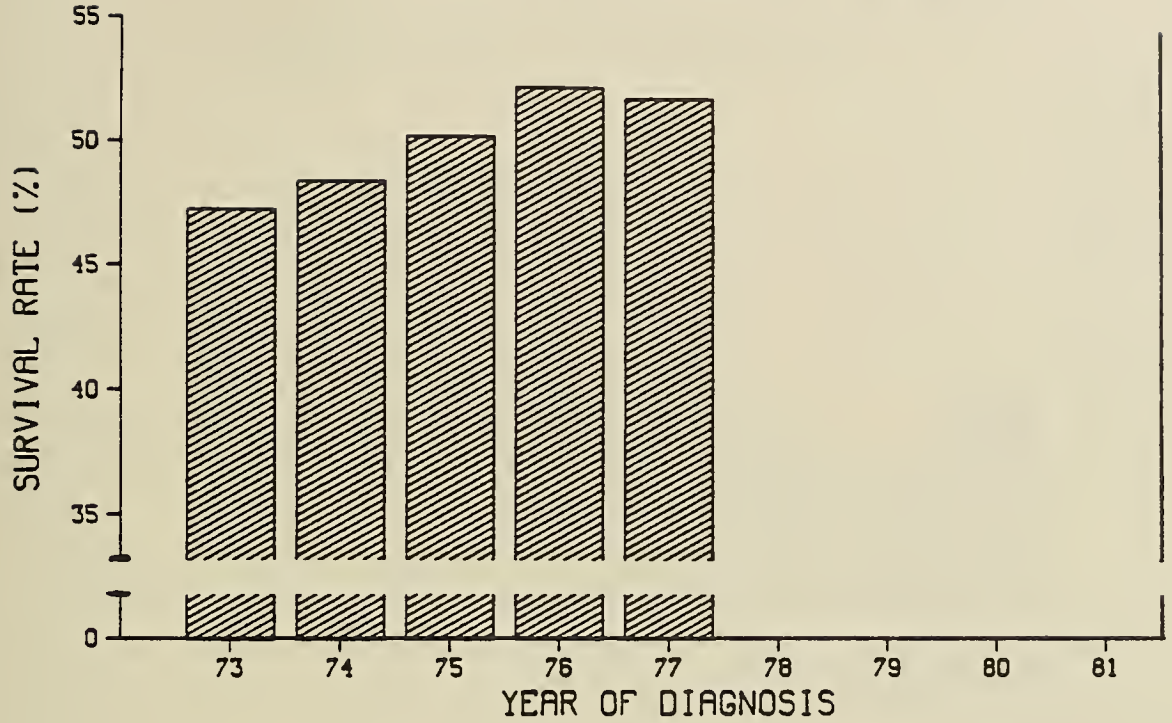
AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES



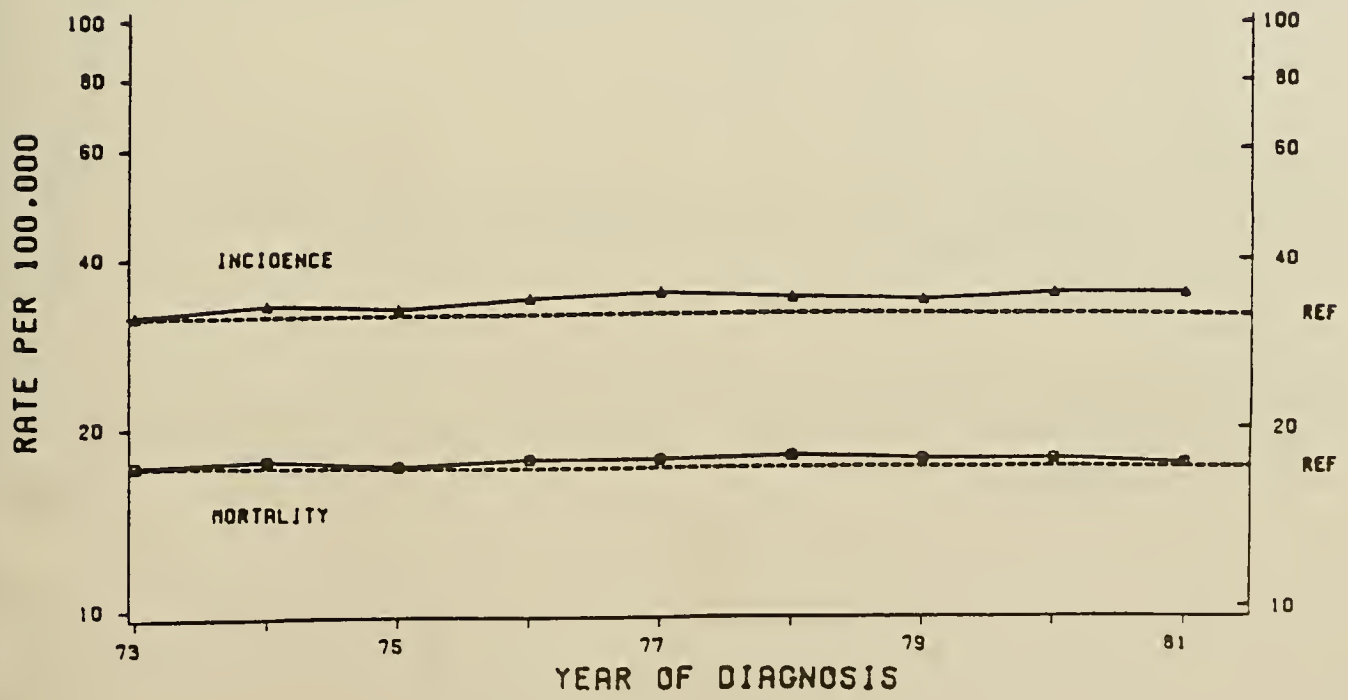
NOTE: BLACK MALES & FEMALES

COLON

FIVE YEAR RELATIVE SURVIVAL RATES



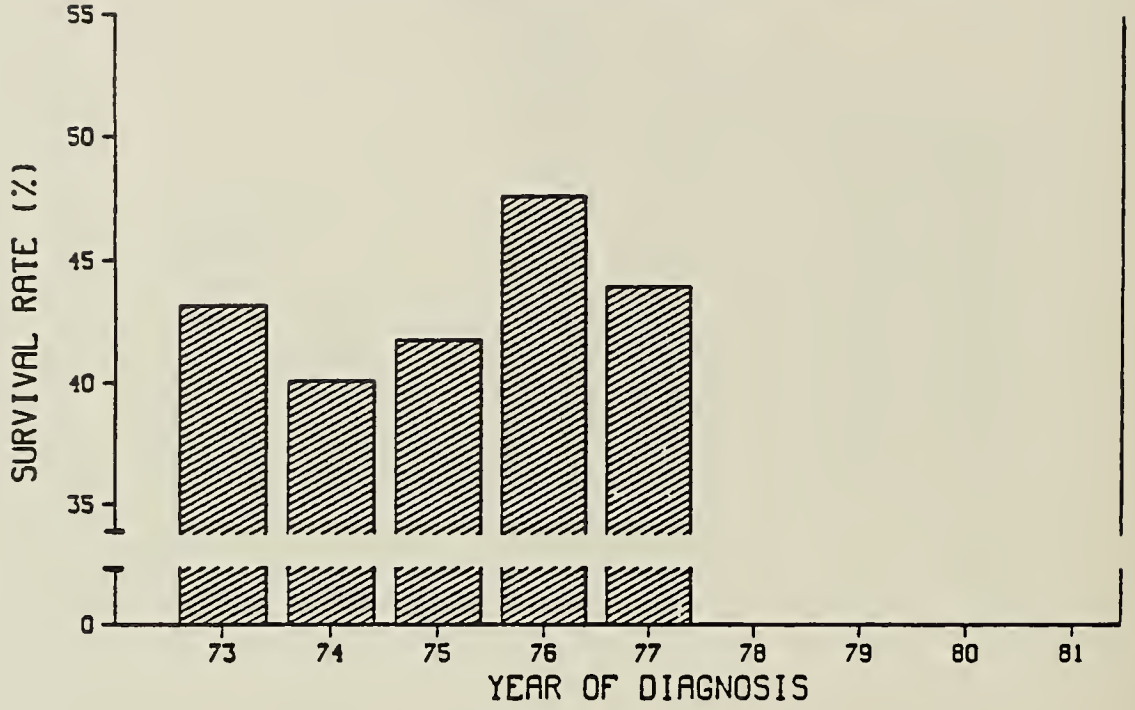
AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES



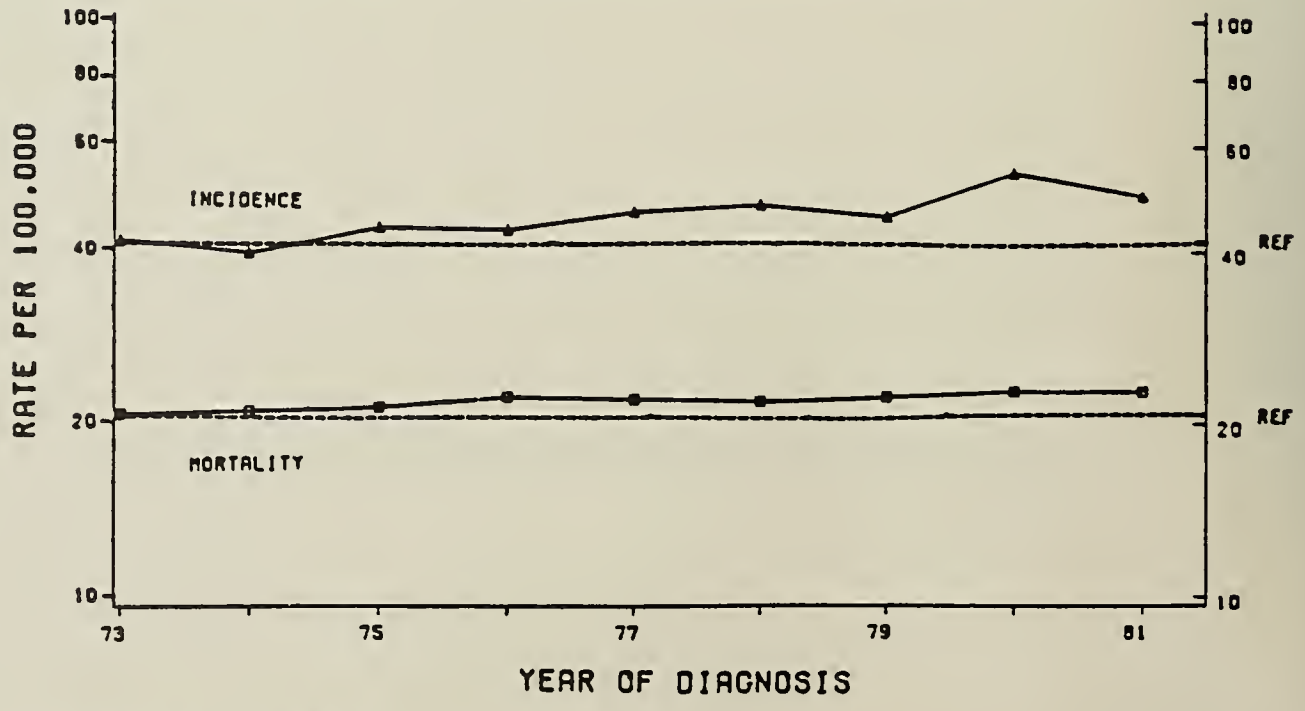
NOTE: WHITE MALES & FEMALES

COLON/RECTUM

FIVE YEAR RELATIVE SURVIVAL RATES



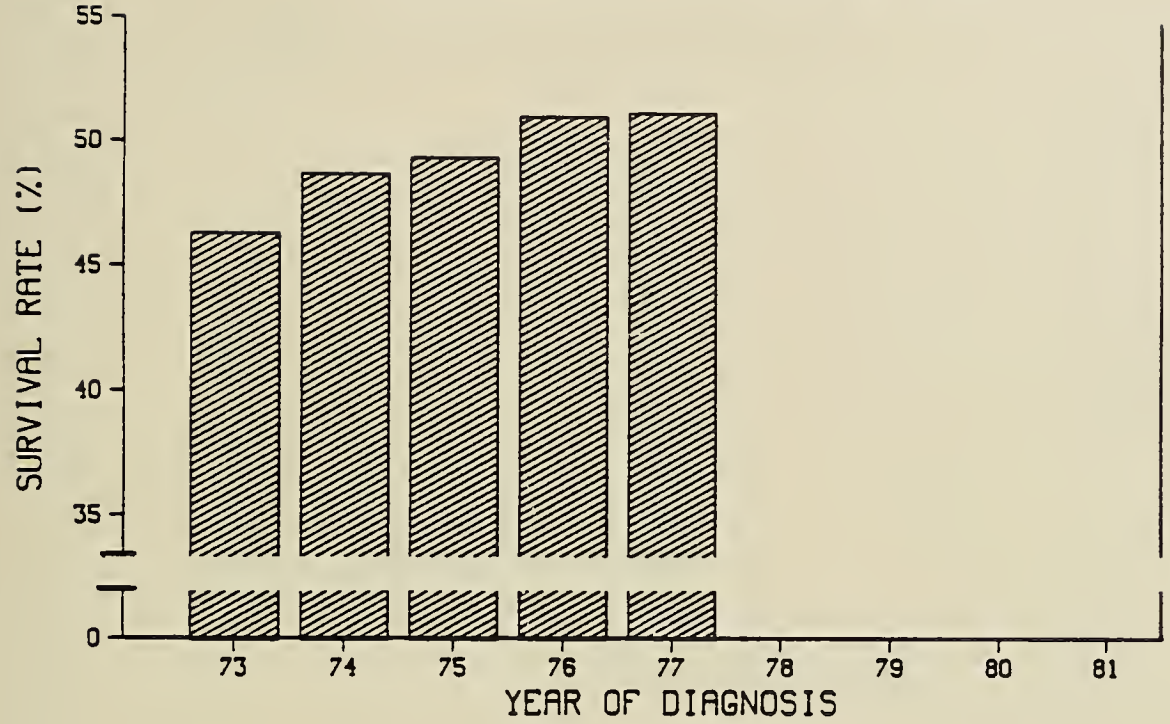
AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES



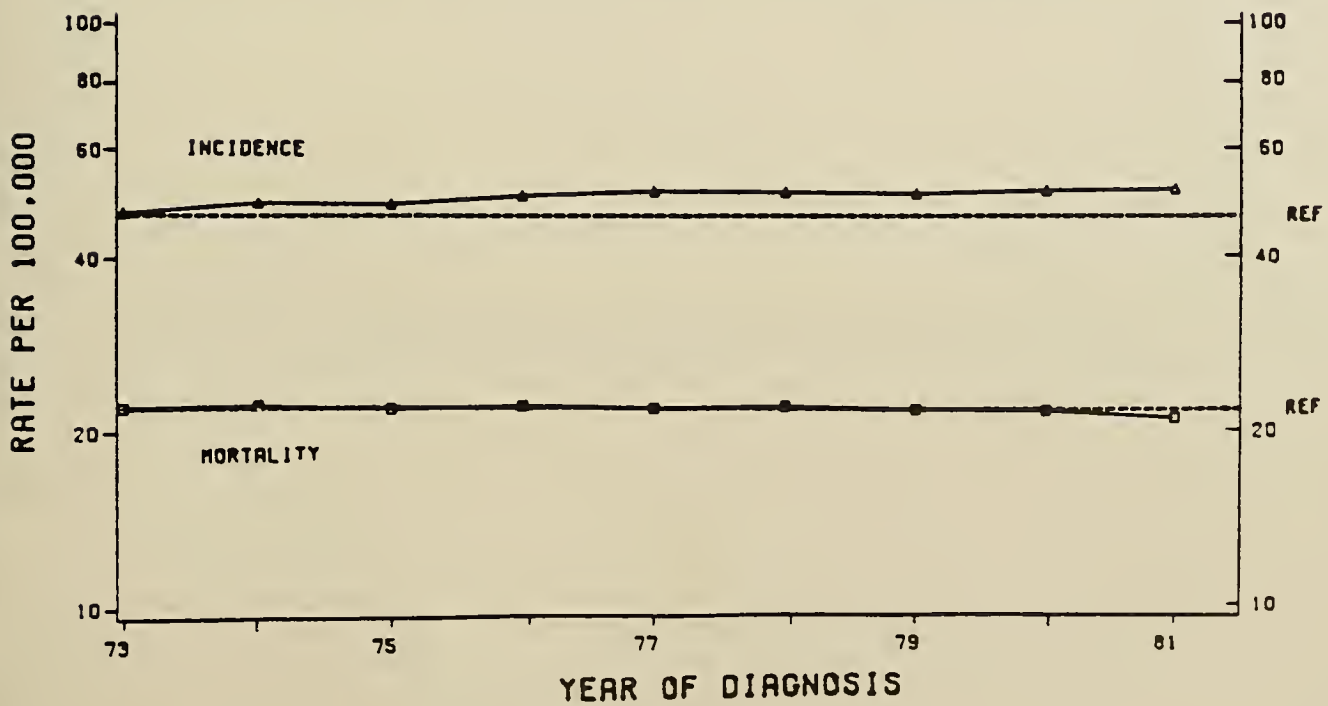
NOTE: BLACK MALES & FEMALES

COLON/RECTUM

FIVE YEAR RELATIVE SURVIVAL RATES



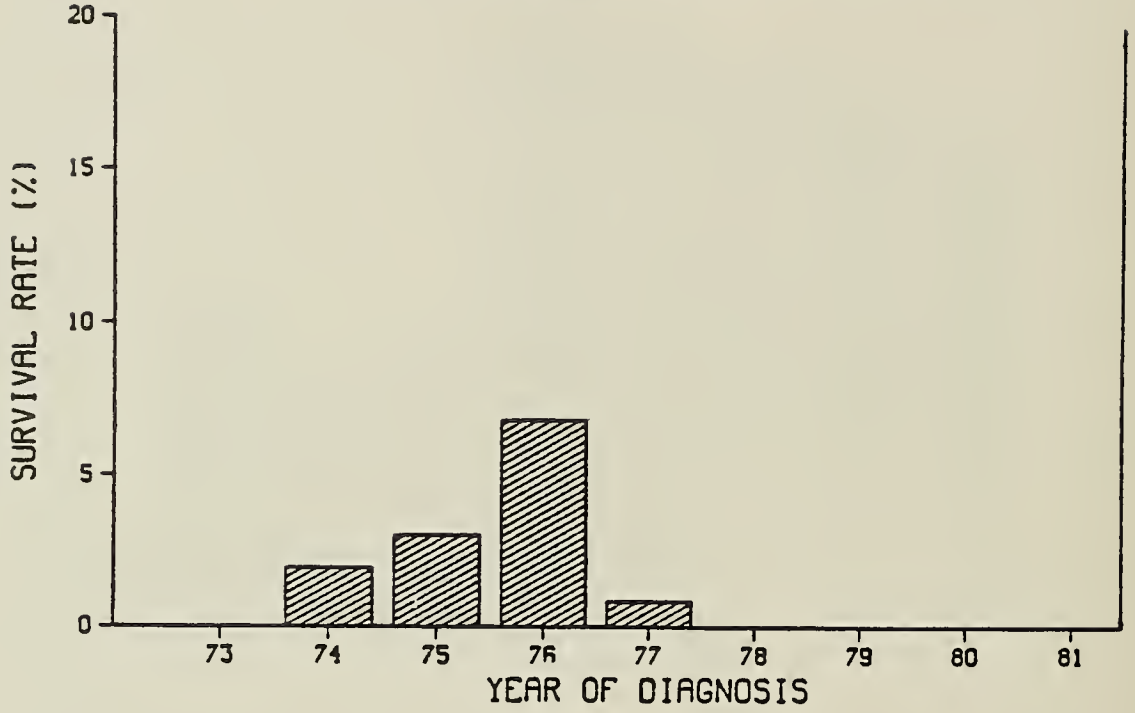
AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES



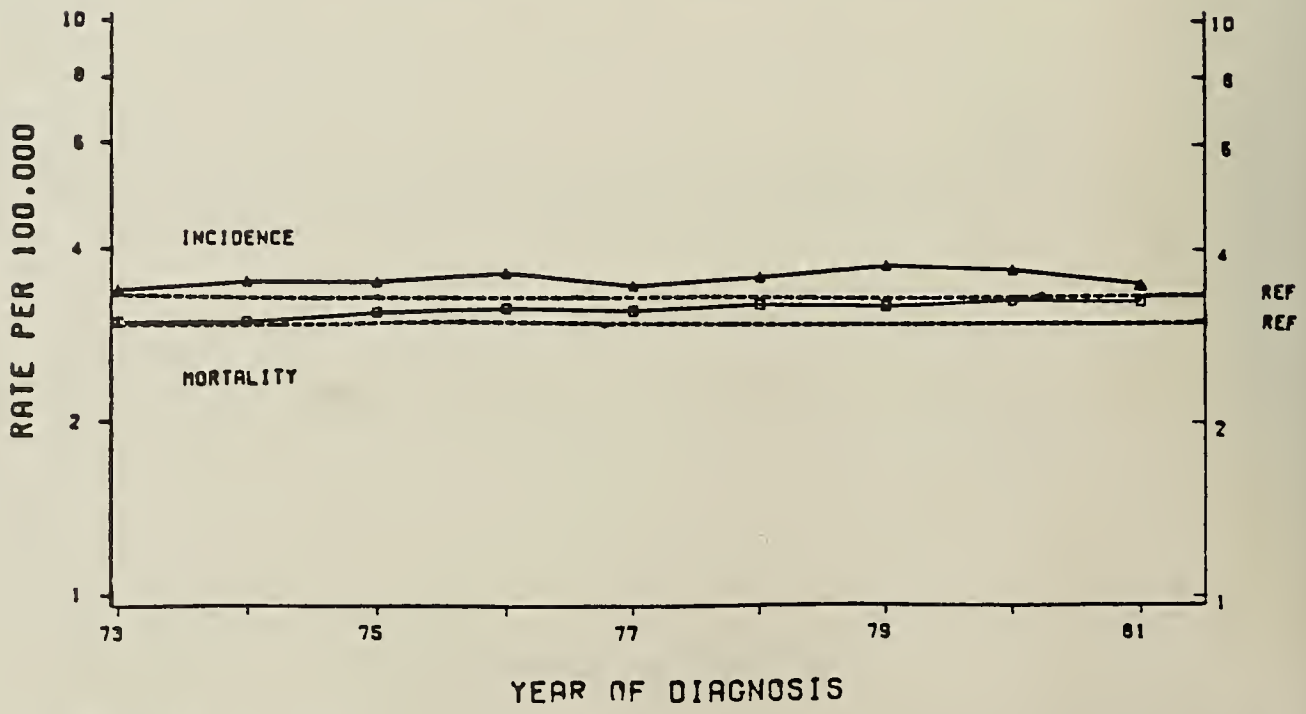
NOTE: WHITE MALES & FEMALES

ESOPHAGUS

FIVE YEAR RELATIVE SURVIVAL RATES



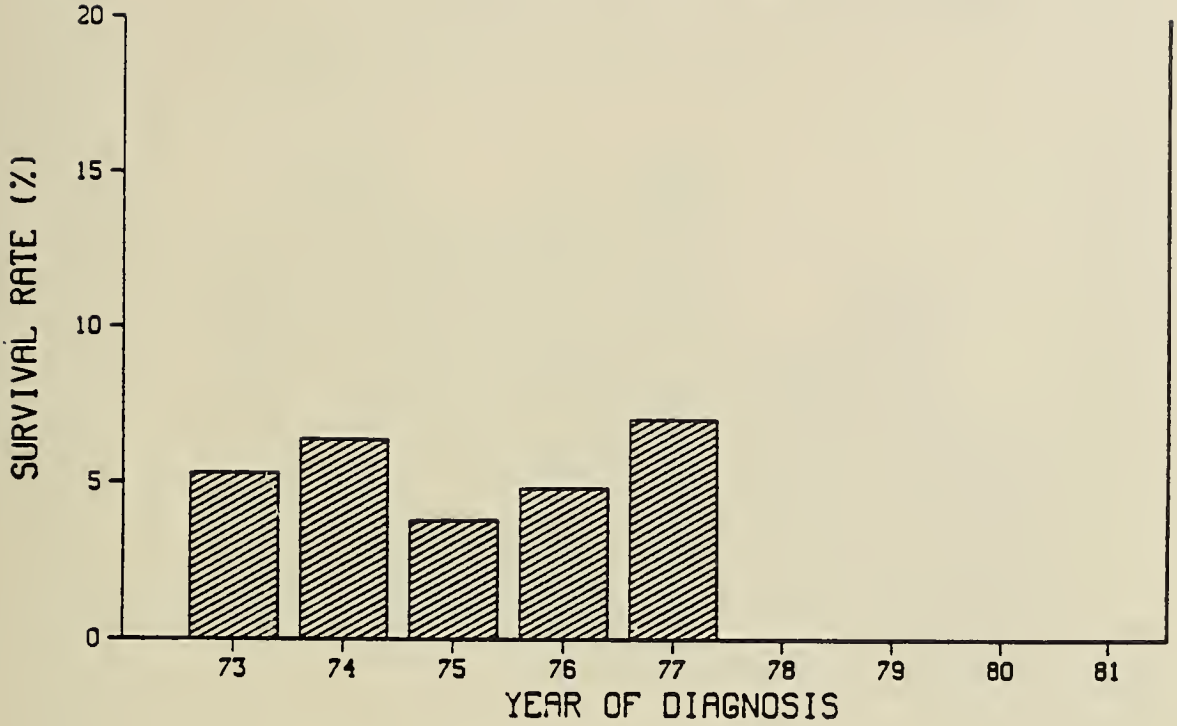
AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES



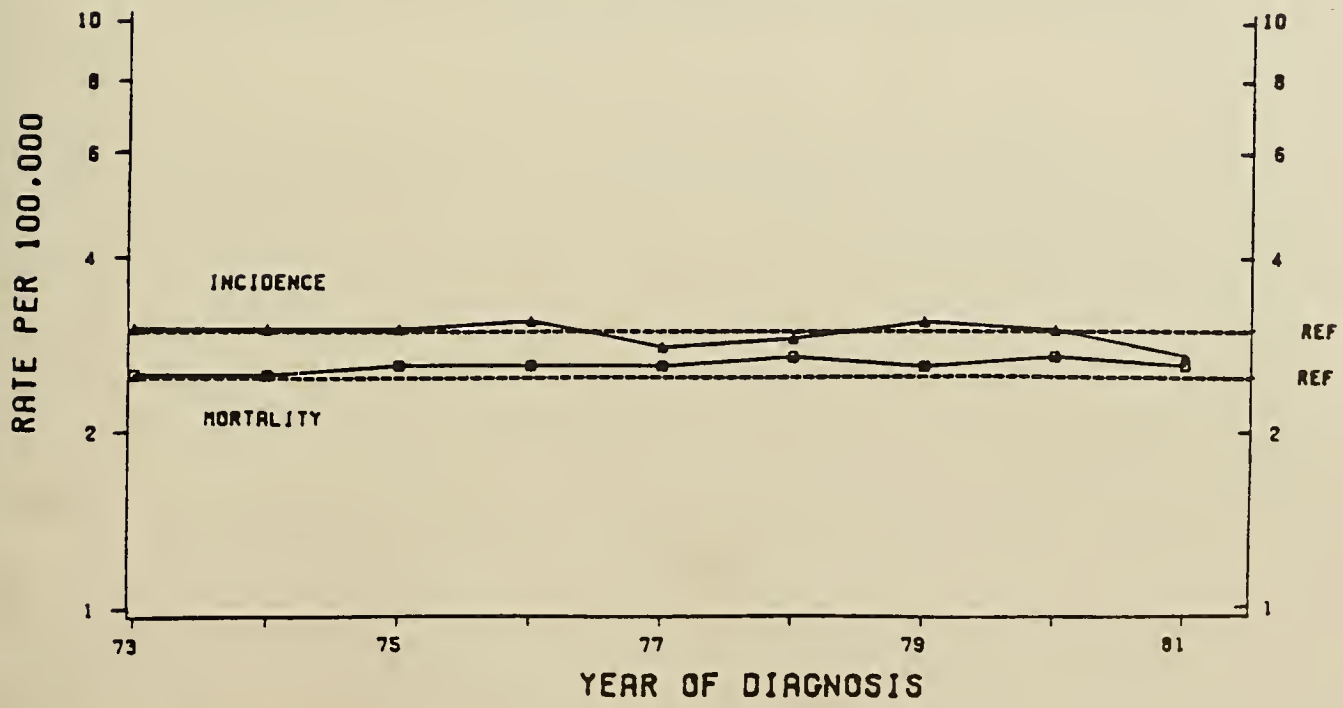
NOTE: BLACK MALES & FEMALES

ESOPHAGUS

FIVE YEAR RELATIVE SURVIVAL RATES



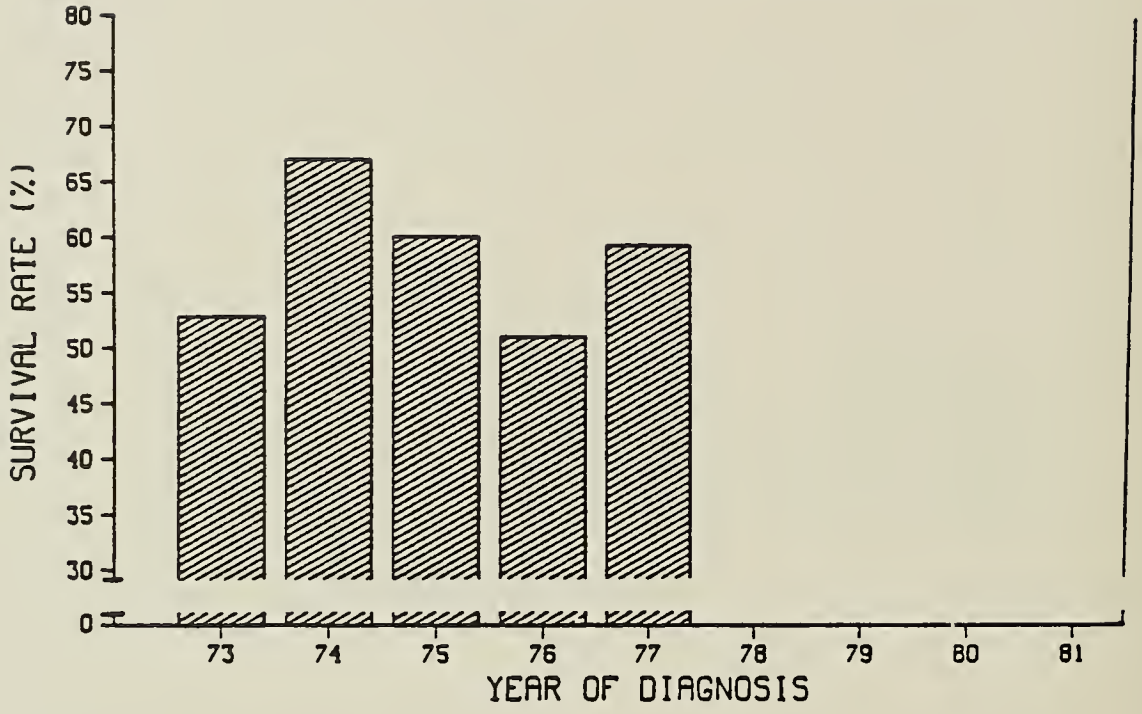
AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES



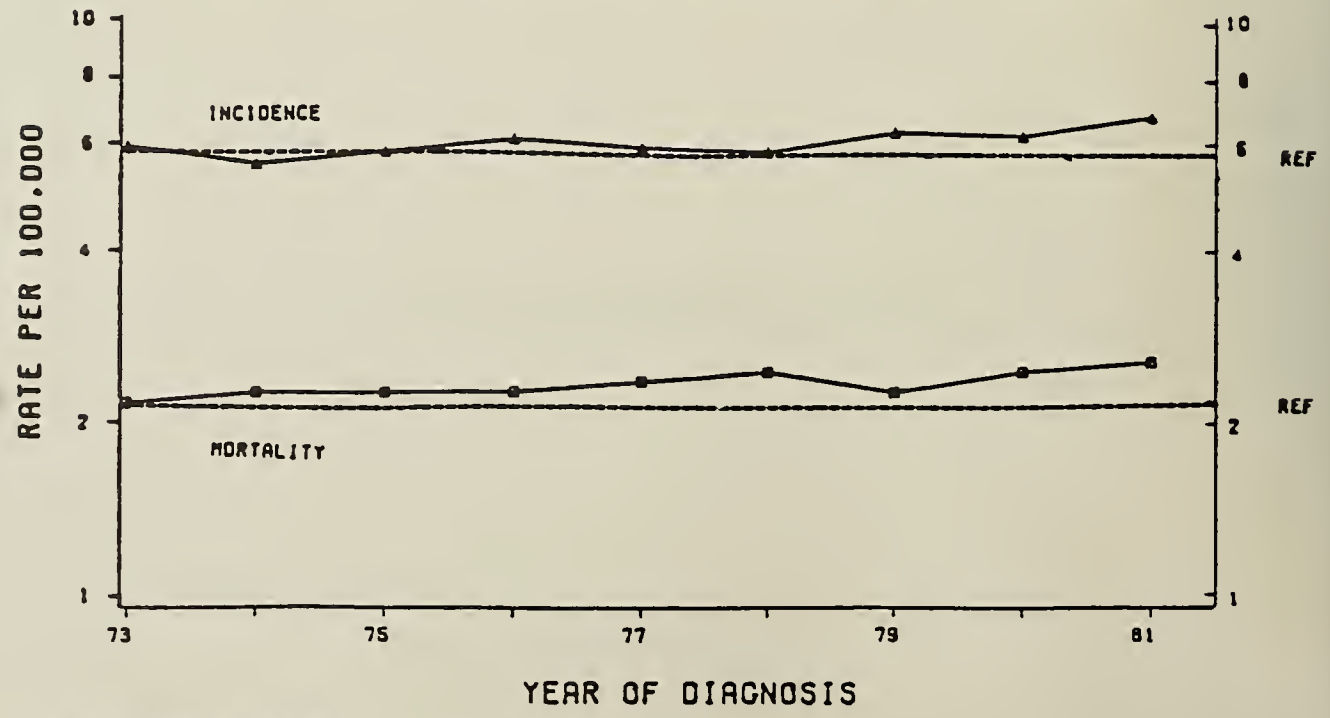
NOTE: WHITE MALES & FEMALES

LARYNX

FIVE YEAR RELATIVE SURVIVAL RATES



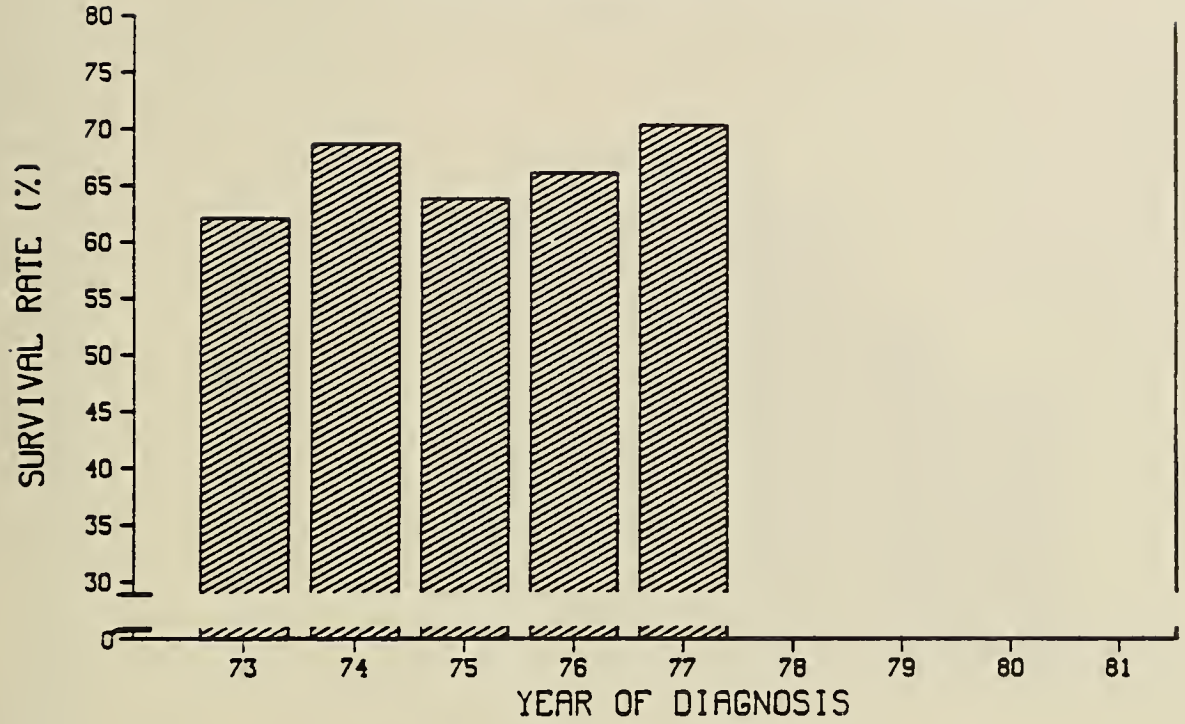
AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES



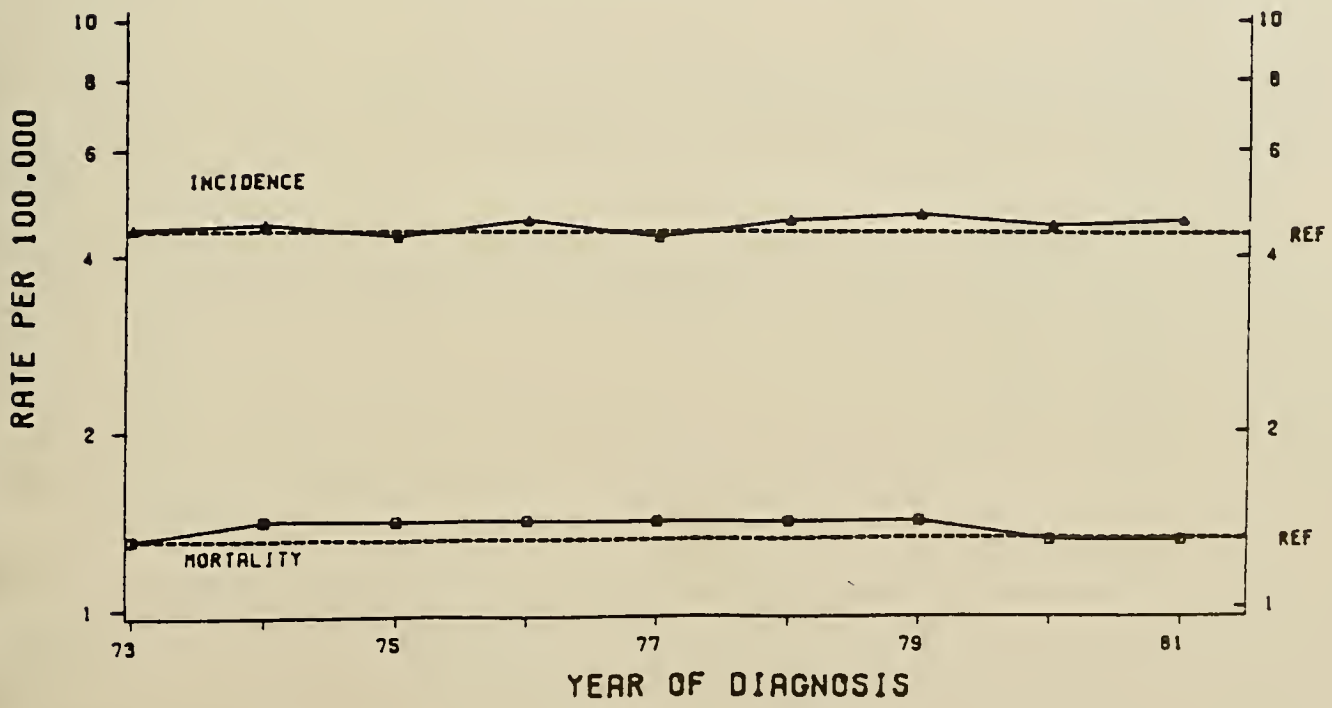
NOTE: BLACK MALES & FEMALES

LARYNX

FIVE YEAR RELATIVE SURVIVAL RATES



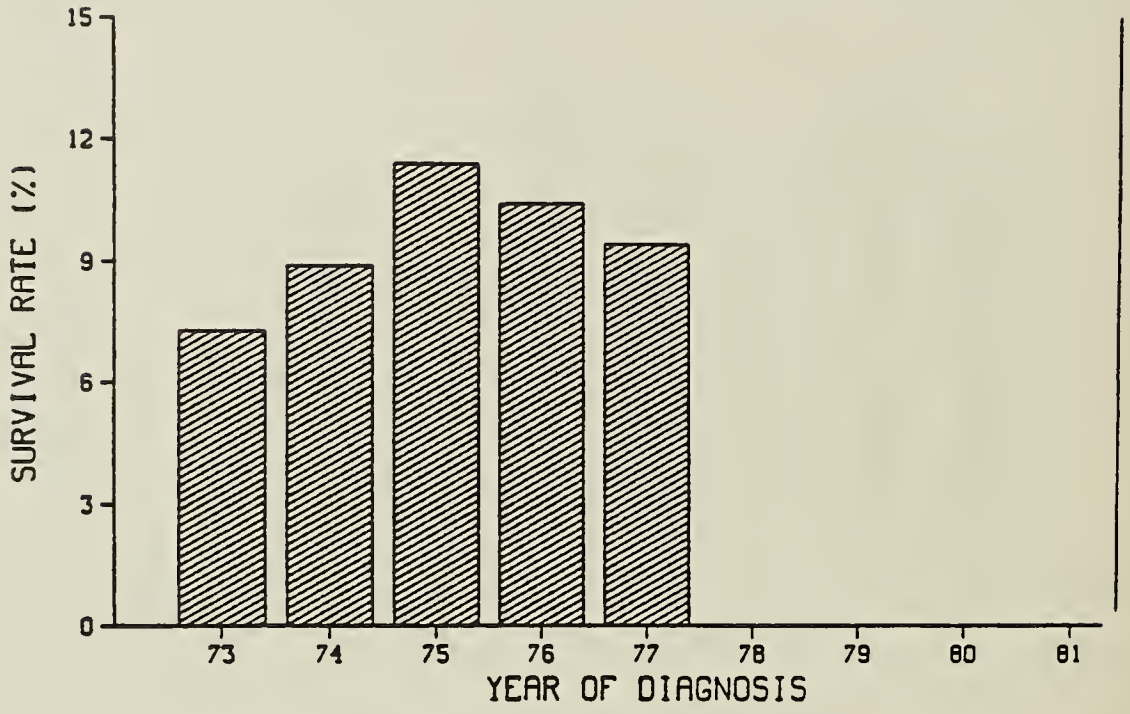
AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES



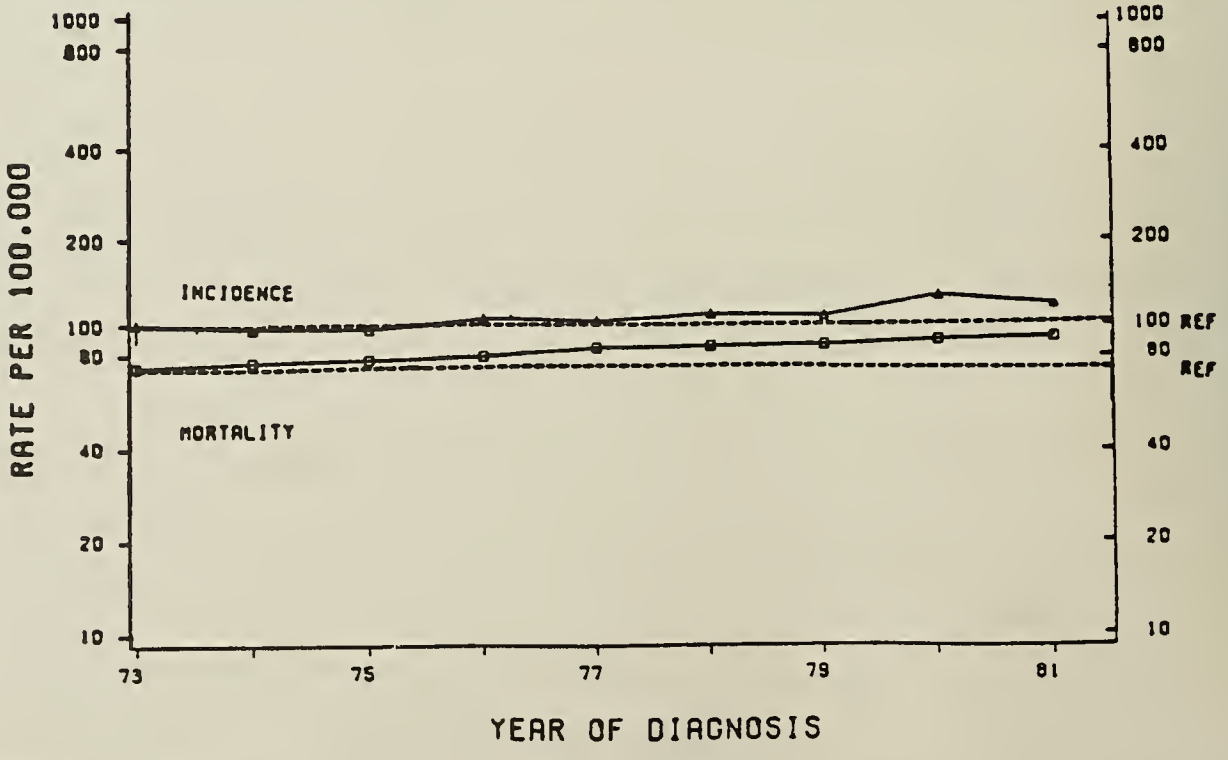
NOTE: WHITE MALES & FEMALES

LUNG & BRONCHUS

FIVE YEAR RELATIVE SURVIVAL RATES



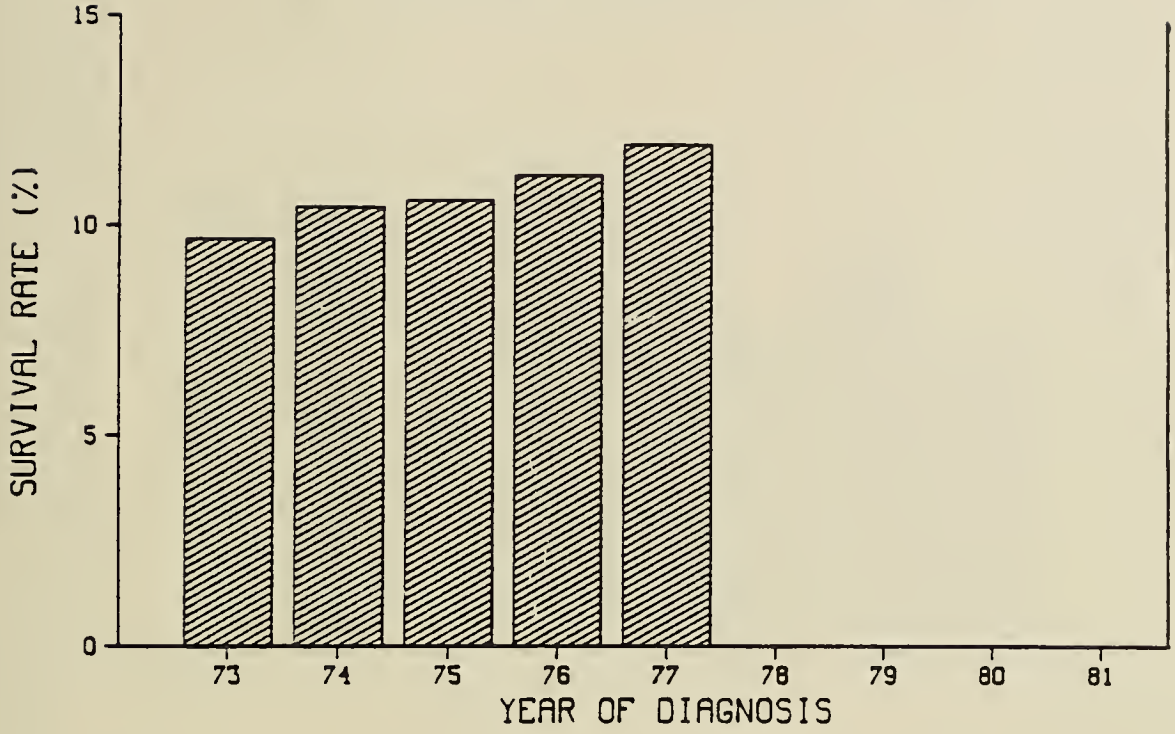
AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES



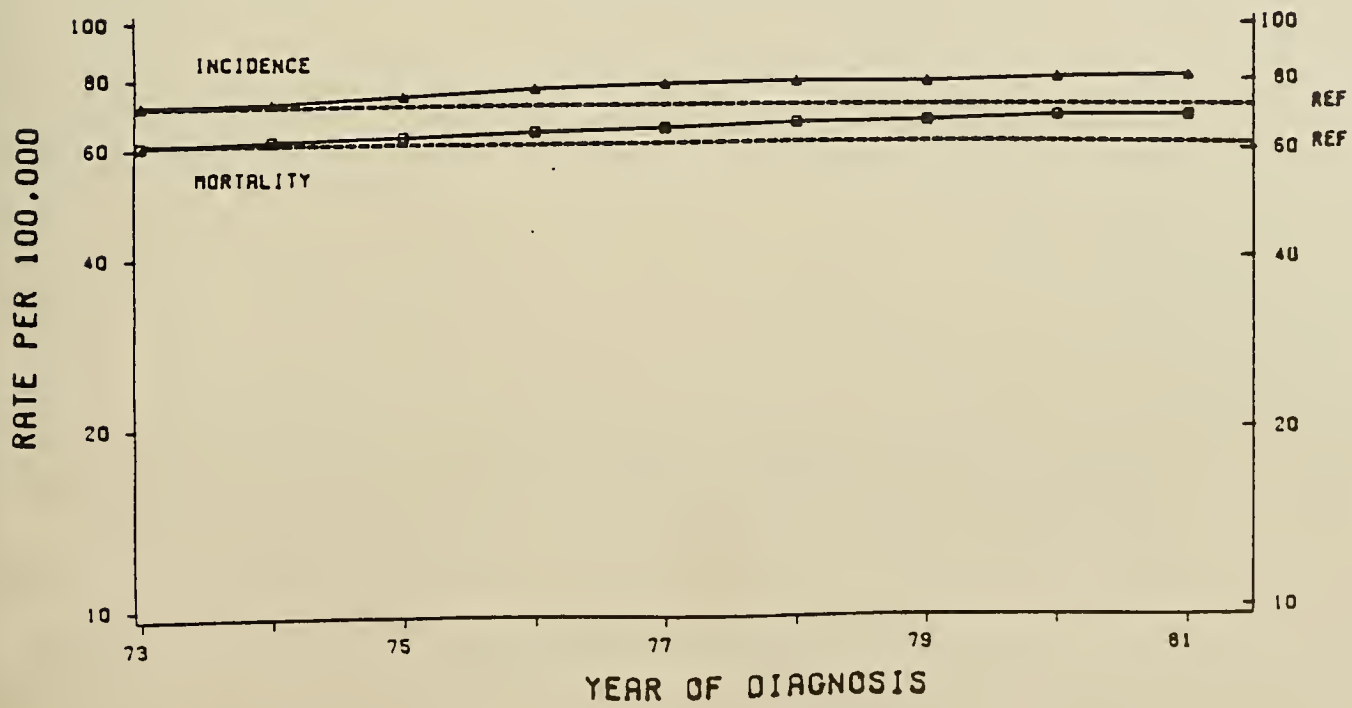
NOTE: BLACK MALES

LUNG & BRONCHUS

FIVE YEAR RELATIVE SURVIVAL RATES



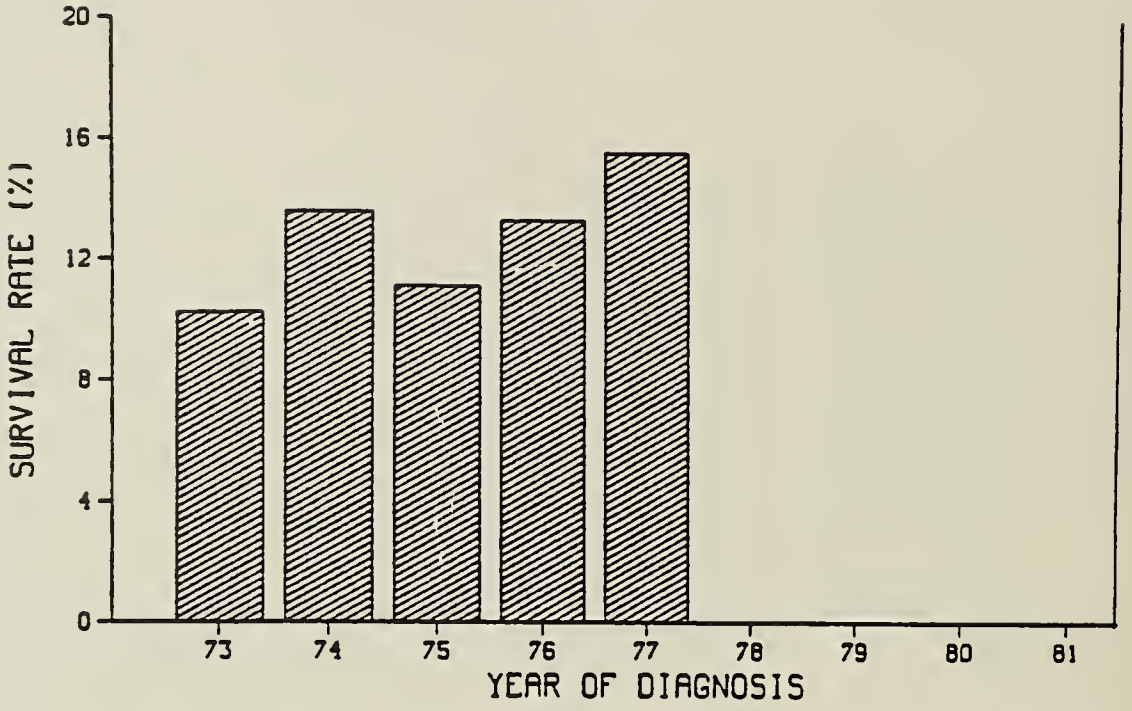
AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES



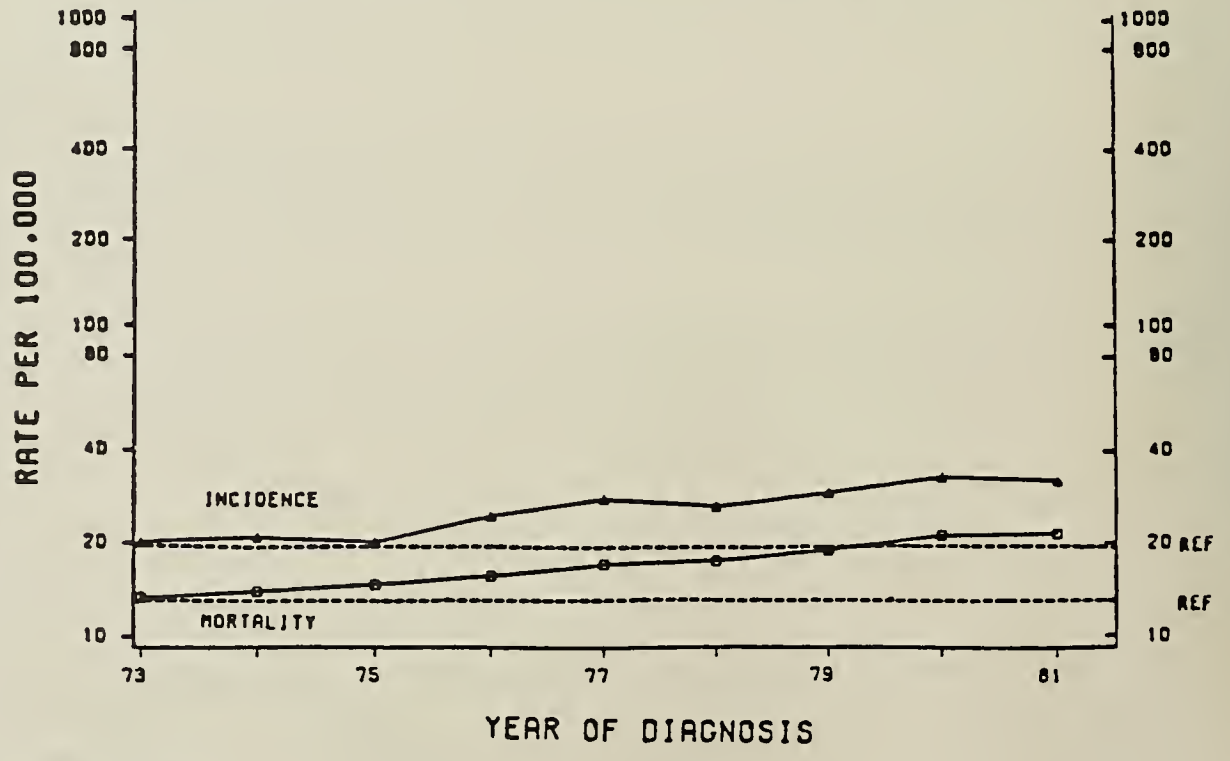
NOTE: WHITE MALES

LUNG AND BRONCHUS

FIVE YEAR RELATIVE SURVIVAL RATES



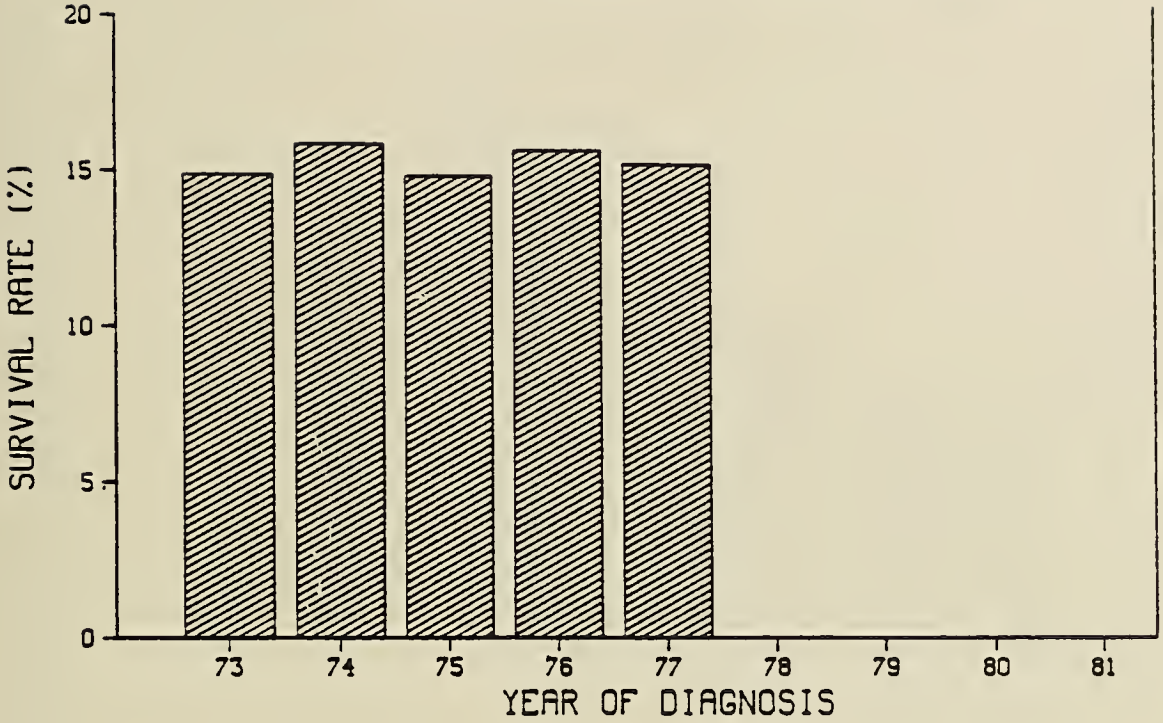
AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES



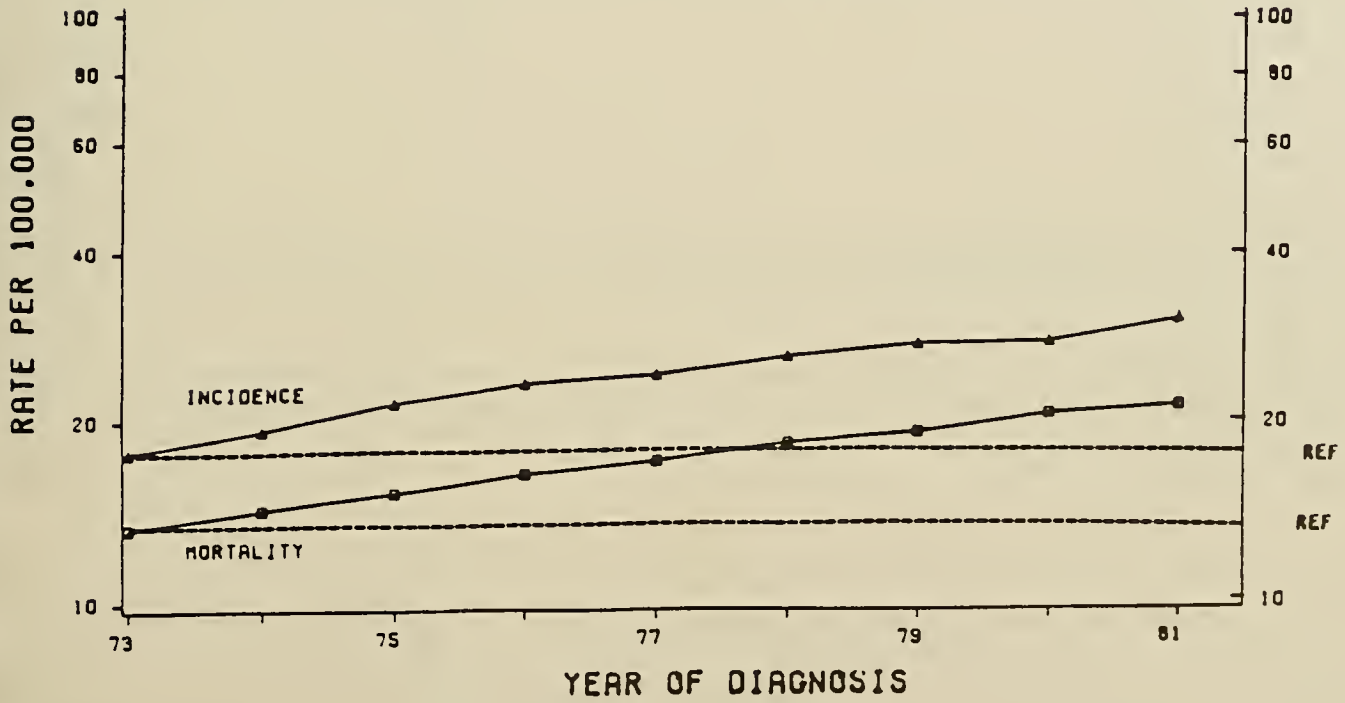
NOTE: BLACK FEMALES

LUNG & BRONCHUS

FIVE YEAR RELATIVE SURVIVAL RATES



AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES

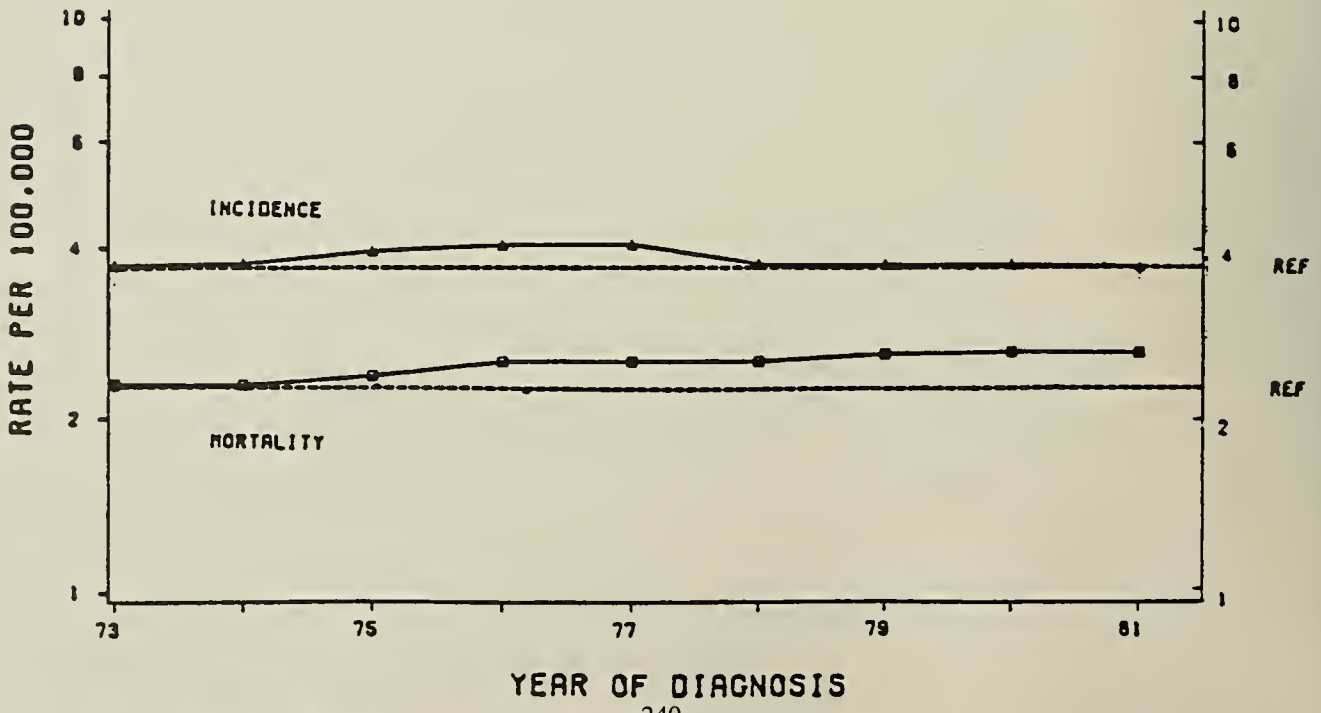


NOTE: WHITE FEMALES

MULTIPLE MYELOMA

FIVE YEAR RELATIVE SURVIVAL RATES

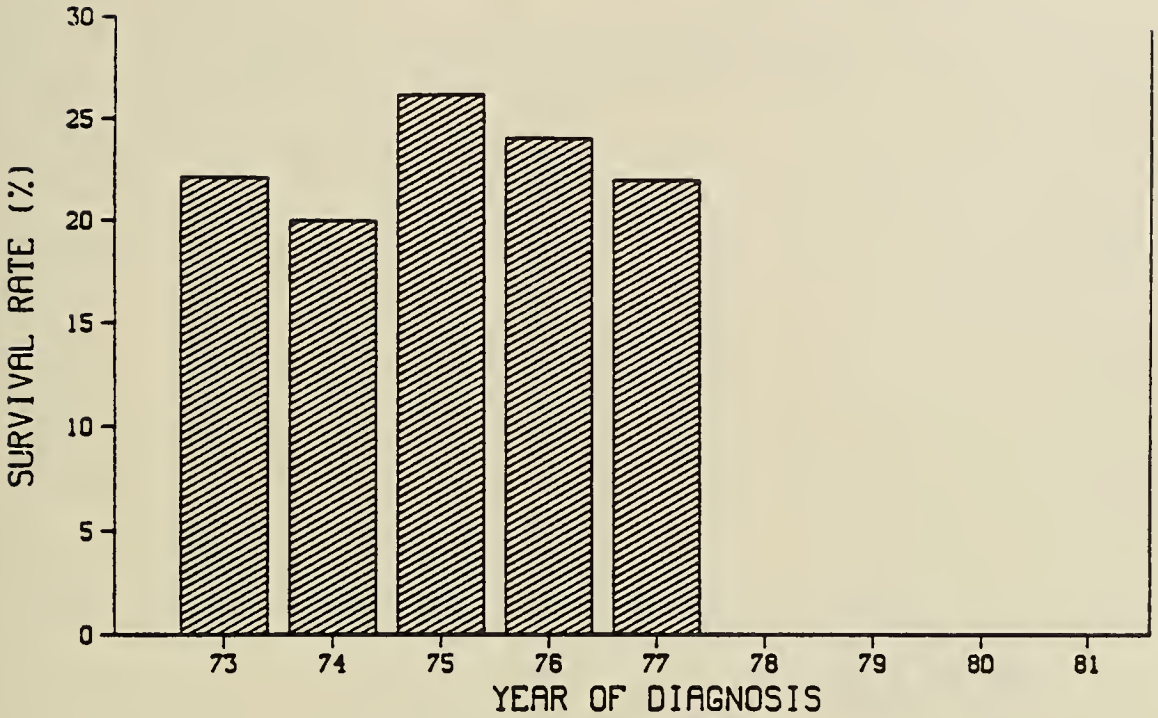
AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES



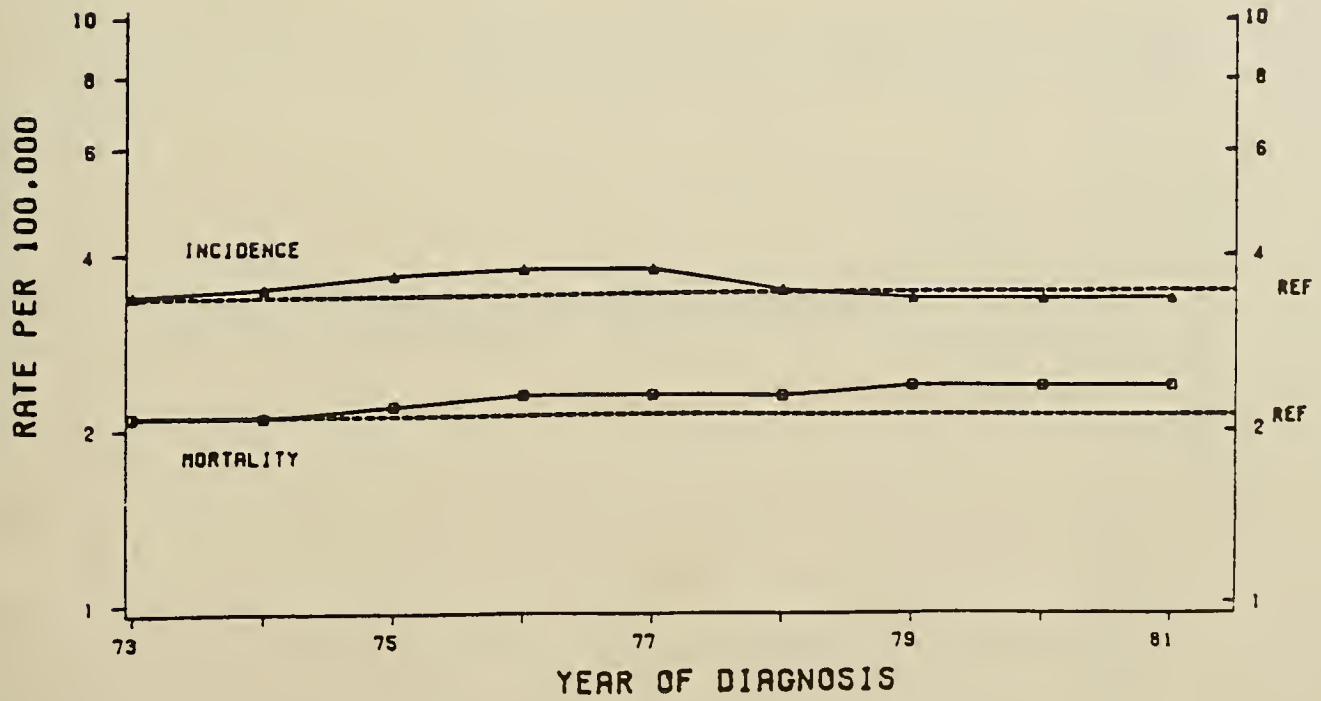
NOTE: BLACK MALES & FEMALES

MULTIPLE MYELOMA

FIVE YEAR RELATIVE SURVIVAL RATES



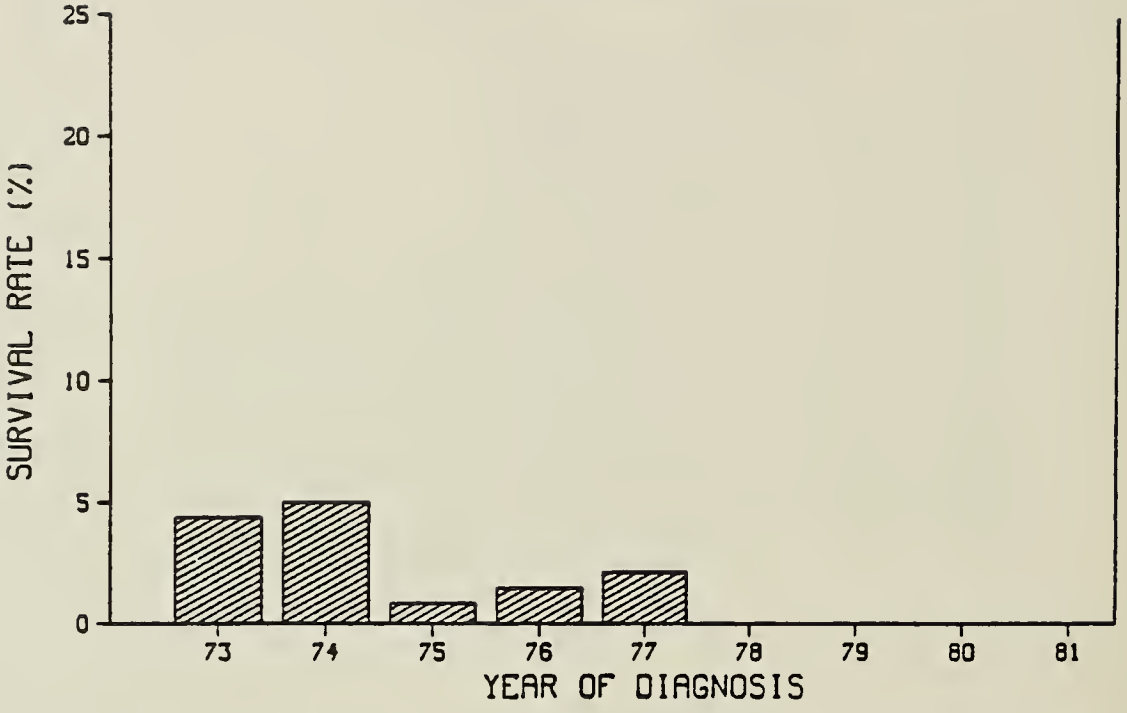
AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES



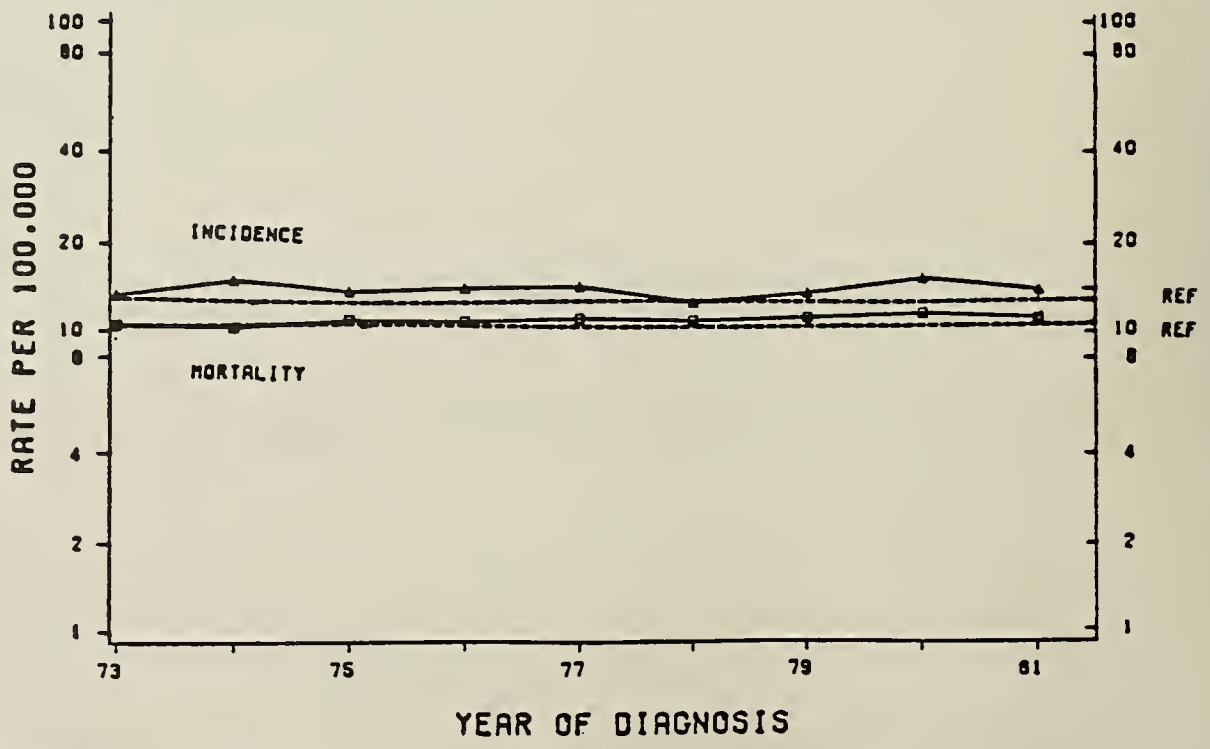
NOTE: WHITE MALES & FEMALES

PANCREAS

FIVE YEAR RELATIVE SURVIVAL RATES



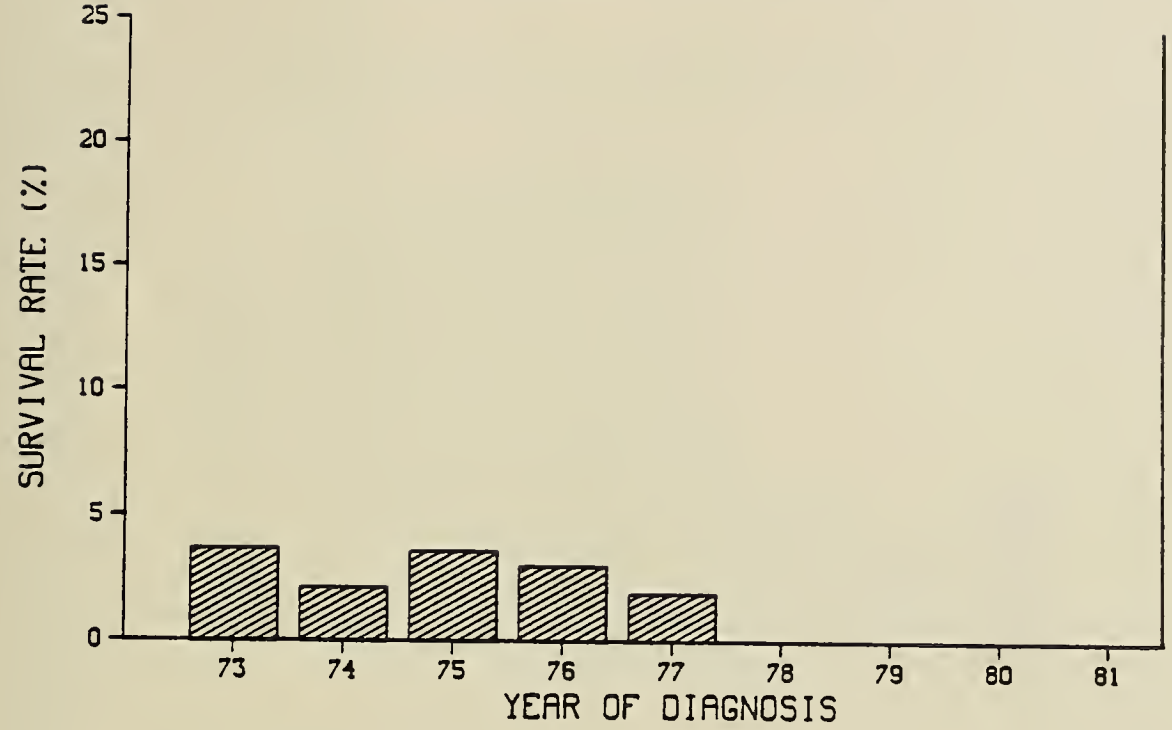
AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES



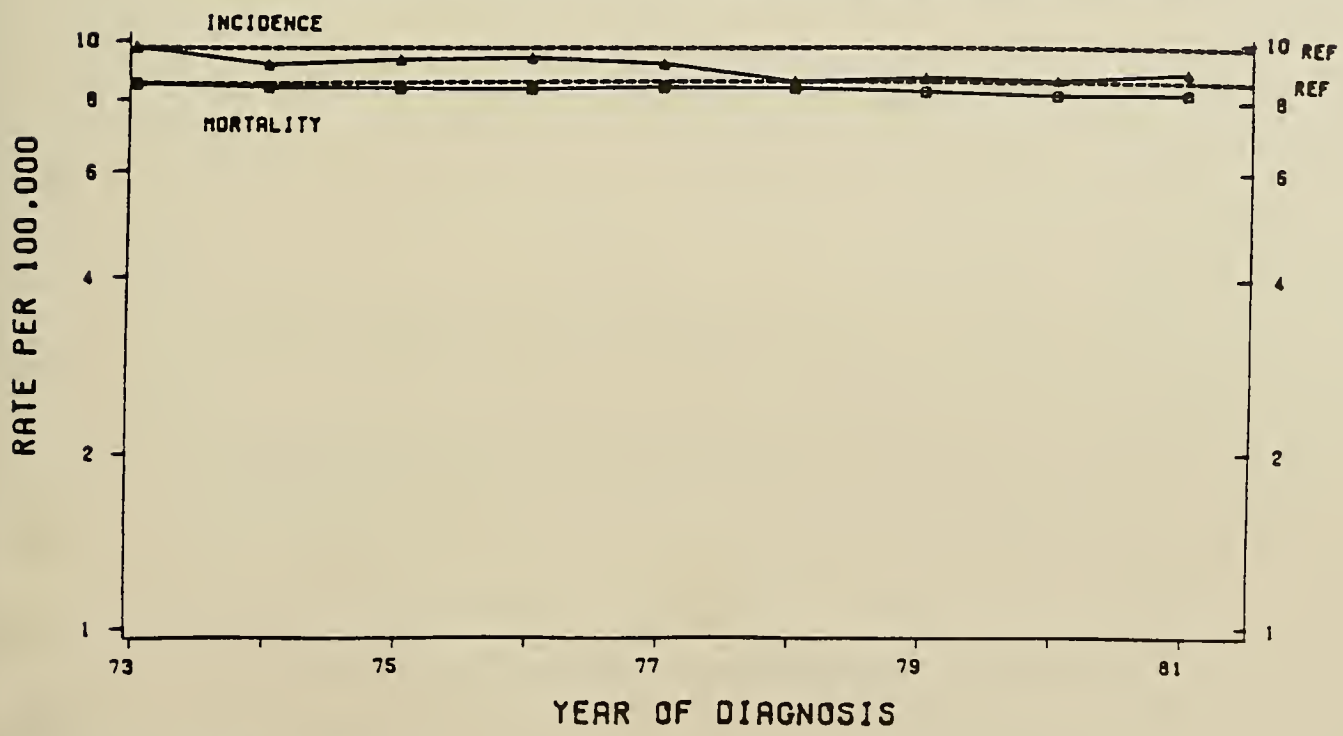
NOTE: BLACK MALES & FEMALES

PANCREAS

FIVE YEAR RELATIVE SURVIVAL RATES



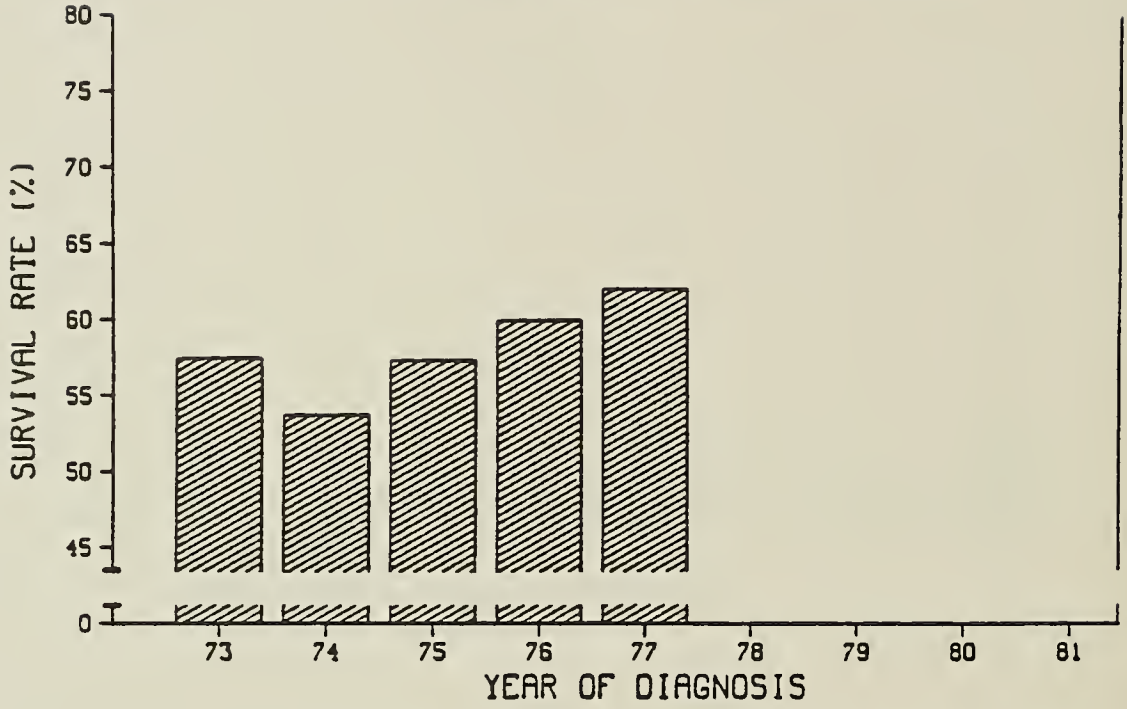
AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES



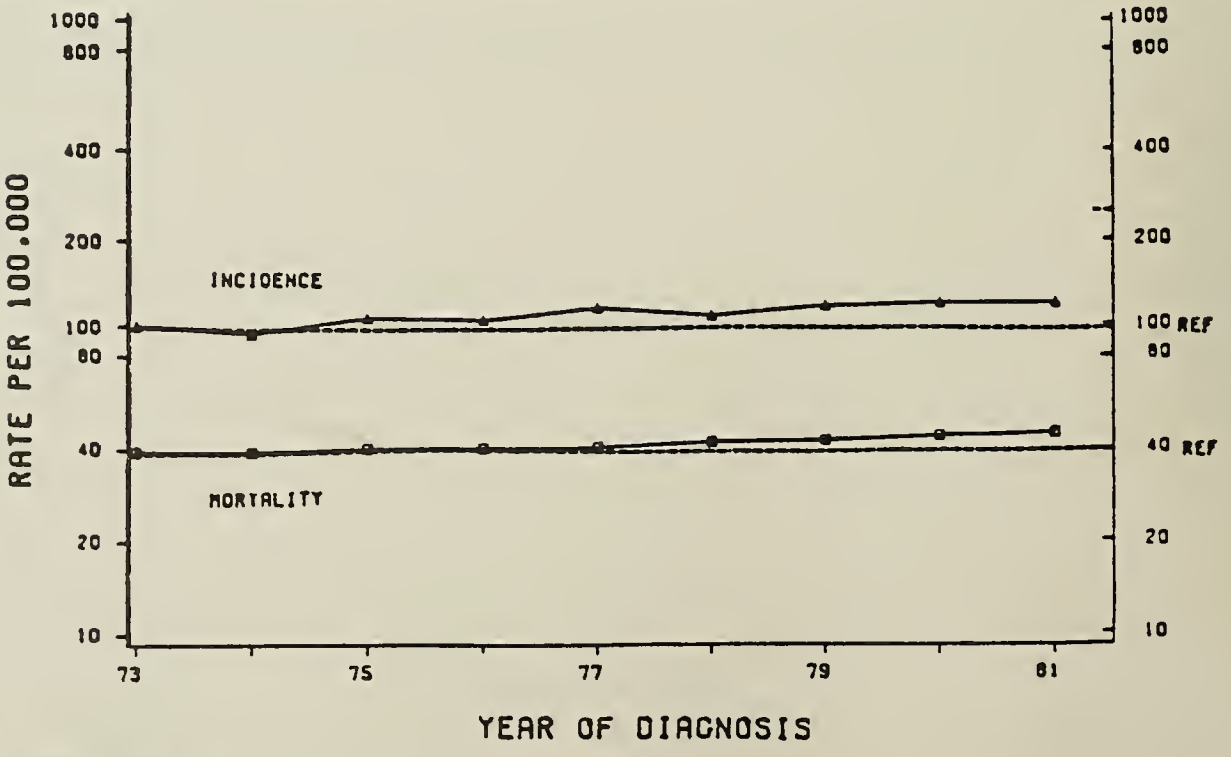
NOTE: WHITE MALES & FEMALES

PROSTATE

FIVE YEAR RELATIVE SURVIVAL RATES



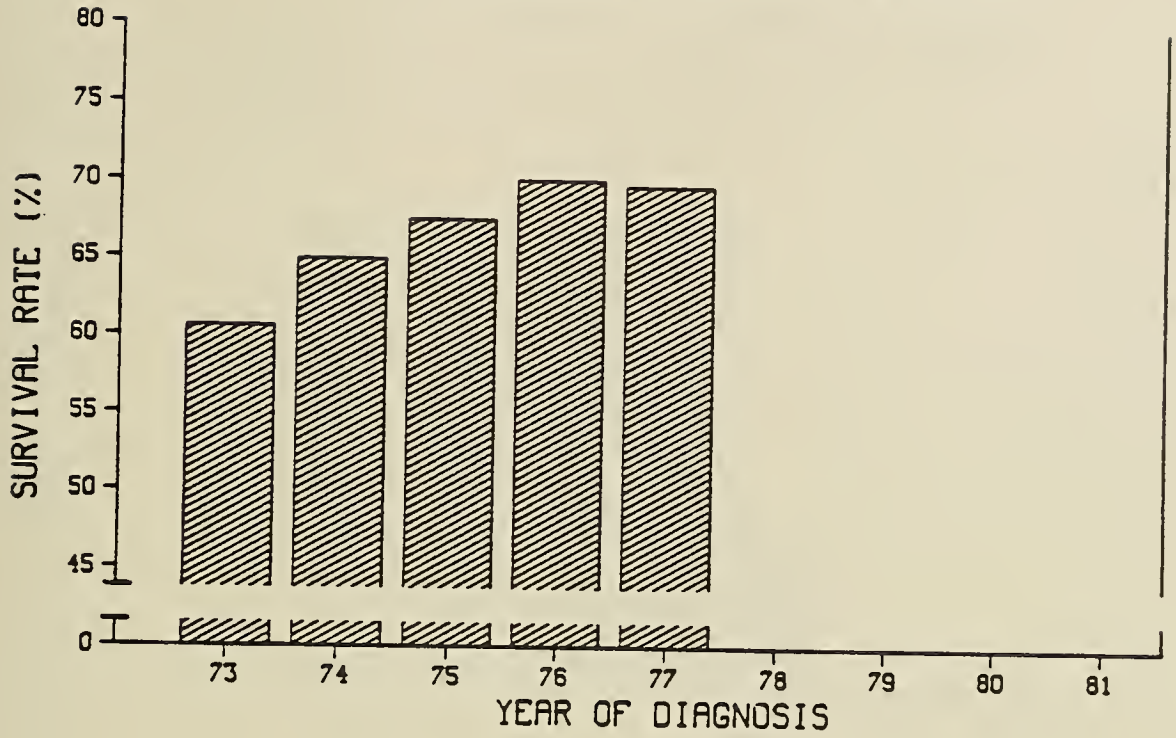
AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES



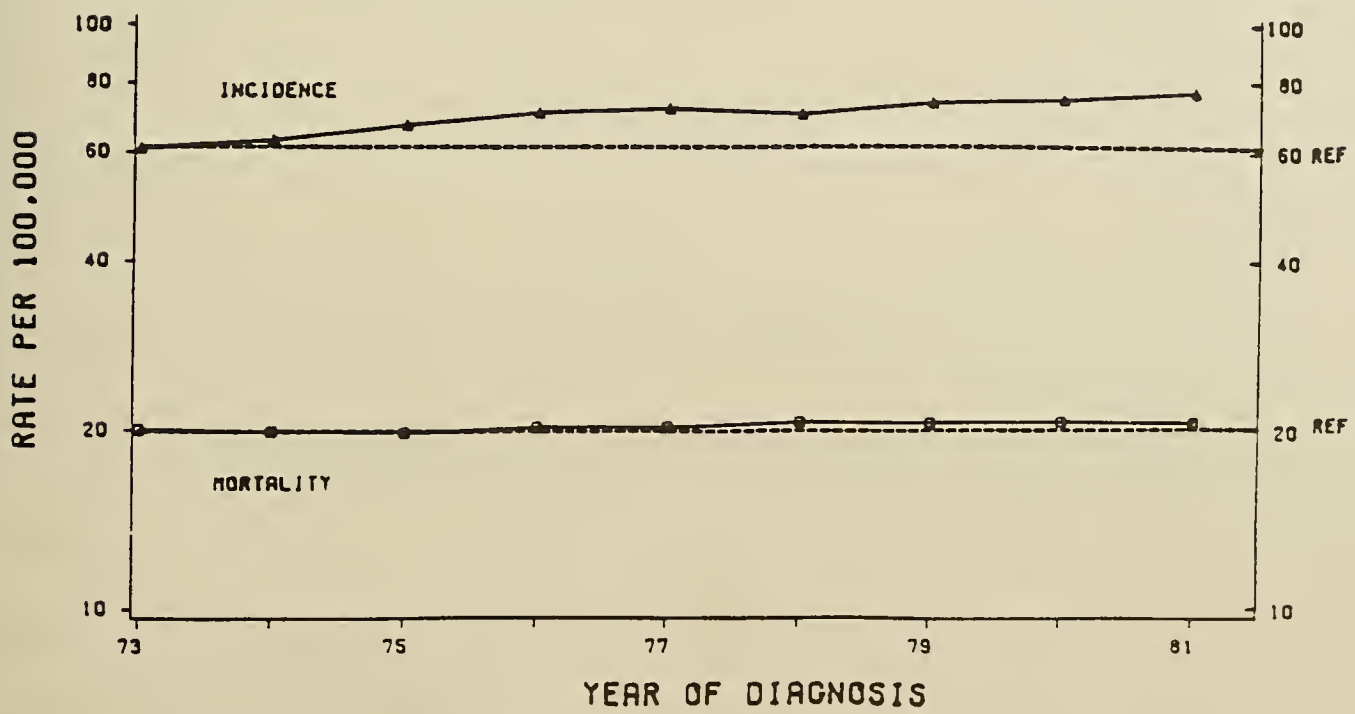
NOTE: BLACK MALES

PROSTATE

FIVE YEAR RELATIVE SURVIVAL RATES



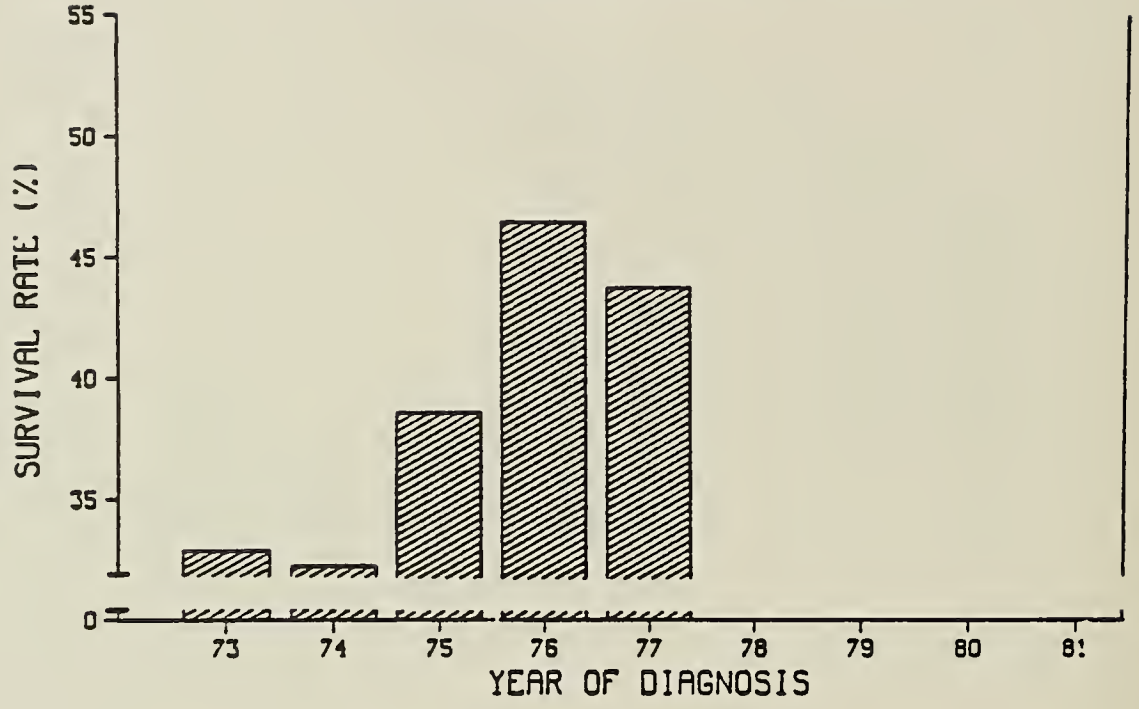
AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES



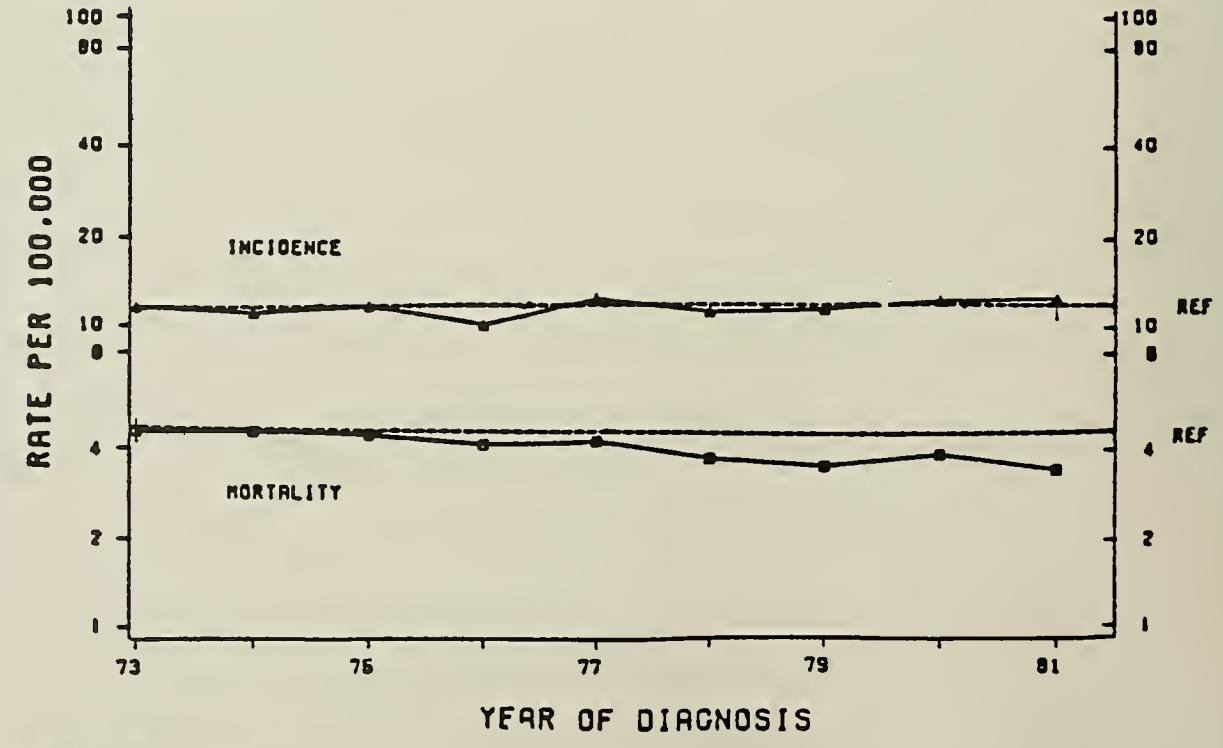
NOTE: WHITE MALES

RECTUM

FIVE YEAR RELATIVE SURVIVAL RATES



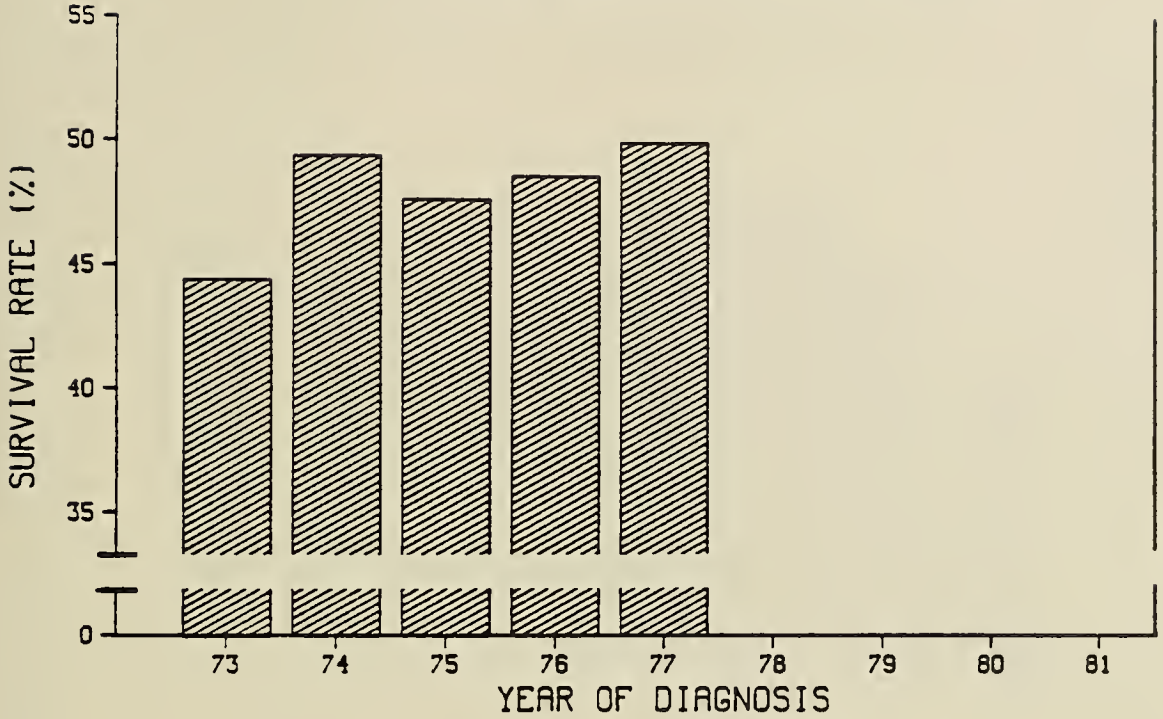
AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES



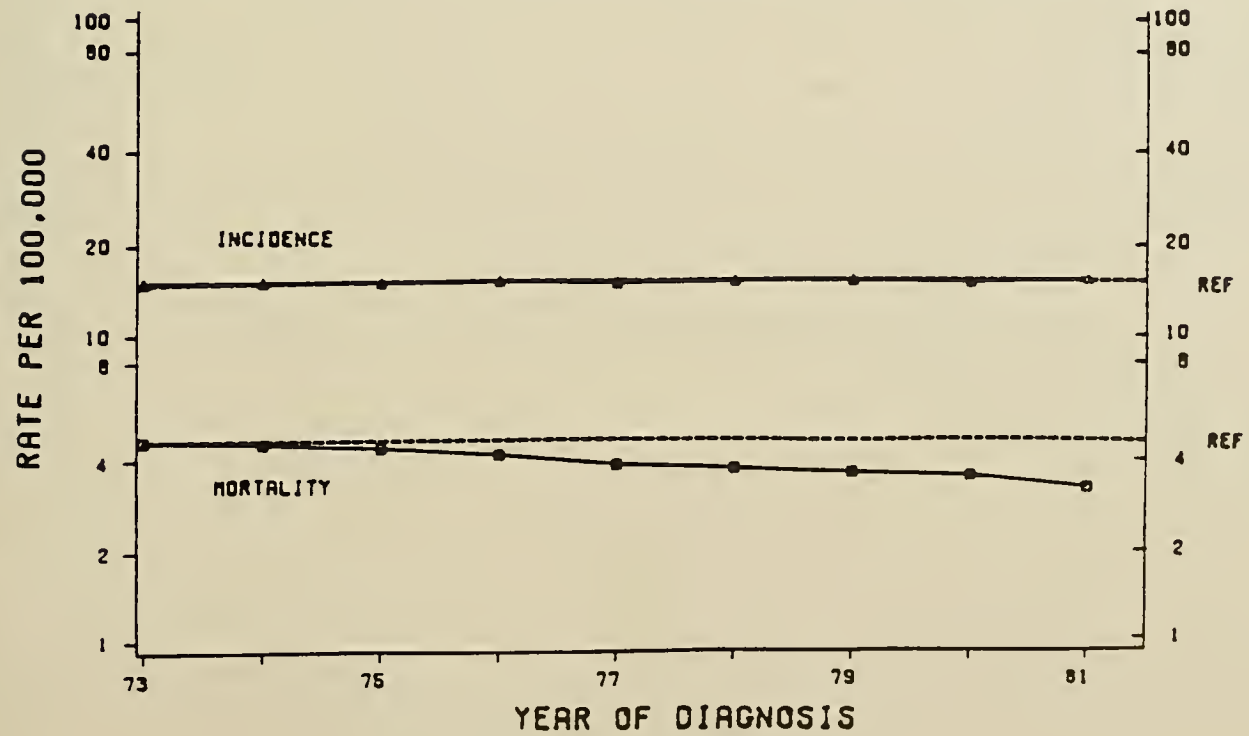
NOTE: BLACK MALES & FEMALES

RECTUM

FIVE YEAR RELATIVE SURVIVAL RATES



AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES

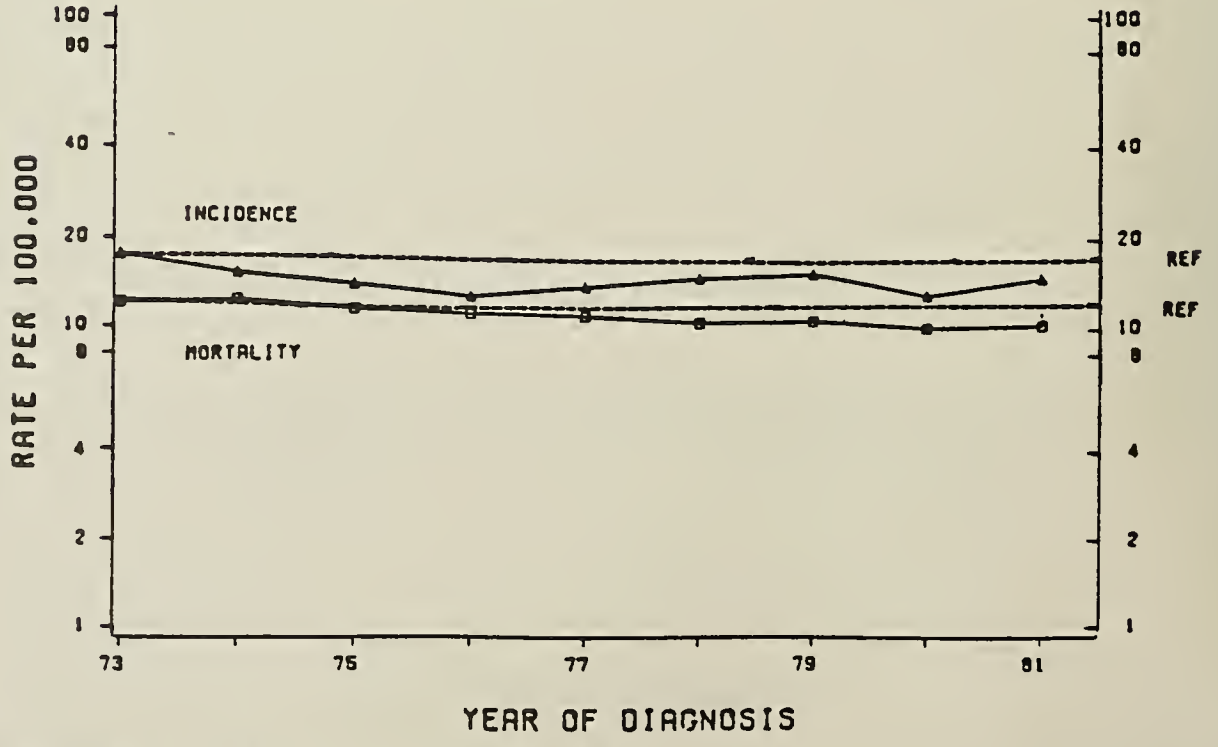


NOTE: WHITE MALES & FEMALES

STOMACH

FIVE YEAR RELATIVE SURVIVAL RATES

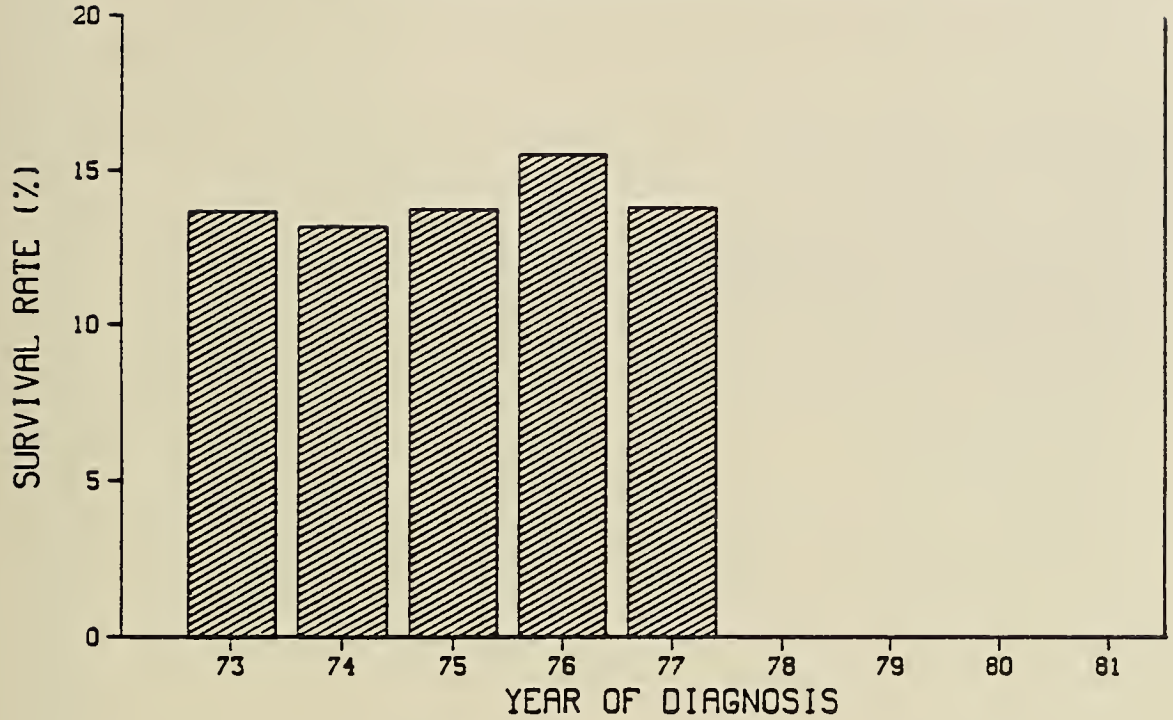
AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES



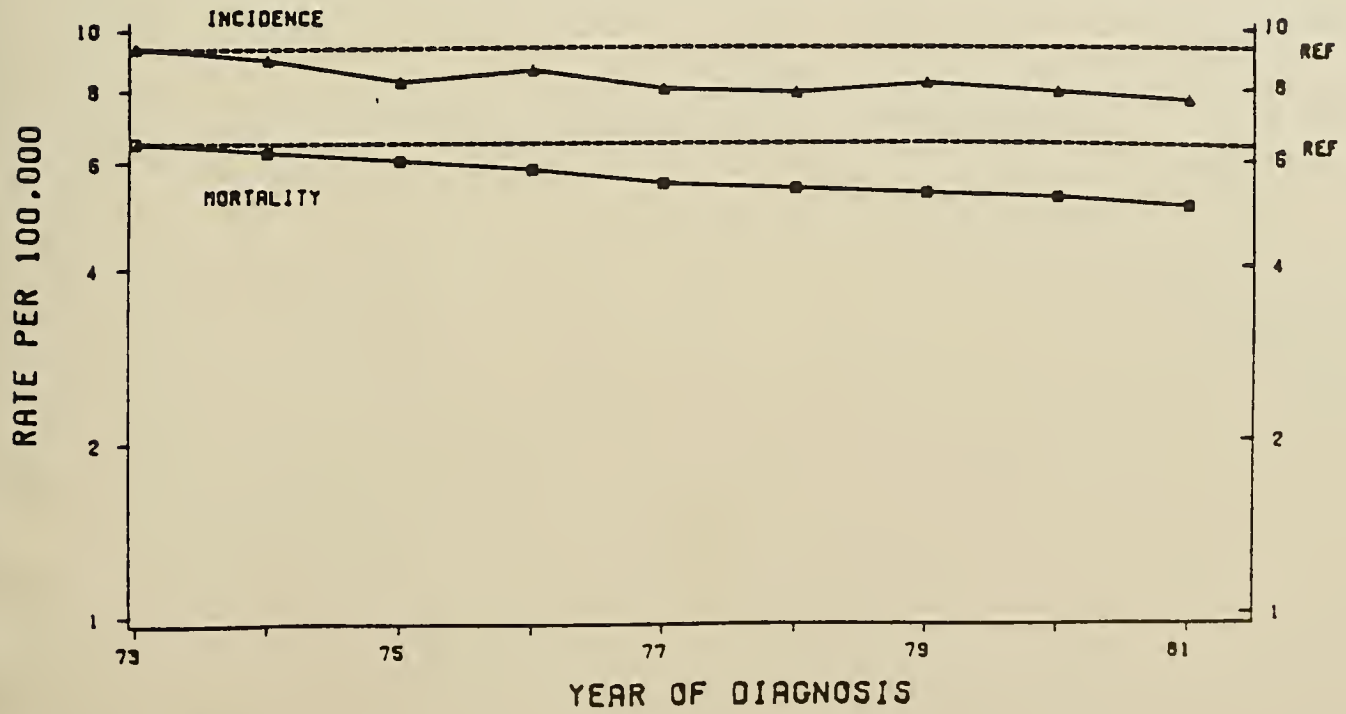
NOTE: BLACK MALES & FEMALES

STOMACH

FIVE YEAR RELATIVE SURVIVAL RATES



AGE ADJUSTED (1970 US STD) INCIDENCE AND MORTALITY RATES



NOTE: WHITE MALES & FEMALES

Section VII

Distribution of Histologic Types of Cancer for Blacks and Whites

---

Discussion 251

Tables:

Percent Distribution of Cancer Cases by Histologic Types, Blacks and Whites, 1978-1981.
Selected sites:

Bladder 252
Breast, female 253
Corpus uteri 254
Prostate 255
Rectum 256

Section VII: Distribution of Histologic Types of Cancer for Blacks and Whites

A. Discussion

Information on the histologic distributions of cancer for selected cancer sites is presented in this section. Certain histologic types of cancer have been associated with good or poor survival prognosis. For example, more histologically aggressive or less differentiated cancers such as sarcomas have poorer survival than well-differentiated adenocarcinomas. Differences in the survival rates observed between blacks and whites for various cancer sites may be explained in part by differences in the distributions of histologic types. Therefore, histologic distributions may be used as a proxy measure of biologic differences in cancer between blacks and whites.

Organization of Tables

A set of five tables are presented showing the percent distributions of histologic types of cancers for selected sites for blacks and whites.

BLADDER CANCER

Percent distribution of cases by histologic type, Surveillance, Epidemiology, and End Results Program 1978-81

Total number of cases	12,018	520
Percent microscipically confirmed	98.4%	97.7%
Histologic type		
Carcinoma, NOS	1.8%	3.9%
Papillary adenocarcinoma	3.6	1.6
Squamous cell carcinoma	2.1	9.1
Transitional cell	36.0	41.3
Papillary transitional cell	54.5	36.2
All others	2.0	7.9

NOS = Not otherwise specified

FEMALE BREAST CANCER

Percent distribution of cases by histologic type, Surveillance, Epidemiology, and End Results Program 1978-81

	WHITE	BLACK
Total number of cases	35,220	2,648
Percent microscipically confirmed	97.6%	97.1%
Histologic type		
Carcinoma, NOS	3.5%	3.9%
Adenocarcinoma, NOS	10.3	11.5
Mucinous adenocarcinoma	2.2	2.3
Duct adenocarcinoma	69.5	65.2
Medullary carcinomanal cell	3.0	6.8
Lobular carcinoma	8.3	5.7
Paget's disease	1.2	1.3
All others	2.0	3.3

NOS = Not otherwise specified

CANCER OF THE CORPUS UTERI

Percent distribution of cases by histologic type, Surveillance, Epidemiology, and End Results Program 1978-81

Total number of cases	10,323	475
Percent microscipically confirmed	99.4%	98.9%
Histologic type		
Carcinoma, NOS	2.1%	1.9%
Papillary adenocarcinoma	6.6	14.0
Adenocarcinoma, NOS	73.4	52.8
Adenosquamous carcinoma	10.8	8.7
Mullerian mixec tumor	1.9	7.0
Leiomyosarcoma	1.2	6.0
All others	4.0	9.6

NOS = Not otherwise specified

CANCER OF THE PROSTATE GLAND

Percent distribution of cases by histologic type, Surveillance, Epidemiology, and End Results Program 1978-81

	WHITE	BLACK
Total number of cases	23,740	2,864
Percent microscipically confirmed	95.1%	94.6%
Histologic type		
Carcinoma, NOS	4.0%	3.9%
Adenocarcinoma, NOS	94.3	94.5
All others	1.7	1.6

NOS = Not otherwise specified

RECTAL CANCER

Percent distribution of cases by histologic type, Surveillance, Epidemiology, and End Results Program 1978-81

	WHITE	BLACK
Total number of cases	11,620	707
Percent microscipically confirmed	96.8%	96.9%
Histologic type		
Carcinoma, NOS	1.4%	1.6%
Papillary adenocarcinoma	10.1	10.7
Adenocarcinoma, NOS	80.9	75.2
Mucinous adenocarcinoma	5.9	7.9
All others	1.7	4.6

NOS = Not otherwise specified

Section VIII

Five-year Relative Survival Rates by Stage of Cancer at Diagnosis for Blacks and Whites

---

Discussion 258

Figures:

Five-year Relative Survival Rates by Cancer Stage at Diagnosis for Blacks and Whites, 1977-1981.
Selected sites:

Bladder 259
Breast, female 260
Cervix uteri 261
Colon 262
Colon/Rectum 263
Corpus uteri 264
Esophagus (whites only) 265
Lung 266
Melanoma (whites only) 267
Ovary 268
Prostate 269
Rectum 270
Stomach 271
Testis (whites only) 272

Section VIII: Five-year Relative Survival Rates by Stage of Cancer at Diagnosis for Blacks and Whites

A. Discussion

The detailed classification of patients by stage of disease at diagnosis has been available in a consistent, comparable manner through SEER only since 1977. The classification of stage used in SEER is compatible with that developed by the American Joint Committee on Cancer. Since earlier stage of disease data (before 1977) are not comparable, it is not possible to assess changes in stage distributions over time. Thus, the data presented in this section are derived entirely from SEER.

The data presented here compare five-year relative survival rates between white and black patients within stage of disease categories for ech primary site. For many sites the numbers of black patients are too small in specific stage categories to draw meaningful conclusions. For several sites, however, even though the survival rates for white patients are significantly higher than those for black patients for all stages combined, the differences tend to disappear within individual stage categories. This is due to generally more favorable stages of disease detection for white patients.

Organization of Figures

The figures in this section are a set of bar graphs that compare black and white five-year relative survival rates for various stages of disease for primary cancer site. For cancers of the esophagus, melanoma, and testis survival data by stage of disease were available for whites only.

Highlights

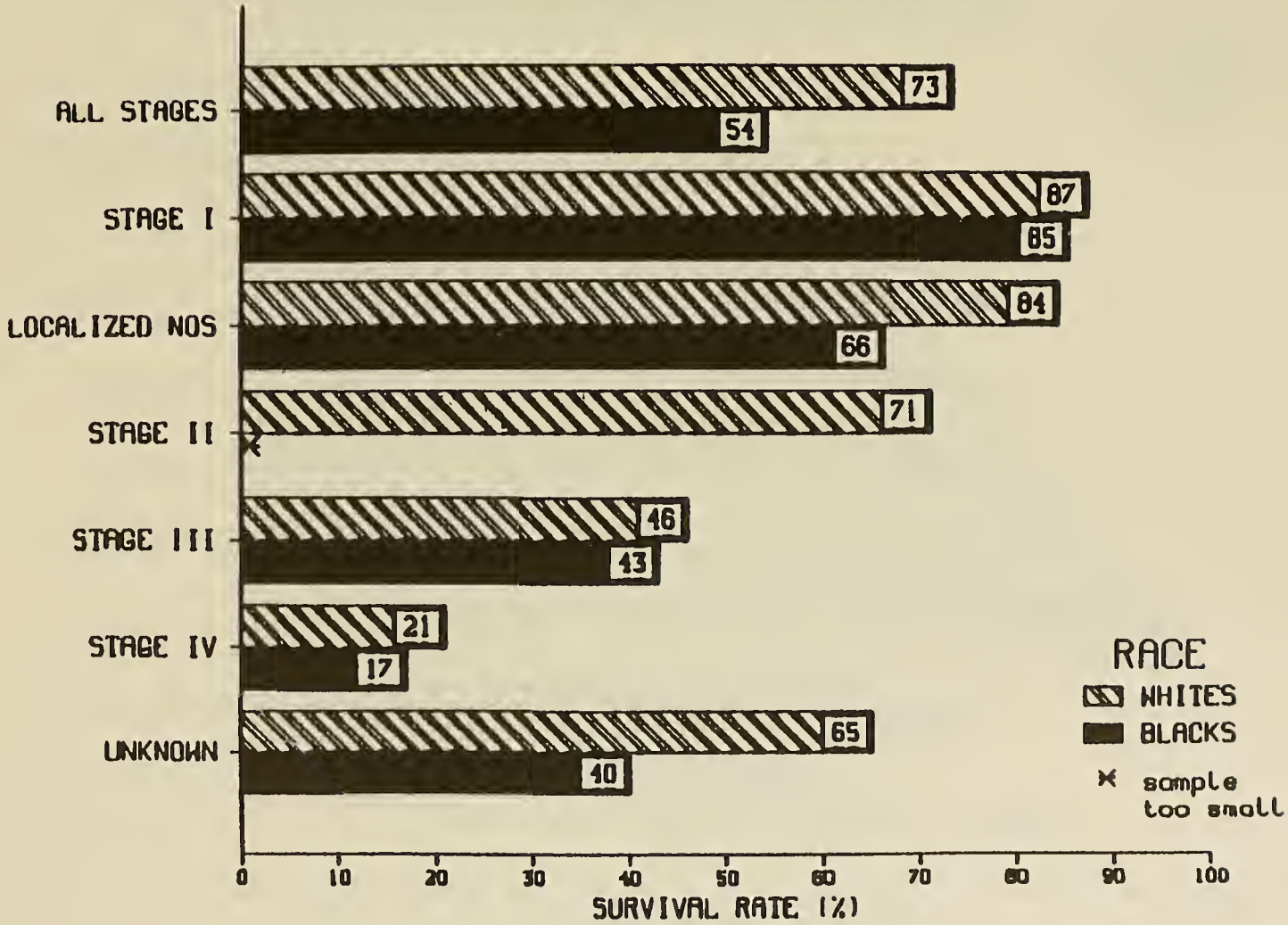
- The difference in survival for breast cancers between white and black patients was large and statistically significant (75% vs. 63%), but this was accounted for primarily by those who came to diagnosis with lymph node involvement or direct extension of the tumor to adjacent tissue (stage III.B) (VIII.B-2).

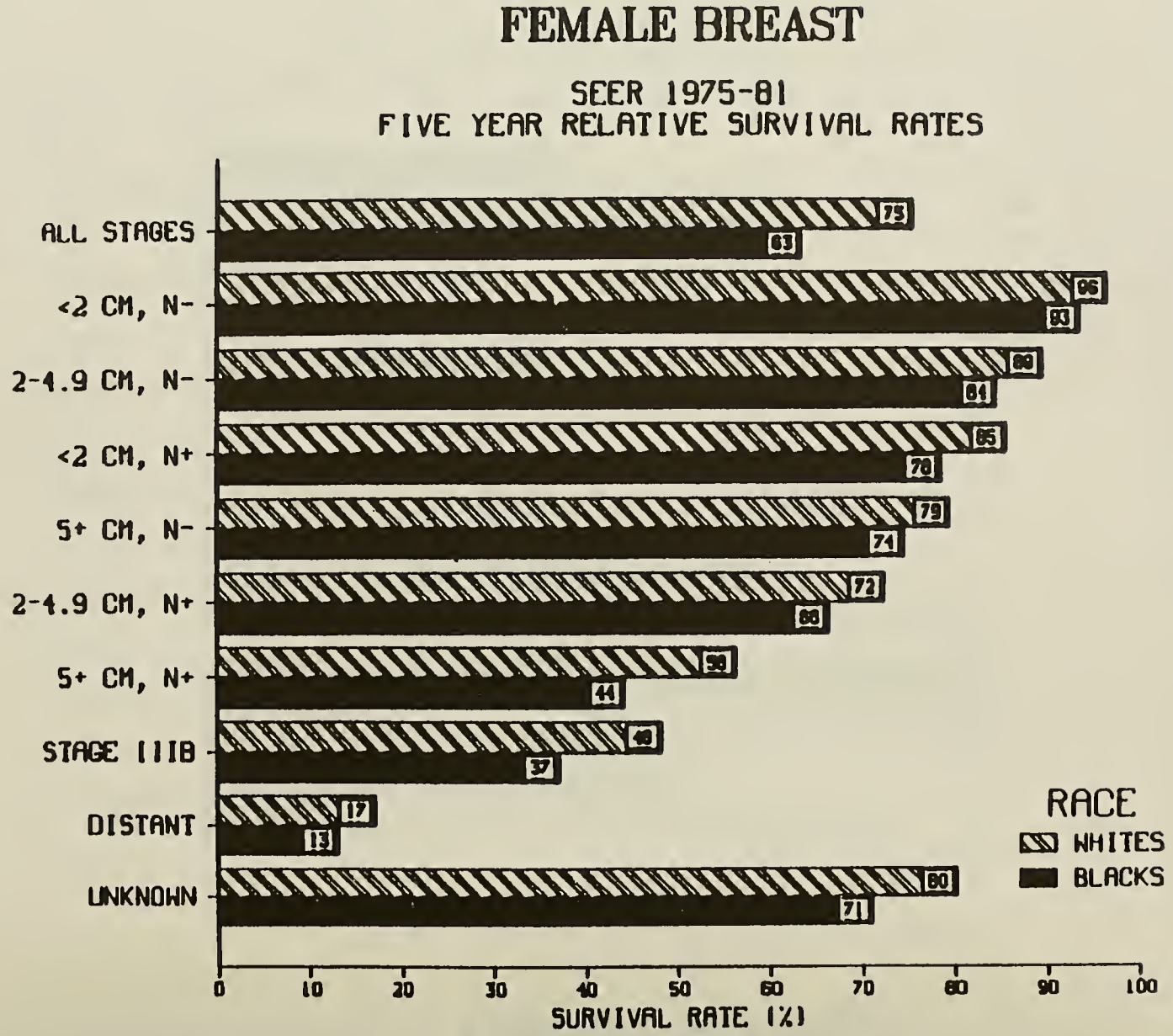
- For cancer of the uterine corpus, the site with the greatest difference in survival between black and white patients, even for stage I disease there was a large, statistically significant difference (92% vs. 75%) (VIII.B-6). The numbers of black patients were too small to draw meaningful conclusions for the other stages.

- Black patients had higher survival rates for cancer of the ovary than did white patients. This was true not only for all stages combined but also within each stage (VIII.B-10).

URINARY BLADDER

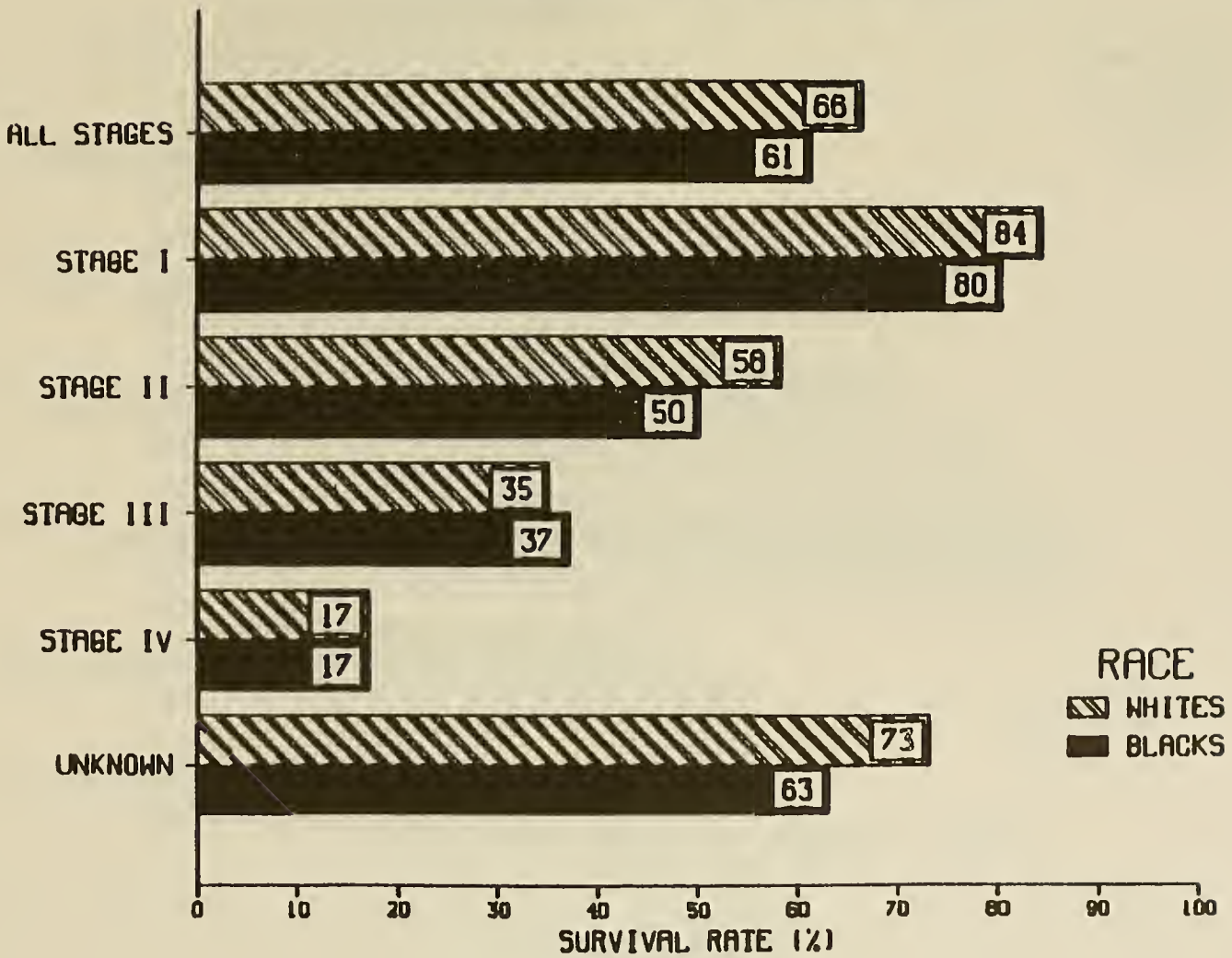
SEER 1977-81
FIVE YEAR RELATIVE SURVIVAL RATES

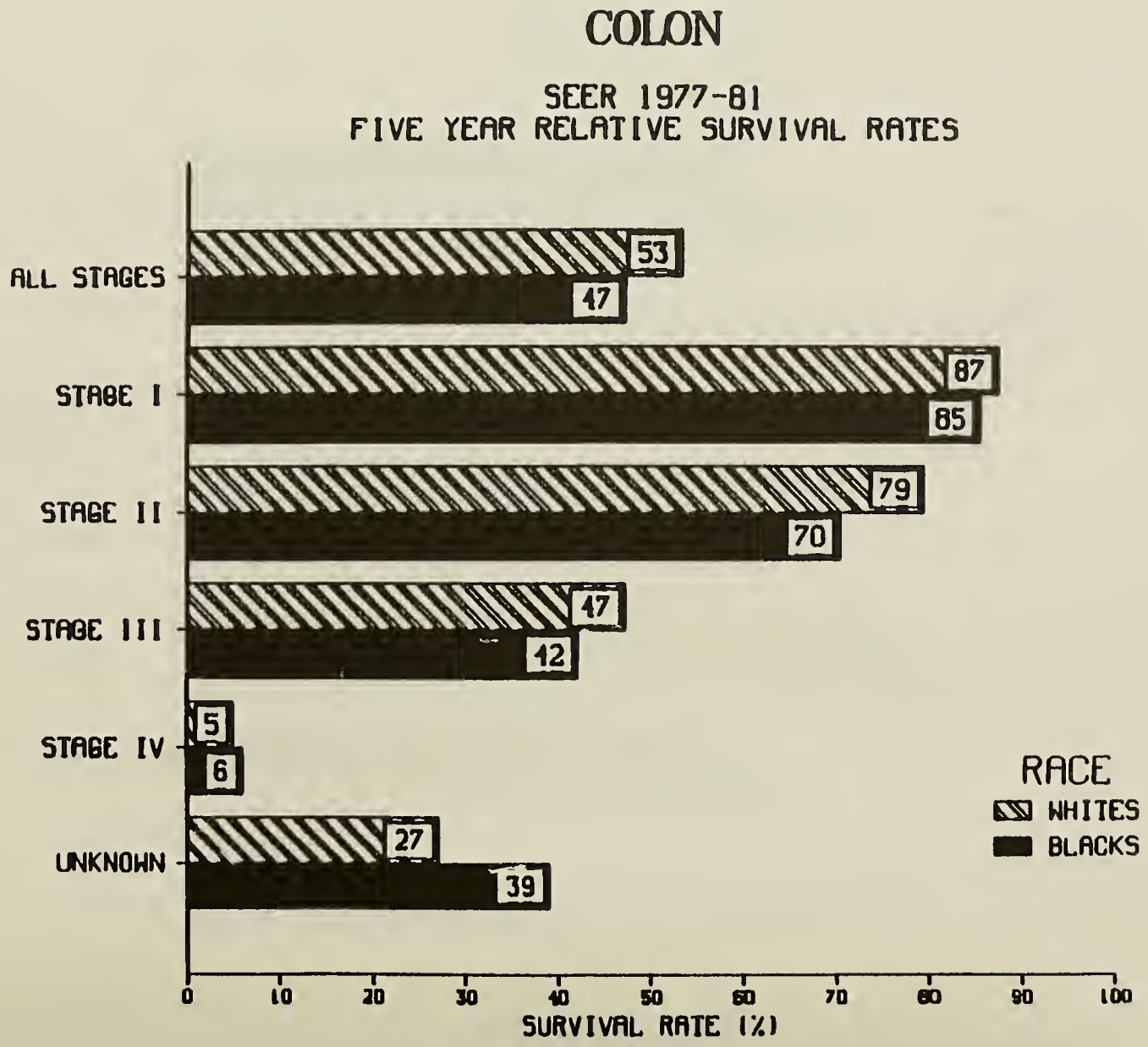


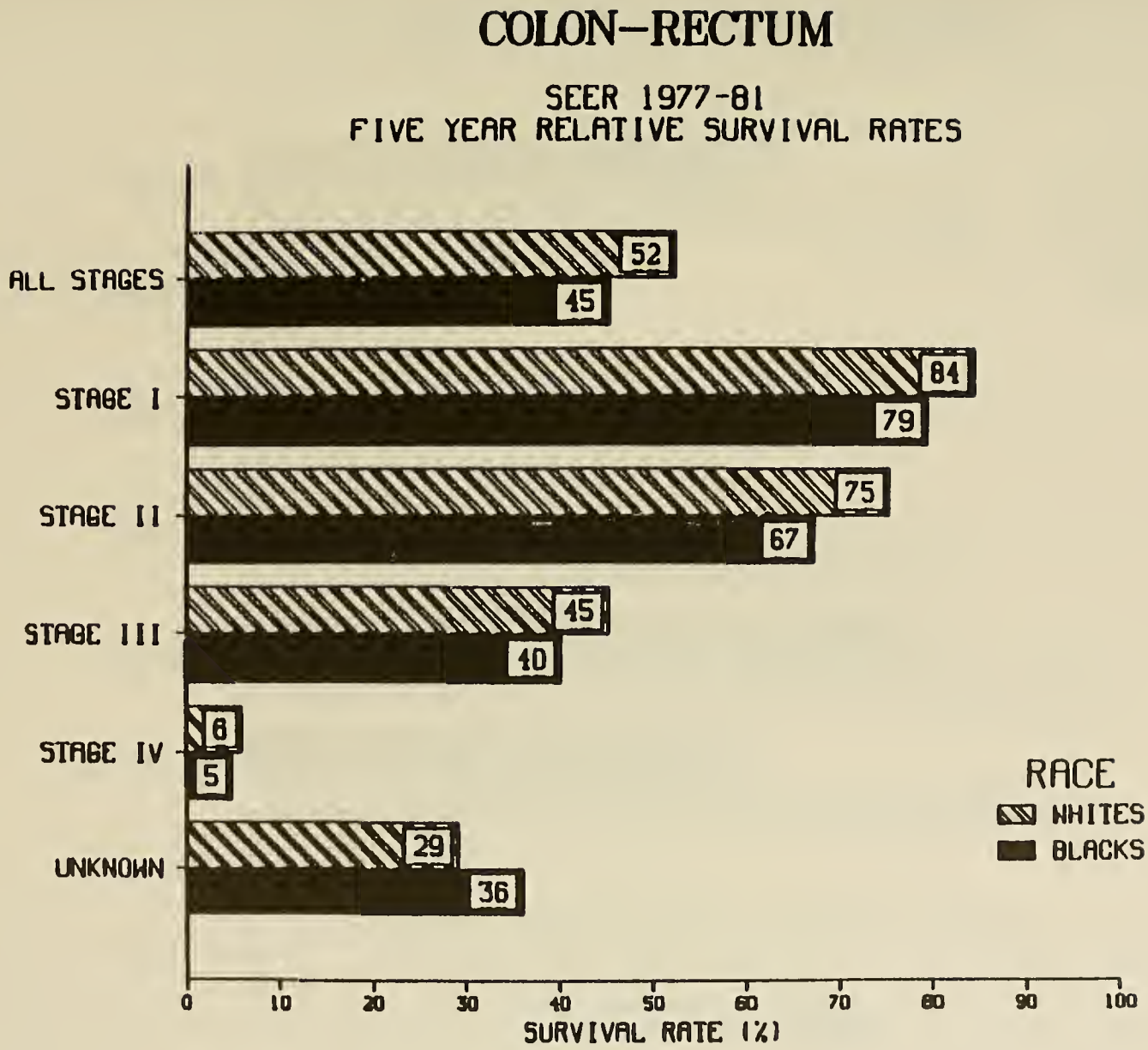

FEMALE BREAST
SEER 1975-81
FIVE YEAR RELATIVE SURVIVAL RATES
ALL STAGES
<2 CM, N-
2-4.9 CM, N-
<2 CM, N+
5+ CM, N-
2-4.9 CM, N+
5+ CM, N+
STAGE IIIB
DISTANT
UNKNOWN
75
83
86
83
80
84
85
78
79
74
72
68
58
44
49
37
17
13
80
71
RACE
WHITES
BLACKS
0
10
20
30
40
50
60
70
80
90
100
SURVIVAL RATE (%)

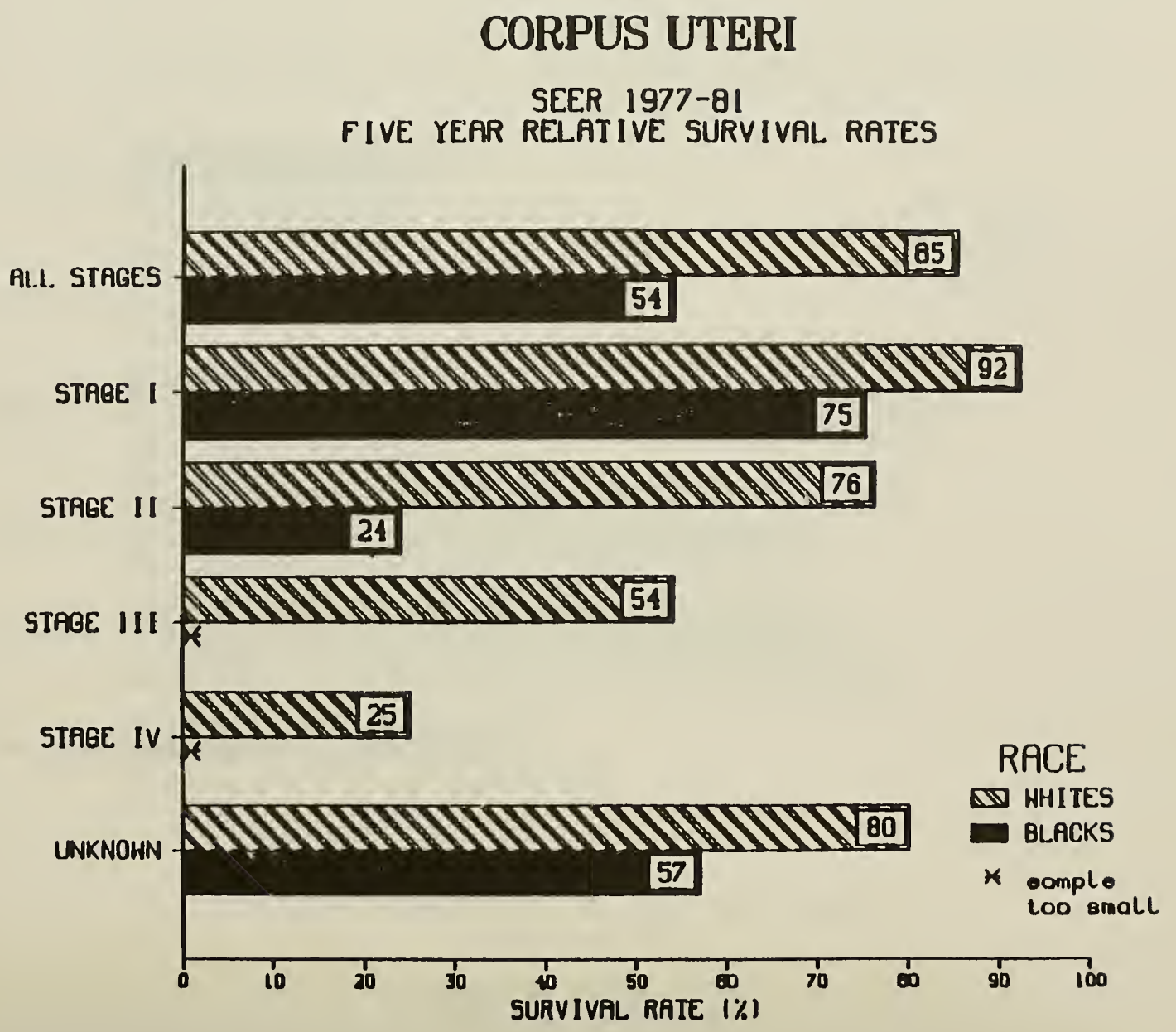
CERVIX UTERI

SEER 1977-81
FIVE YEAR RELATIVE SURVIVAL RATES



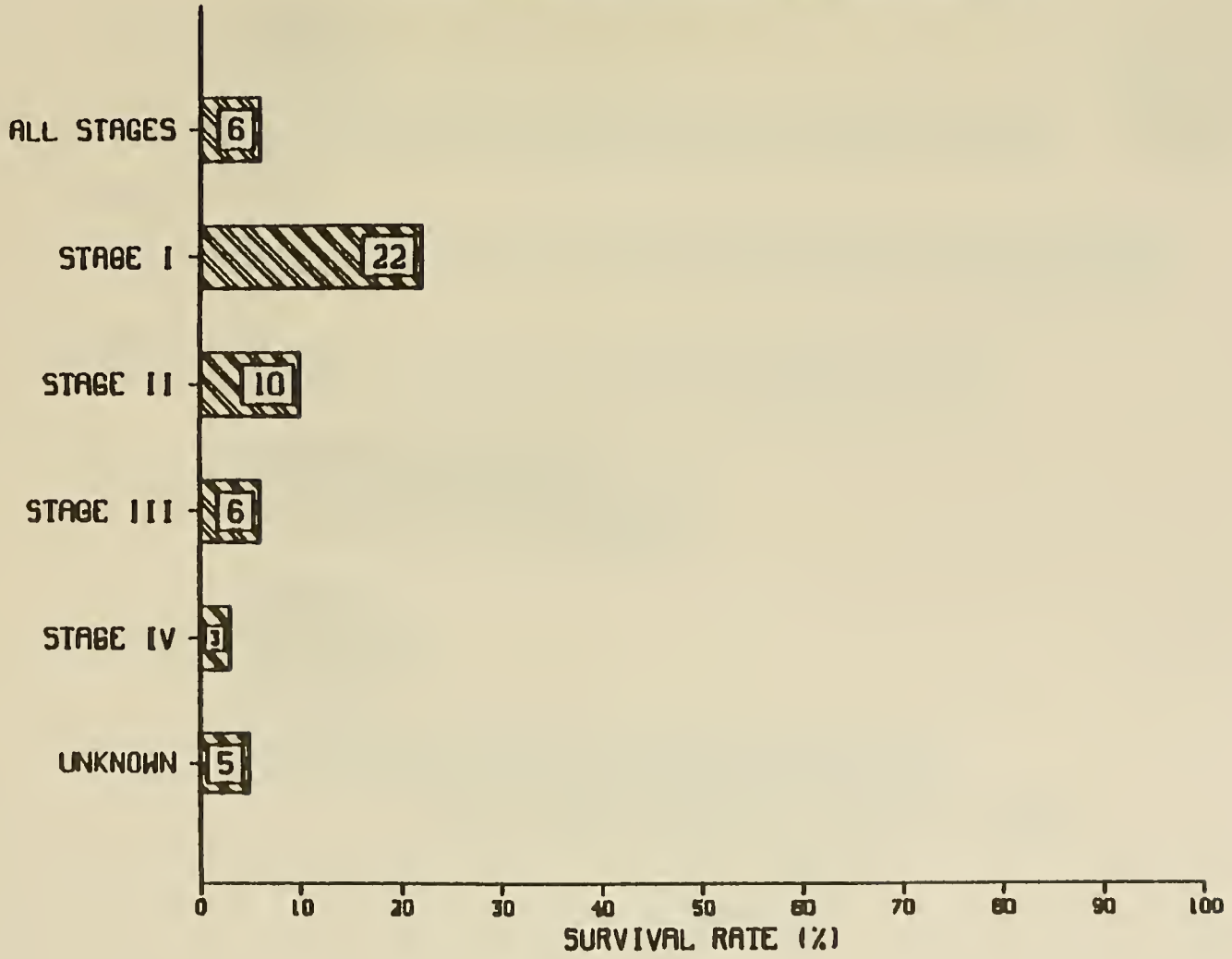

COLON
SEER 1977-81
FIVE YEAR RELATIVE SURVIVAL RATES
ALL STAGES
53
47
STAGE I
87
85
STAGE II
79
70
STAGE III
47
42
STAGE IV
5
6
UNKNOWN
27
39
RACE
WHITES
BLACKS
0
10
20
30
40
50
60
70
80
90
100
SURVIVAL RATE (%)


COLON–RECTUM
SEER 1977-81
FIVE YEAR RELATIVE SURVIVAL RATES
ALL STAGES
52
45
STAGE I
84
79
STAGE II
75
67
STAGE III
45
40
STAGE IV
6
5
UNKNOWN
29
36
RACE
WHITES
BLACKS
0
10
20
30
40
50
60
70
80
90
100
SURVIVAL RATE (%)


CORPUS UTERI
SEER 1977-81
FIVE YEAR RELATIVE SURVIVAL RATES
ALL STAGES
STAGE I
STAGE II
STAGE III
STAGE IV
UNKNOWN
65
54
92
75
76
24
54
25
80
57
RACE
WHITES
BLACKS
sample too small
0
10
20
30
40
50
60
70
80
90
100
SURVIVAL RATE (%)

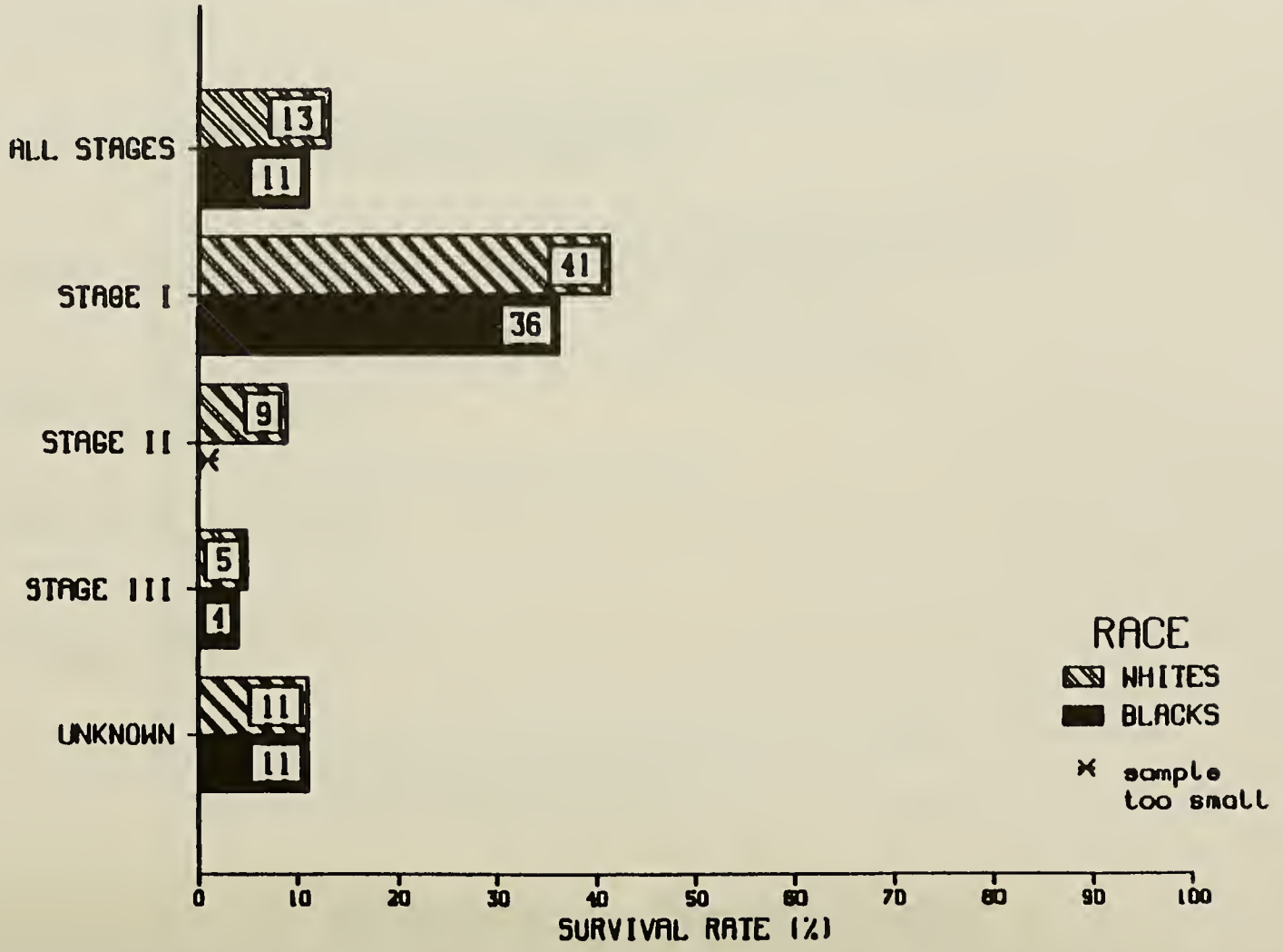
ESOPHAGUS – WHITES ONLY

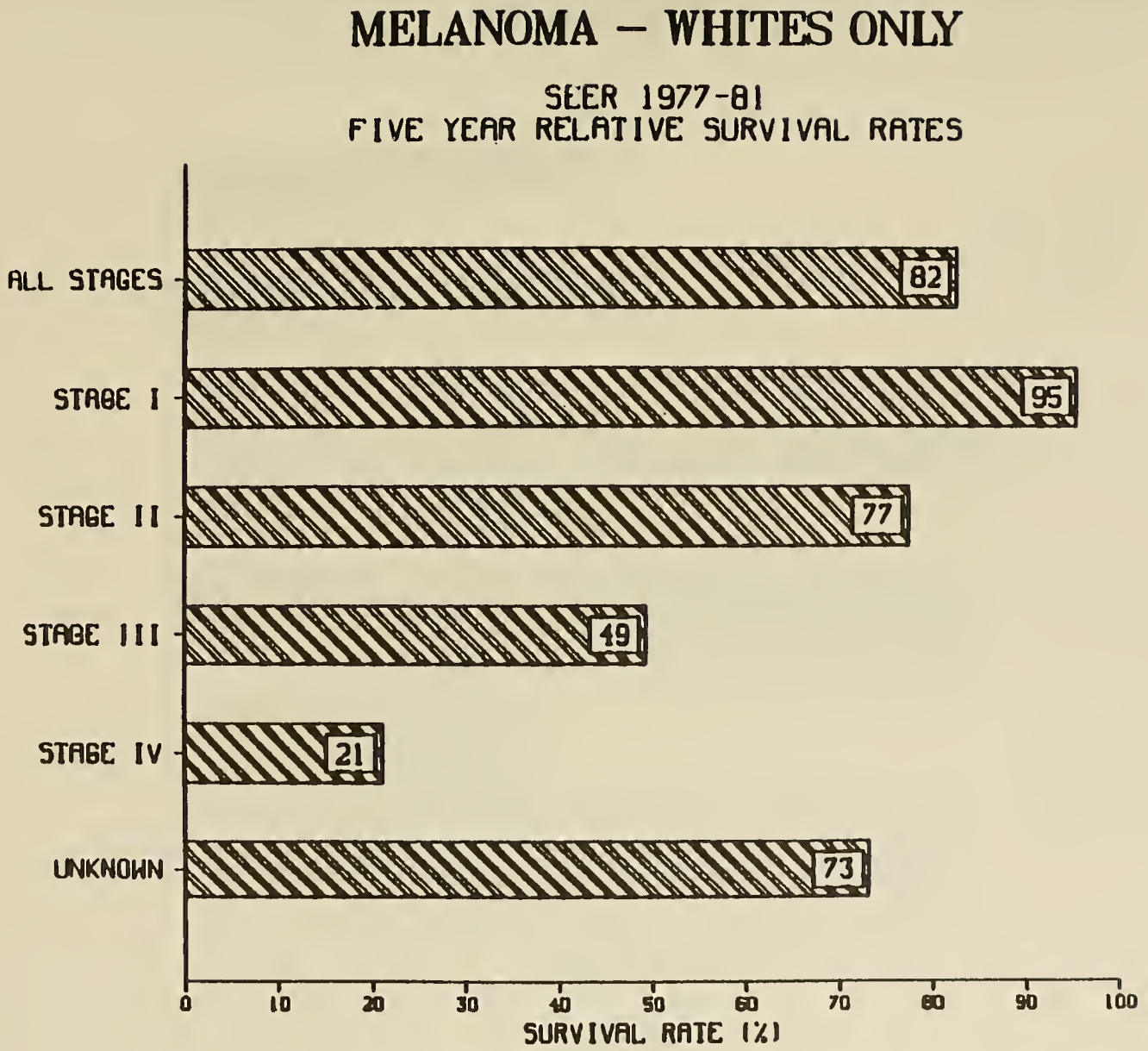
SEER 1977-81
FIVE YEAR RELATIVE SURVIVAL RATES



LUNG

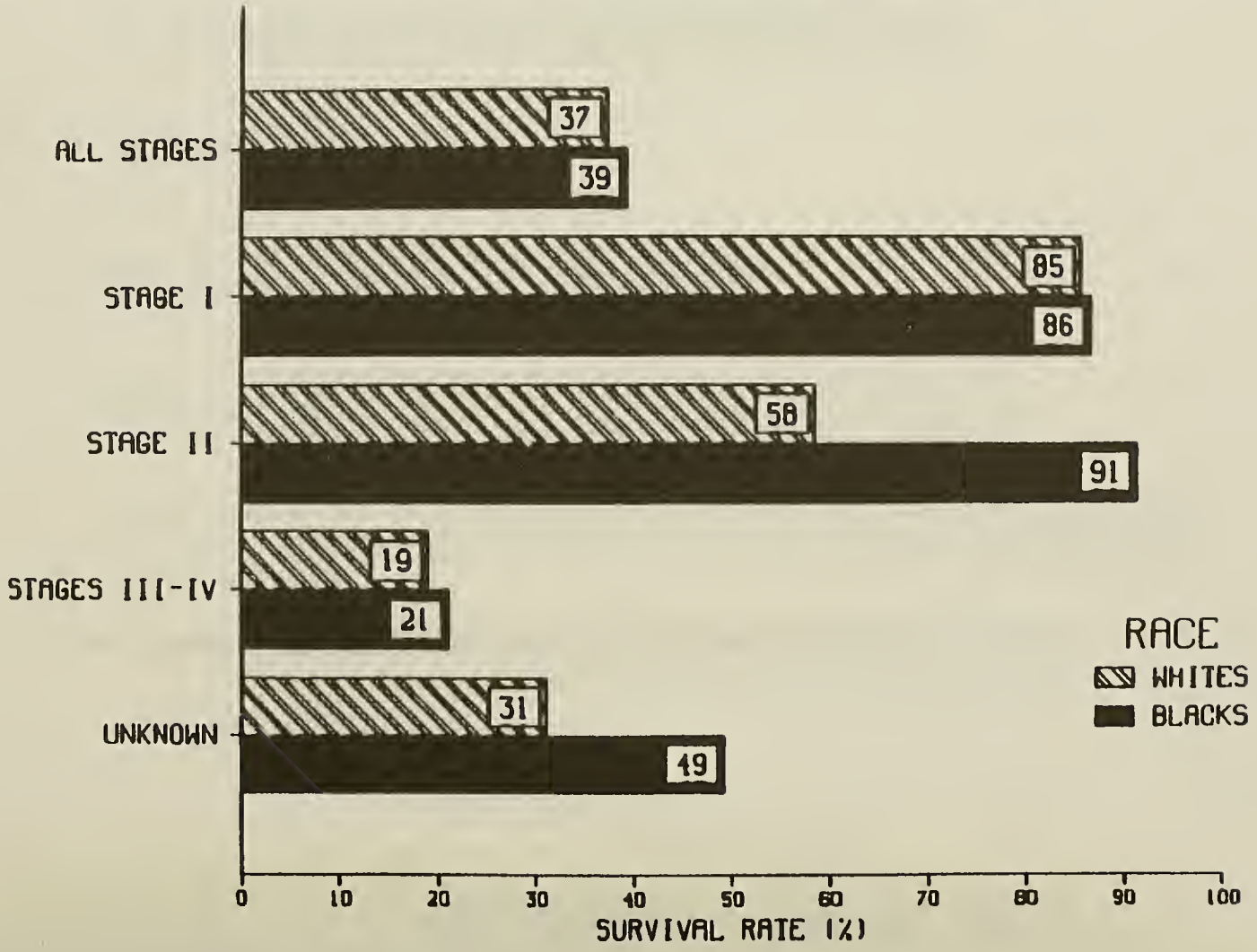
SEER 1977-81
FIVE YEAR RELATIVE SURVIVAL RATES




MELANOMA – WHITES ONLY
SEER 1977-81
FIVE YEAR RELATIVE SURVIVAL RATES
ALL STAGES
82
STAGE I
95
STAGE II
77
STAGE III
49
STAGE IV
21
UNKNOWN
73
0
10
20
30
40
50
60
70
80
90
100
SURVIVAL RATE (%)

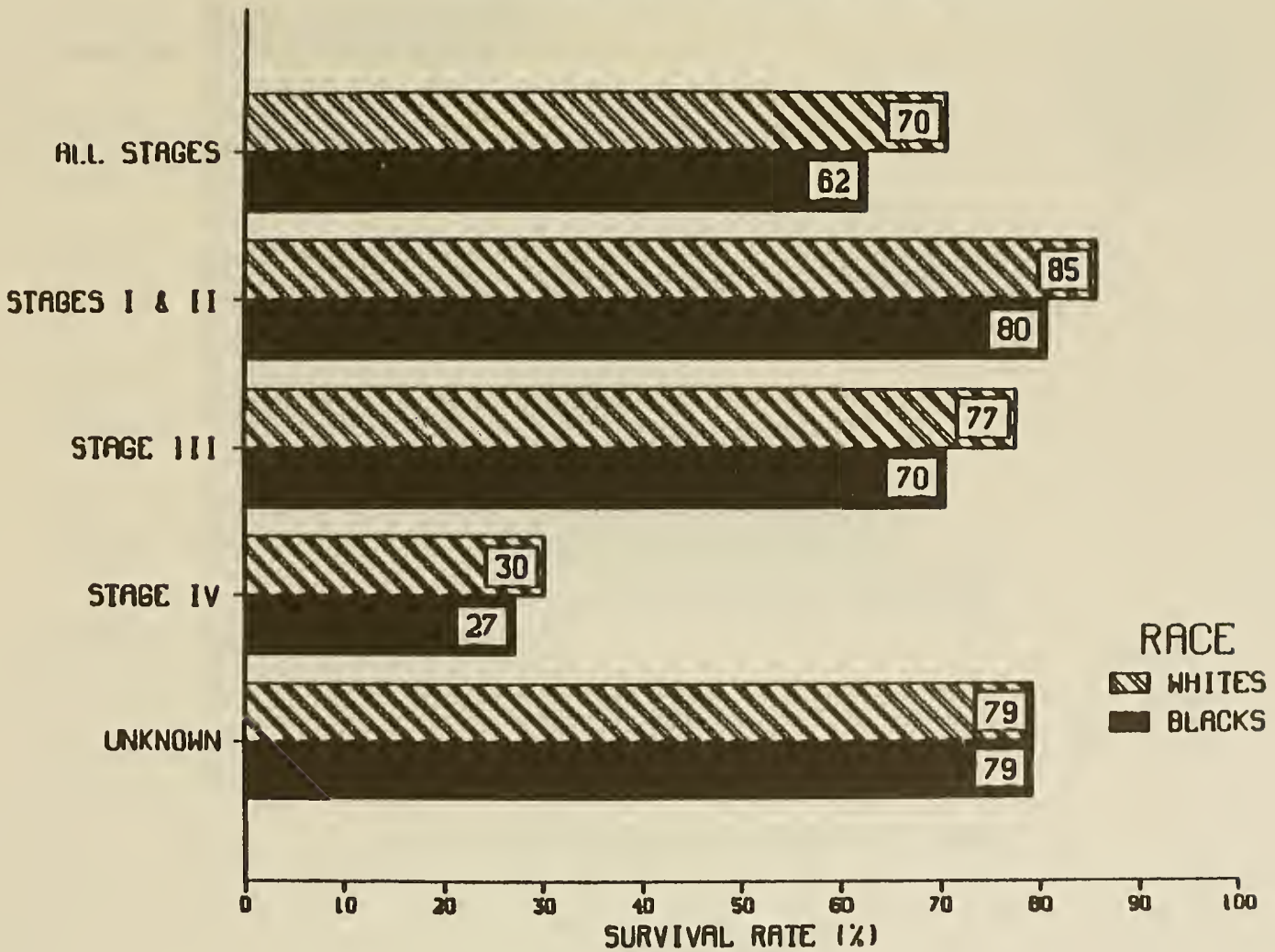
OVARY

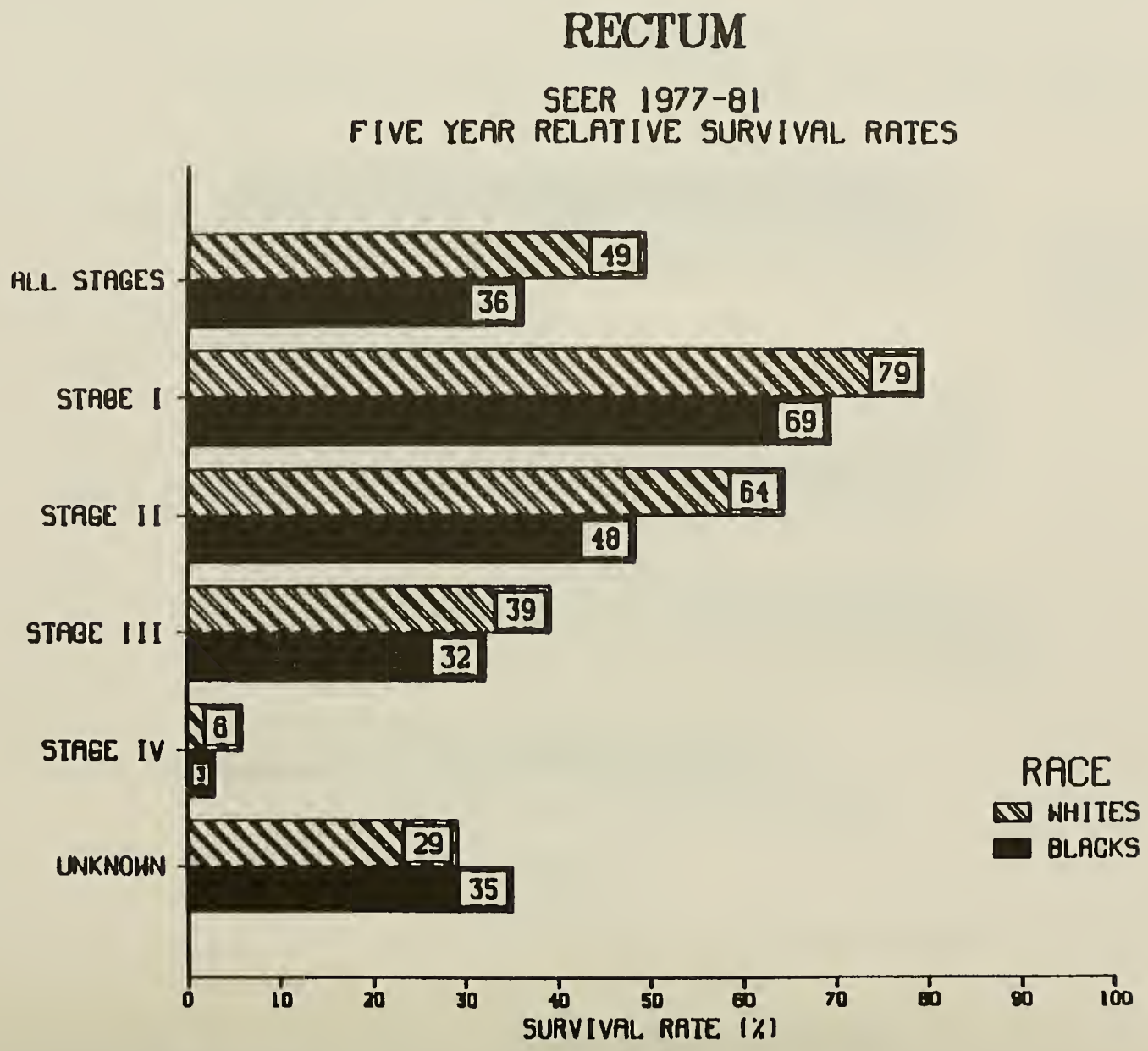
SEER 1977-81
FIVE YEAR RELATIVE SURVIVAL RATES



PROSTATE GLAND

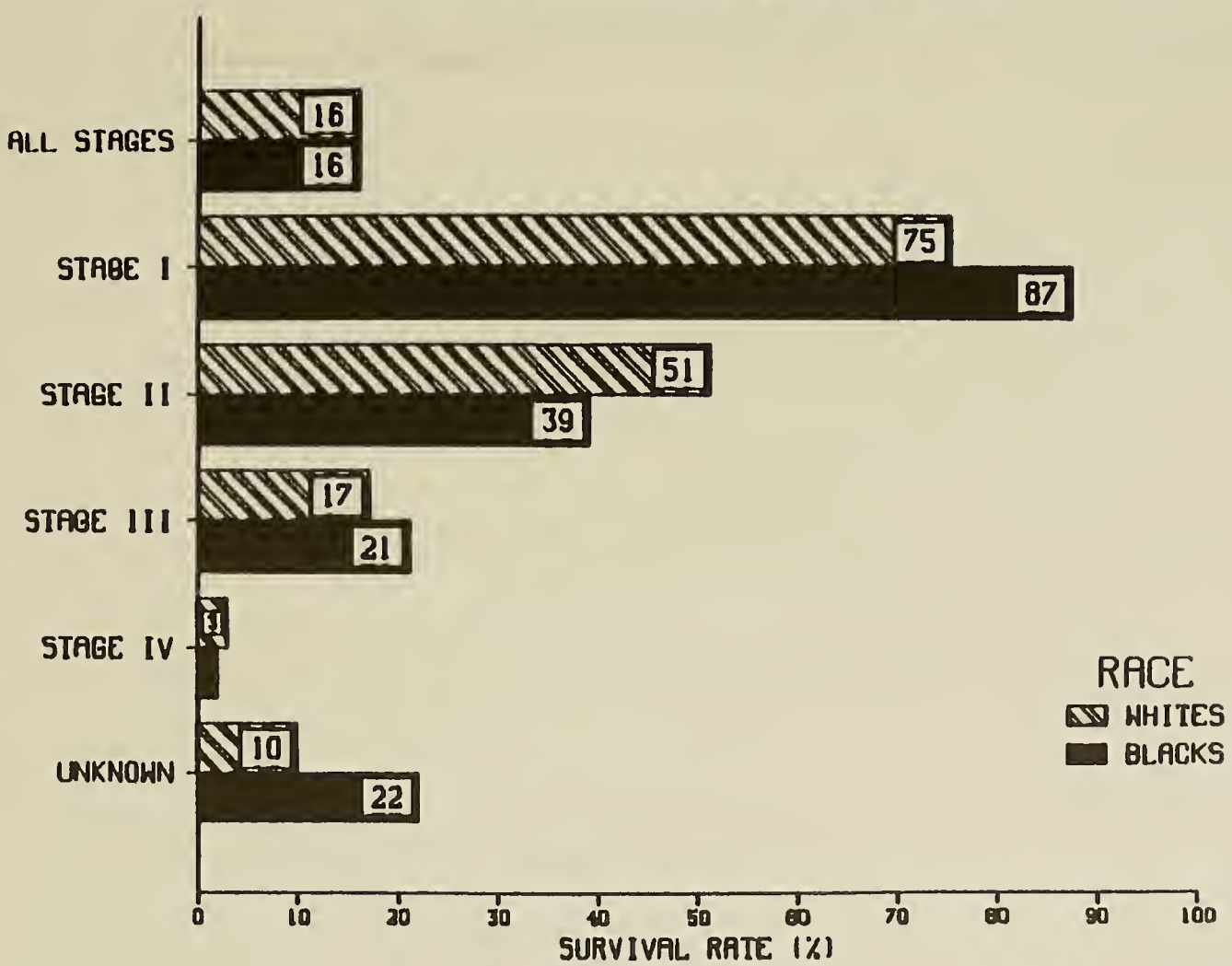
SEER 1977-81
FIVE YEAR RELATIVE SURVIVAL RATES




RECTUM
SEER 1977-81
FIVE YEAR RELATIVE SURVIVAL RATES
ALL STAGES
STAGE I
STAGE II
STAGE III
STAGE IV
UNKNOWN
49
36
79
69
64
48
39
32
8
5
29
35
0
10
20
30
40
50
60
70
80
90
100
SURVIVAL RATE (%)
RACE
WHITES
BLACKS

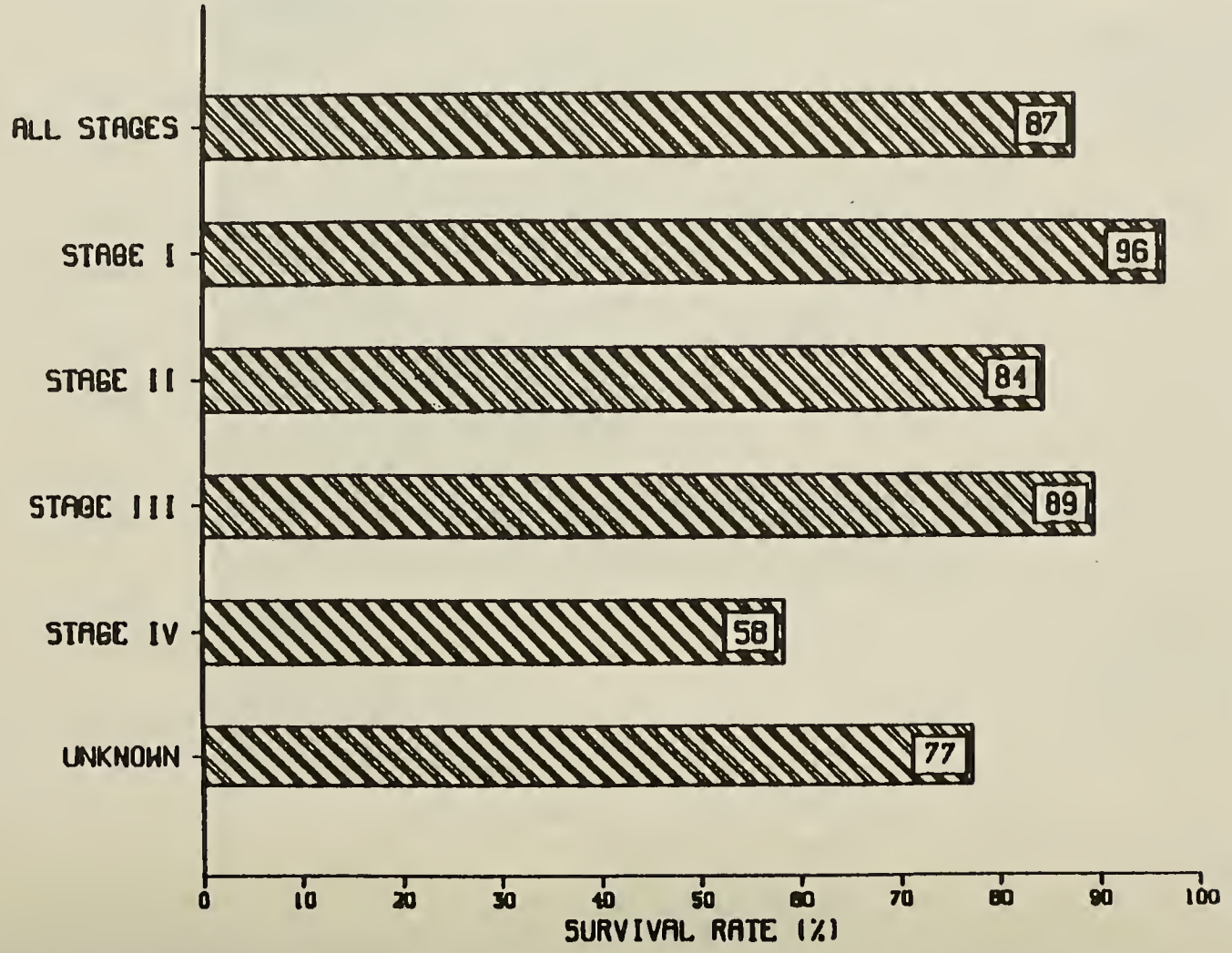
STOMACH

SEER 1977-81
FIVE YEAR RELATIVE SURVIVAL RATES



TESTIS – WHITES ONLY

SEER 1977-81
FIVE YEAR RELATIVE SURVIVAL RATES



*U.S. GOVERNMENT PRINTING OFFICE: 1986-621-605:00171