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Cancer among elder Native Americans.

L Burhansstipanov

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CANCER AMONG ELDER NATIVE AMERICANS

By

Linda Burhansstipanov, MSPH, DrPH
Identifying Barriers which Affect the Diagnosis, Treatment, and Recovery from Cancer in Older Native American Populations

Barriers to Participation in Cancer Prevention and Control: Early Detection Programs

Older American Indians and Alaska Natives are low users of early cancer detection programs in comparison with other racial groups. There are numerous barriers which explain these low utilization and participation rates (Hampton, 1992). Although many barriers are similar among diverse racial and ethnic groups, the interventions which are designed to address those barriers must be culturally relevant (Burhansstipanov, 1996d). Barriers which affect American Indian and Alaska Native participation in cancer early detection and screening programs include poverty, psychosocial, and sociocultural issues.

Poverty
Poverty has multiple, confounding effects on life priorities other than cancer (e.g., food, rent, clothing); health priorities other than cancer (e.g., alcohol/substance abuse, violence, accidents, suicide, diabetes, obesity, cardiovascular disease); lack of medical insurance or available access to an IHS facility; lack of access to telephone communication; the lack of transportation to a medical facility; and the lack of availability for child care during the visit to the medical facility. Obviously, these barriers affect people of all colors who live in poverty and are not racially specific.

Psychosocial (including communication)
Psychosocial factors also affect people of all colors and include, but are not limited to, level of education, knowledge, practices and beliefs about health and disease, daily customs, lifestyles and beliefs, language or nonverbal communication styles, and, fear of using health services based on unpleasant past medical experiences. Examples of psychosocial barriers among American Indians are related to misconceptions about cancer and/or the lack of understandable cancer education materials. Some of the identified misconceptions might be a result of cancer education materials being written at a very high literacy level (e.g., most National Cancer Institute materials are written for persons completing on average grade 11 or higher), whereas the average reading comprehension of large segments of the target population (within all ethnic groups) may be as low as grade five (Burhansstipanov, 1996b).
CANCER AMONG
ELDER NATIVE AMERICANS

By

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4455 East 12th Avenue
Denver, CO 80220
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PREFACE

The Native Elder Health Care Resource Center, initially funded by the Administration on Aging in February 1994, is dedicated to promoting the delivery of culturally competent health care to older American Indians, Alaska Natives, and Native Hawaiians. It pursues this goal through a variety of avenues, including training, technical assistance, continuing education, applied research, and information dissemination. Severe, unpredictable budget reductions over the last several years -- attributable in large part to ongoing debate over reauthorization of the Older Americans Act, particularly Title IV which provides funding for this program -- have curtailed the Native Elder Health Care Resource Center's ability to implement the full range of activities initially planned. Nevertheless, this education module, entitled, Cancer Among Elder Native Americans, authored by Linda Burhansstipanov, MSPH, DrPH, is one of four issued in accordance with the original vision for the Center.

As noted, this series addresses some of the most prevalent and impairing of illnesses, physical as well as mental, among older adults in general, and Native elders, specifically. The disease/disorders considered include diabetes, depression, cancer, and alcohol abuse/dependence. Each module, while focusing on a given health problem, emphasizes the social and cultural contexts that are inextricably linked to its cause, epidemiology, assessment, treatment, and prevention. As much as possible, case-oriented material is presented to ground the discussion in the Native elder life experience. The reader will find as well a conscious attempt to incorporate perspectives and information drawn from medicine, nursing, pharmacology, psychiatry/psychology, social work, nutrition, and medical anthropology.

This module and its counterparts are meant to augment, not replace systematic attention to the state-of-the-art in caring for Native elders suffering from such ailments. The reader is encouraged to use this document as a vehicle for updating prior knowledge, as a platform upon which to build new knowledge, and as a stimulus for more careful reflection on the social and cultural dynamics that likely affect the process of care. By its very nature, this module will soon be dated, for the health sciences advance rapidly in generating new, important insights into the cause, assessment, treatment, and ultimately prevention of the problems that plague humankind. Therefore, the reader is encouraged to visit periodically the Native Elder Health Care Resource Center's World Wide Web site (http://www.uchsc.edu/sm/nehcroc/). There, you will find references to bibliographic resources, exemplary programs, and substantive expertise possibly relevant to your particular interests in this area. You also will find discussion groups organized around current topics of mutual concern. We hope that this module, rather than being thought of as a summary statement that closes inquiry instead serves just the opposite function; that it prompts new conversations at the interface of health, culture, and aging, with special emphasis on Native elders.

Spero M. Manson, Ph.D.
Director
ACKNOWLEDGEMENTS

The author would like to extend special acknowledgments to the organizations and individuals who greatly assisted in the development of this educational module. Funding for this project was made possible by the Administration on Aging (AoA). Special thanks to the AoA staff, Dr. Yvonne Jackson, the Director of the Office for American Indians, Alaska Native and Native Hawaiian Programs, Ms. Fran Holland, Project Officer, and Mr. Reginald Newsome, Aging Program Specialist for their assistance.

In addition, I would like to thank Ms. Mary P. Lovato, Santo Domingo Pueblo, (Santo Domingo, NM) and Ms. Marion E. Morra, Morra Communications, for their contributions to this work. Finally, I would like to thank Dr. Spero Manson for his guidance and mentorship, and the staff of the Native Elder Health Care Resource Center (NEHCRC) for their assistance in preparing this module for publication.

Linda Burhansstipanov, MSPH, DrPH
AMC Native American Cancer Research Program
Objectives

Upon completion of this case-based module, the health care professional should be able to:


2. List risk factors for the more common types of cancer among elder American Indians and Alaska Natives.

3. Describe the role of traditional healing within the cancer diagnosis, treatment, and recovery processes.

4. Identify barriers which affect the diagnosis, treatment, and recovery from cancer in older Native American populations.

5. Define the National Cancer Institute (NCI) Clinical Diagnosis, Treatment, and Management Protocols of Selected Cancers in Older Native Americans.

Introduction

Demographics of American Indians

"American Indians" and "Alaska Natives" (i.e., all tribes and clans of peoples who are indigenous to the continental U.S.) represent the smallest identified racial group in the United States. Approximately 1.9 million people (0.8 percent of the U.S. population) were self-identified as American Indians and Alaska Natives on the 1990 U.S. Census (Department of Commerce, 1992a). This "smallest racial group" should be placed in perspective, however -- although more than 700 tribes of American Indians originally inhabited this land, at least 200 tribes have become extinct. In 1988 the Bureau of Indian Affairs Federal Register recognized approximately 500 tribes of Native People in the United States.

There are 314 federal reservations and trust lands, 217 Alaska Native village statistical areas, 12 Alaska Native regional corporations, and 17 tribal jurisdiction statistical areas (previously referred to as the "historic areas of Oklahoma, excluding urbanized areas") (Department of Commerce, 1993). Contrary to popular opinion, the 1990 Census indicates that only 19.8 percent of all American Indians live on federal reservations and approximately 2% of the population reside in urban areas. In 1990, nearly one-half of the American Indian population lived in the West, 29 percent in the South, 17 percent in the Midwest, and 6 percent in the Northeast (Department of Commerce, 1993). American
Indian people reside in every state. According to the 1990 Census, the states which have over 50,000 self-identified American Indians include the following: Oklahoma (252,420), California (242,164), Arizona (203,527), New Mexico (134,355), Alaska (85,698), Washington (81,483), North Carolina (80,155), Texas (65,877), New York (62,651), Michigan (55,638), and South Dakota (50,575) (Department of Commerce, 1992b). Currently, the ten largest American Indian tribes are Cherokee (303,132), Navajo (219,198), Chippewa (103,826), Sioux (103,255), Choctaw (82,299), Pueblo (52,939), Apache (50,051), Iroquois (49,038), Lumbee (48,444), and Creek (43,550).

The median age of the American Indian population is 26 years (U.S. median age is 33 years) (Department of Commerce, 1993). In 1986-1988, the life expectancy at birth for nine of the Indian Health Service (IHS) areas (including Alaska) was 70.1 years, which is 4.9 years less than the 1987 estimate of 75.0 for “U.S. All Races” population (Department of Health and Human Services, IHS, 1992). Only 5.6 percent of people who are self-identified as American Indians and Alaska Natives in the 1990 Census are older than 65 years of age. Approximately 14 percent of White Americans are over 65 years of age (Department of Commerce, 1992a). One third of all American Indians and Alaska Natives die before the age of 45 primarily due to causes directly or indirectly related to alcohol and drug abuse.

In 1989, twice as many American Indians and Alaska Natives (30.9 percent) as the total U.S. population (13.1 percent) lived at or below the poverty level. The percent of Whites living at or below poverty level in 1989 was 9.8 percent. The median family income in 1989 for indigenous peoples was $20,025. The White median family income was $31,435 in 1989 (Department of Commerce, 1992b). Similar to other Native American groups, the socioeconomic conditions of Alaska Natives are poor. In 1980, approximately one-fourth of Alaska Native families lived below the poverty level.

According to the 1990 Census, 62.1 percent of indigenous peoples 16 years and older are in the labor force, of which 10.3 percent are in the armed forces and 14.4 percent are unemployed. Unemployment for Whites was 5.2 percent (Department of Commerce, 1992b). Unemployment rates among Indians living on reservations were higher than for Indians living in urban areas. A large proportion of American Indians have left reservations to get jobs that pay enough to support families.

The 1990 Census indicates that, 65.5 percent of all American Indians and Alaska Natives age 25 and over completed at least four years of high school and 9.3 percent possess a bachelor degree or higher. In comparison, 77.9 percent of Whites completed high school or higher and 21.5 percent have a bachelor degree or higher (Department of Commerce, 1992b). Approximately 85 percent of Indian youth attend public schools, 10 percent attend Bureau of Indian Affair (BIA) schools, and 5 percent attend private schools.
Cancer and Native American Resources
There are growing resources available for examination by the reader on both cancer and Native Americans. The following table lists some of the more common ones which provide updated and accurate information.

General Resources about Health, Health Care and Native Peoples

- **The IHS Provider.** This is a monthly newsletter which includes current health and provider issues for people working in Indian country. To be included on the mailing list for this newsletter, contact Wilma Morgan, IHS Clinic Support Center, 1616 East Indian School Road, suite 375, Phoenix, AZ 85016 (602/640-2140).

- **Trends in Indian Health -- 1996.** This publication is updated annually by IHS and includes a summary (chart and table format) of health service utilization data, population statistics, mortality data and so on. To obtain a copy, contact Patricia DeAsis, Office of Communications, Indian Health Service, 5600 Fishers Lane, Parklawn Building--room 6-35, Rockville, Maryland 20857 (301/443-3593).

- **Regional Differences in Indian Health -- 1996.** This publication is updated annually by IHS and is a companion document to *Trends in Indian Health*. It includes the same organizational structure as the *Trends* document, but presents the data by IHS Service Areas (e.g., Bemidji, Aberdeen, and so on). To obtain a copy, contact Patricia DeAsis (see previous bullet).

- **We the First Americans.** This is an easy-to-understand document which highlights American Indian and Alaska Native 1990 Census data. To obtain a copy, contact the Racial Statistics Branch, Population Division, Bureau of the Census, Washington, DC 20233 (301/763-7662). More detailed Census data are available in *General Population Characteristics: American Indian and Alaska Native Areas 1990 CP-1-1A*, available for a fee from the Census Bureau.

- **American Indian and Alaska Native Mental Health Research: Journal of the National Center.** This peer-reviewed publication is produced three times each year for a subscription rate of $35. For further information, contact University Press of Colorado, P.O. Box 849, Niwot, CO 80544 (303-372-3235).

- **American Indian Culture and Research Journal.** This publication is produced four times each year by the American Indian Studies Center, UCLA, 3220 Campbell Hall, 405 Hilgard Avenue, LA, CA 90024-1548
Resources about Cancer and Native Americans

- **Native American Monograph No. 01: Documentation of the Cancer Research Needs of American Indians and Alaska Natives.** This is a 300-page overview of cancer among Native populations. Chapter 1, Introduction and Background, provides a brief overview of demographic and health issues. Chapter 2 summarizes limitations of national data bases for Native Peoples. To obtain a copy, call 1-800-4-CANCER and request NIH Publication Number 93-3603.

- **Cancer Mortality Among Native Americans in the United States: Regional Differences in Indian Health 1984-1988, and Trends Over Time, 1968-1987.** This 113 page book was disseminated January 1992 and is in the process of being updated. It is the most comprehensive presentation of Native American cancer mortality data and clearly illustrates regional and/or tribal variations among cancer sites. Part I highlights regional differences in Indian health by cancer mortality sites, as well as by IHS Area. Part II summarizes trends in cancer mortality in comparison with "U.S. All Races". This resource also provides an overview of the IHS program and structure. The book is free of charge and available by contacting Roberta Paisano, MPH, (505-837-4132).

- **Cancer in the Alaska Native Population.** This 150+ page publication was released December 1993 in limited quantities. The book summarizes 1969-88 cancer incidence data compiled by the Alaska Native Cancer Surveillance Project and emphasizes cancer patterns, cancer sites, distribution of cancer, and cancer among Native Peoples. Copies may be obtained by contacting Anne Lanier, MD, MPH, (907-257-1819).

- **Alaska Medicine.** This is a peer reviewed journal which highlights health and provider issues of people working with Alaska Natives, circumpolar populations and American Indians. This journal has included more articles each year on cancer in Native Americans than has any other peer reviewed publication. The subscription price is $30 per year and can be ordered by contacting Donald R. Rogers, M.D., Alaska State Medical Association, 4107 Laurel Street, Anchorage, AK 99508 (907-562-2662).
Cancer Information Resources

There are hundreds of books available on cancer and they cannot possibly be listed here. However, as the reader goes through this chapter, the listings below are commonly used references.

- **Choices.** The is a source book of cancer information which includes frequently asked questions of patients, easy-to-understand explanation of cancer diagnoses, treatment, and recovery. The authors update the information about every five years and it includes the most current cancer "science". The book is available from any general book store for a cost of $11-15. The reference information follows: Marion Morra Marion and Eve Potts. Choices. Avon Books, New York. 1994.

- American Cancer Society (ACS). The ACS has both educational pamphlets and videos, as well as detailed scientific text, such as Understanding Cancer by John Laszlo of ACS. The provider needs to be familiar with resources that will assist with one's own work, as well as resources which are of assistance to the cancer patient. The toll free number for cancer information available from the American Cancer Society is (1-800-ACS-2345), or (1-800-227-2345).

- National Cancer Institute (NCI). The NCI has an Office of Cancer Communication which produces materials specifically designed for the provider and others for the patient. Although the majority of NCI educational materials have been written at a literacy level that is too high for the general population, since 1992 they have taken proactive strategies to produce easy-to-understand cancer education materials, e.g., The Pap Test, or Get Relief from Cancer Pain. For information on NCI materials, the toll free number is (1-800-4-CANCER) or (1-800-422-6237).

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**Case Study Excerpt.** Raymond. When the doctor told me I had cancer, I didn’t hear anything else he said ... and he talked a long time. All I could think about were my children. Who would take care of them? Who would love them as much as me?

And, I was so afraid. I didn’t want to die and I was afraid of what they (medical doctors) were going to do to me. I remember thinking, “maybe they're lying and they are just trying to kill me.”

I guess the doctor finally realized that I wasn’t hearing him and he called my oldest daughter in the room to help me. I felt better when she came in. I knew I had to be strong for her and I knew that she would also be strong for me.
Note that there are booklets that have been collaborative efforts by both NCI and ACS which are excellent resources for both the cancer patient and the provider, such as *Questions and Answers about Pain Control: A Guide for People with Cancer and Their Families*.

Note that NCI produces a series of booklets specifically targeting the cancer patient which are excellent resources. Examples of titles from that series follow:

- *Chemotherapy and You: A Guide to Self-Help During Treatment*
- *Radiation Therapy and You: A Guide to Self-Help During Treatment*
- *Eating Hints for Cancer Patients*
- *Facing Forward: A Guide for Cancer Survivors*
- *Taking Time: Support for People with Cancer and the People who Care About them*

*Cancer Rates and Risks*. This is published by the NCI and includes a comprehensive overview of the most common cancer sites and rates (specific to males and females, Whites and Blacks), and provides a very clear explanation of risk factors (i.e., tobacco use, high fat diet) related to specific cancer sites (i.e., lung, breast). To obtain a copy, contact the Cancer Information Service and request NIH Pub. No.96-691. The complete reference follows:

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**Cancer Facsimile (Fax)**

The National Cancer Institute (NCI) has created “CancerFax,” a service enabling NCI to send current data on cancer treatment and other cancer-related information to anyone with access to a fax machine. CancerFax was originally developed to make state-of-the-art cancer treatment information from NCI’s comprehensive PDQ database more accessible to physicians, especially those who do not use computers in their clinical practice. The service has been expanded to allow access to fact sheets on various cancer topics, selected citations and abstracts from the medical literature, statements on certain investigational drugs, a News file, and general information on PDQ and other NCI products and services, including patient education publications. The PDQ treatment statements are available in both English and Spanish; of the other material accessible through CancerFax, selected items are available in Spanish.

To access CancerFax, call the computer (301-402-5874) from the telephone on a fax machine. After reaching CancerFax, a voice asks you to select either the English or the Spanish version. Then a voice tells you how to acquire the CancerFax Contents list of available information and the corresponding six-digit code numbers. At this point, you can obtain the CancerFax Contents list. CancerFax can be used 24 hours a day, 7 days a week. There is no charge for the service itself. Users pay only for the cost of the telephone call to the CancerFax computer in Bethesda, Maryland.

- **Racial/Ethnic Patterns of Cancer in the United States, 1988-1992.** This publication provides information on racial and ethnic differences in cancer experience. The American Indian incidence and survival data are limited to Native people living in Arizona and New Mexico only and it does not reflect tribal differences (i.e., Northern Plains tribal cancer rates differ greatly from Southwestern tribal cancer rates). The data are divided into various categories. For example, age specific racial data rather than only including age-adjusted rates. Such data have been requested by many tribal health centers to help determine the burden of cancer on elder Native Americans. This publication may also be requested through the Office of Cancer Communication or the Cancer Information Service by specifying the NIH publication number. The complete reference is, Miller, B.A., Kolonel, L.N. Bernstein, L., Young, Jr. J.L., Swanson, G.M., West, D., Key, C.R., Liff, J.M., Glover, C.S., Alexander, G.A., et al. (eds). Racial/Ethnic Patterns of Cancer in the United States 1988-1992, National Cancer Institute. NIH Pub. No. 96-4104. Bethesda, MD, 1996.

- Specific cancer sites, such as breast cancer also have foundations which provide toll free numbers for cancer information, resources, and support programs. For example,
  - The National Susan G. Komen Breast Cancer Foundation has a toll free number of (1-800-IM-AWARE).
  - The National Alliance of Breast Cancer Organizations (NABCO) at 212-719-0154 or through the Internet at http://www.pmedia.com/avon.html
  - Y-Me for breast cancer hotline counseling, information and/or screening availability at (1-800-221-2141).

- The Internet now provides a comprehensive access to cancer information. Both ACS and NCI offer information on the World Wide Web. Through your Internet server, type in “cancer”, or the URL name is “http://www.cic.nci.nih.gov”.

**Cancer Background**

Cancer is a term which actually describes over 100 different diseases. All of these diseases have some type of uncontrolled cell growth, or perhaps an inability for the cells to die when they normally should. Cancer is primarily a disease of older people. Although some types of cancer (e.g., childhood leukemia, cervical, testicular) occur in young people, the majority of cancers appear in people who are older (over 45).
Table 1. Types of Cancers
(Printed with permission. Morra & Potts, CHOICES, Avon Books, 1994, p.45)

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<tr>
<th>TYPE</th>
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<tr>
<td>Carcinoma</td>
<td>Originates from tissues that cover a surface or line a cavity of the body. This is the most common type of cancer.</td>
</tr>
<tr>
<td>Sarcoma</td>
<td>Originates from tissues which connect, support or surround other tissues and organs. Can be either soft tissue or bone sarcomas.</td>
</tr>
<tr>
<td>Myeloma</td>
<td>Originates in the bone marrow in the blood cells that manufacture antibodies.</td>
</tr>
<tr>
<td>Lymphoma</td>
<td>Originates in lymph system—the circulatory network of vessels, spaces, and nodes carrying lymph, the almost colorless fluid that bathes the body's cells.</td>
</tr>
<tr>
<td>Leukemia</td>
<td>Involves the blood-forming tissues and blood cells.</td>
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At the turn of the century, cancer was so rare among Native peoples that textbooks refer to American Indians as having a natural immunity to cancer (Hrdlicka, 1905; Levin, 1910). In reality, this was not so. Skeletal remains found in archaeological investigations of Indian burial grounds in Alaska and New York suggested that cancer was not a common disease among these people (Ritchie & Warren, 1932).

Cancer was rarely documented in American Indians at the turn of the century because the life expectancy of Natives was so short that cancer typically did not have "time" to develop. Another reason for the lack of documentation was that health record keeping on Native peoples was very inconsistent and incomplete. However, Native American ancestors experienced cancer when they had longer life expectancy as is evidenced in bone remains.

Cancer is increasing among Native peoples today for a variety of reasons. Among the more important are that the life expectancy of Native Americans today is 71 years of age, which is ample time for cancer to develop. American Indian and Alaska Native elders reported that cancer was not a common disease among their people when they were children. However, in the past twenty years, nearly every American Indian and Alaska Native community has experienced suffering and death from this dreaded disease among their family members (Lanier et al, 1993; Hampton, 1989; Burhansstipanov et al, 1996b). Other significant factors which are responsible for the rapidly increasing epidemic of cancer among older Native Americans is the cessation of traditional Native American lifestyles that were known to help prevent cancer (e.g., exercising, consuming several servings of fruits and vegetables daily, reserving tobacco for ceremonial use rather than habitual use).
Raymond was instructed to "clean out his colon" prior to coming in to UCLA outpatient for the examination (e.g., laxatives, no food after 6:00 pm, drink one gallon of water). A local anesthetic was used during the procedure, which means that Raymond was awake but not in pain. A colonoscope was used to examine the entire colon, from the cecum to the anus. Two biopsies were taken from the colon. One of the biopsies was positive (cancerous). The cancer was determined to be "Dukes B" using the Dukes staging system (or "Stage II" using the American Joint Committee on Cancer and the International Union Against Cancer). This stage of cancer at diagnosis means that the tumor penetrates to nearby tissue, but has not gone into lymph nodes. The recommended treatment at the time of diagnosis for this stage was the removal of the cancer as well as a section of the bowel, followed by chemotherapy and radiation treatments.

Prior to agreeing to this surgery, Raymond called relatives who lived in the Los Angeles area and asked for their help. Through his family's assistance he sought medical opinions of two other providers from the Los Angeles area. Both agreed with the diagnosis and the treatment. Raymond's oldest daughter took a bus and traveled to Los Angeles to be with her father during this traumatic ordeal. Raymond refused to go through surgery without having talked with a traditional Indian healer. However, he didn't trust the healers from L.A. ("too many self-named Hollywood Shamans") and he and his daughter returned home to work with their family's traditional healer. After working with the healer on a variety of treatments, ceremonies, and prayers, the healer agreed that Raymond should also have the surgery. The daughter and the healer accompanied Raymond to Los Angeles for the surgery.

The medical provider was rather taken aback by the "participation" of the traditional healer in the treatment process, but after a few days recognized the strength and benefits of having the healer present. The hospital prohibited the burning of cedar in Raymond's room for fear of affecting other oncology patients, especially lung and esophageal clients. The healer developed alternative ways to administer cleansing ceremonies personally to Raymond and to his room.

The tumor and surrounding tissue had specimens removed for laboratory analysis and then were wrapped and prepared for the healer to take them back to the home reservation. Later, when home, he performed a ceremony with Raymond's family, blessed and buried the tissue. Chemotherapy and radiation were recommended following surgery.
Case Study: Martha
West Coast Tribe, breast cancer survivor

Martha is a young widow, 56 years of age. Her annual income is about $10,000 and she does not have any insurance or health benefits. The IHS has two clinics that are within a 70 mile drive from her home, one on her reservation and one on a nearby neighboring reservation. She currently works in a village on her reservation. She has lived on and off the reservation and in the urban area for the last 30 years. She has four children, all grown and living on their own. No one in her family has ever had cancer. She is a cigarette smoker and is about 40 pounds overweight. She does not exercise and is a monthly recipient of USDA commodity foods from the tribe. Those commodities include very high fat foods (e.g., cheese, Spam) and an average total of 5 servings of fruits or vegetables per week (NCI dietary guidelines for the prevention of many types of cancers is to consume 5 servings of fruits and vegetables per day).

Martha discovered lumps in her left breast while showering. Later she was diagnosed with breast cancer and underwent a bilateral radical mastectomy and chemotherapy. No one in her family was with her for the surgery, nor the follow-up. Her mother was not told that she had cancer, nor that she had been treated until several months later. Her mother was very supportive once Martha shared her diagnosis and treatment experiences with her.

After Martha recovered, she wanted to talk with other Indian women who had gone through similar experiences. When she returned to the IHS clinic in the North, she found the doctor who had told her that Indians don’t get cancer and told him he was wrong. She wanted to know the names of other Indians who had been diagnosed with cancer. He said that there weren’t any—she was the only one. She didn’t believe him. She drove to different neighborhoods on the reservation and knocked on people’s doors and asked if they knew anyone who had had cancer. Within a few weeks she had found 5 other women. She returned to her reservation’s IHS clinic and requested that they provide her with office space so that she could organize cancer support groups. They cleaned out a closet and put in a desk and a chair. Then she demanded a telephone. They complied. Through her efforts, she developed and implemented cancer prevention and support groups for Indian people from her reservation as well as for nearby reservations. She worked with traditional healers and Western medical doctors, provided presentations at numerous gatherings to educate the tribe about cancer and one’s ability to survive a cancer diagnosis.
Case Study: Ted
South Central Tribe, lung cancer survivor

Ted is a 60 year-old member of the board of directors for an urban Indian clinic in the city. He is a Korean War veteran and participates in intertribal Pow Wows and cultural events. He is a traditional dancer and is fluent in his Native language. He attended BIA boarding school for 6 years. Ted began smoking cigarettes when he was 12 years of age. He has been slightly overweight by about 15 pounds for the last 20 years and consumes a high fat diet (e.g., fry bread twice a week, a lot of beef and cheese).

Ted has had “smoker’s cough” for years, but when he talked with other elders about it, they assured him that “Indians don’t get lung diseases because the Creator gave tobacco as a sacrament to the tribes. We are protected.” When Ted finally decided to talk with a healer about the cough, the natural treatments produced little relief, the healer suggested that he talk with a Western medicine provider as well. Ted did so. The Western medical doctor took x-rays and found clearly visible tumors. The doctor wanted to have surgery to do a biopsy and probably remove one lung and possibly part of the other lung as well.

Ted was told that if the doctor needed to remove the tumor or the lung, that he would need to undergo radiation, surgery and chemotherapy. He spoke with both the Western medicine doctor and the traditional healer, the healer regarding the prognosis even though it is difficult to determine staging information without a biopsy.

Ted decided smoking cigarettes may not have been respectful of the sacrament given by the Creator and his habitual use was abusing the sacrament and that is why the Creator gave him cancer, to punish him. After multiple consultations with both the Western medicine doctor and the traditional healer, Ted decided that he did not want to participate in surgery and that he wanted to prepare to die. While he was preparing he also wanted to serve the Creator and his community for as long as he was healthy enough to do so. Ted is currently participating in sweats, and other healing and praying opportunities. He continues to attend Pow Wows, but has the Head Dancer dance for him and his journey with this disease. He has lost about 30 pounds, is easily fatigued, experiences bronchial cough spasms throughout the day. He uses teas and pain preparations from the traditional healer and occasionally prescriptive pain medication from the Western medical doctor. He has made his peace with his family and friends and is ready to pass to the other side.
Cancer Rates Among American Indians and Alaska Natives

A Review of How to Interpret Statistical Data (Burhansstipanov & Dresser, 1994)

Sections are included in this chapter which review the interpretation of statistical data. There are a variety of statistics books available which provide depth and clarity for a comprehensive explanation. The reader is referred to Cancer Statistics Review: 1973­-1989 (1992) for a clear description of how the NCI SEER program calculates rates (Miller et al, 1992). Colton’s Statistics in Medicine (1974) is another good source as are many other medical epidemiology texts (Colton, 1974).

Adjusted Rates per 100,000 Population

When data are collected from different areas or from different periods of time, the populations may also differ substantially. The crude annual death rate is the simplest of the mortality rates and is defined as the total deaths during the year, divided by the total midyear population. To avoid many decimal places, it is customary to multiply death rates by 100,000 and express the results as death per 100,000 population (Colton, 1974).

It is difficult to compare crude rates among different populations, regions, and tribes because basic characteristics of the populations may also differ substantially, particularly with regard to age. Rates are adjusted to allow for comparisons, such as among racial groups or between sexes. Rates are adjusted through either the direct or indirect method (Colton, 1974).

The data presented in this chapter include age-adjusted rates by the direct method. The purpose in calculating an "age-adjusted rate" is to remove the effect of the age differential so a meaningful comparison of cancer morbidity and mortality between populations is possible. For example, if the indigenous population of the northeast were much older than the indigenous population of the southeast, crude (unadjusted) cancer rates among Northeastern tribes would indicate a more serious cancer problem than in the southeast since cancer is primarily a disease of older people. However, age-adjusted rates allow for the comparison of cancer morbidity or mortality data between Northeastern and Southeastern tribes as though the age distributions were comparable.

The "age-adjusted rate" calculation requires that the data of interest, such as the 1983-1987 lung cancer mortality crude rates, be compared with a standard population. Most national databases use 1970 U.S. population as the standard. The 1970 U.S. population is used as a standard set of the proportion of males and females in each age group. This
population is used in the "direct" method as the denominator in calculating rates (very much like a common denominator). As long as each database uses the same group as the standard, e.g., 1970 population, those databases may be compared. This comparison is not possible if one database used the 1940 population as a standard and another database used the 1970 population as a standard. This does not mean that the rates generated in statistical tables are for 1970. The phrase "1970 U.S. Standard" apprises the reader of which population was used as the "standard" in the age-adjusted calculation.

How to Interpret Incidence or Mortality Data from Statistical Tables (Burhansstipanov & Dresser, 1994)

Sample Table Excerpt from Annual Age-adjusted (1970 U.S. Standard) Cancer Incidence Rates per 100,000 Population, New Mexico only, 1977-1983.

<table>
<thead>
<tr>
<th></th>
<th>BOTH SEXES</th>
<th>MALE</th>
<th>FEMALE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. ¹</td>
<td>Rate²</td>
<td>No. ¹</td>
</tr>
<tr>
<td>Stomach</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian</td>
<td>164</td>
<td>17.6</td>
<td>97</td>
</tr>
<tr>
<td>White</td>
<td>310</td>
<td>8.9</td>
<td>187</td>
</tr>
<tr>
<td>Gallbladder</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian</td>
<td>99</td>
<td>10.9</td>
<td>27</td>
</tr>
<tr>
<td>White</td>
<td>52</td>
<td>1.3</td>
<td>16</td>
</tr>
<tr>
<td>Cervix uteri</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian</td>
<td>120</td>
<td>10.2</td>
<td>---</td>
</tr>
<tr>
<td>White</td>
<td>248</td>
<td>4.3</td>
<td>---</td>
</tr>
</tbody>
</table>

¹ (Harm & Burhansstipanov, 1992)
² (Department of Health and Human Services, 1992)

The number ("No.") is the actual number of diagnosed cases of cancer. The rate is the number of cancer diagnoses per 100,000 people of that population which occurred during one year. Using the data in this chart, one can compare the incidence rates of American Indians and Whites for each cancer site. For example, review the stomach cancer incidence data for "both sexes". It is apparent that Whites have a higher number of stomach cancer cases (n=310) than American Indians (n=164), but this is to be expected because of the difference in the numbers of people at risk. However, the rate is indicative of the risk of developing a case of stomach cancer. The White rate for both sexes is 8.9 as compared to the American Indian rate of 17.6 (i.e., for American Indians and Alaska Natives, more cancer cases occurred among fewer people than for Whites). This means that American Indians are about 1.9 times (17.6÷8.9 = 1.9) more likely to develop stomach cancer than are Whites.
As a second example, review the data for gallbladder cancer incidence. American Indians have higher numbers and rates for cancer. Once again the "rate" information is more useful. The rate of developing a case of gallbladder cancer (both sexes) among American Indians is 10.9 as compared to only 1.3 for Whites. Gallbladder cancer is 8.38 times \((10.9 \div 1.3 = 8.38)\) more likely to occur in American Indians than in Whites. As the rates for each sex are examined, it becomes clear that females are at greater risk than are males, regardless of race. For example, American Indian males have a rate of 6.4 as compared to 14.7 for Native females which means that American Indian females are 2.29 \((14.7 \div 6.4 = 2.29)\) times more likely to develop gallbladder cancer than are American Indian males. A similar, but much less striking difference exists among Whites, with White females being 1.7 times more likely to develop gallbladder cancer than are White males.

As a third example, review the data for cervical cancer under the "female" column. American Indian women have 2.3 times \((20.5 \div 8.6 = 2.3)\) the incidence of cervical cancer as compared to White females. Please note that even though cervical cancer only exists in females, rates for "both sexes" is typically included in tables. Obviously the sex-specific data are more accurate than data for both sexes where sex-specific diseases are concerned, e.g., male data for prostate cancer and female data for ovarian cancer.

**Previous Studies Identify Lower Cancer Incidence among Natives than among non-Native Populations**

American Indians in the SEER database were shown to have a lower cancer incidence than "U.S. All Races" (Lanier et al, 1993; Lanier et al, 1989; Miller et al 1992; Horner, 1990; Mao et al, 1986; Creagan & Fraumeni, 1972; Burhansstipanov & Dresser, 1993). The American Indian populations included within that database are primarily comprised of Native peoples living in Arizona and New Mexico. When compared with other racial groups, the incidence of cancer among American Indians living in Arizona and New Mexico is low. The incidence for "all cancer sites combined" for both sexes is less than one-half that of Whites, i.e., 157.3 per 100,000 person years, compared to the White rate of 359.2.

Previous studies have typically identified lower cancer incidence among American Indians than among Whites. Such studies include Gaudette’s research within the Northwest Territories (Gaudette et al, 1993) and Young’s studies in Manitoba (Young & Choi, 1985) and Ontario, Canada (Young & Frank, 1983). It is not known what types of data problems these researchers encountered or the accuracy of their racial classification system. Mahoney’s work with the Seneca in New York (Mahoney et al, 1989) has been accepted by the Tribal Council as racially accurate. Those data indicate lower cancer rates among the Seneca than among other communities in the New York area. Nutting conducted an Indian Health Service-wide review of cancer incidence among American Indians and Alaska Natives (1980 through 1987), (Nutting et al, 1993). This study was known to have data errors, but was the “best data” available at the time. Based upon those data, American Indians and Alaska Natives have lower cancer incidence than do Whites.
Most research conducted in Arizona and New Mexico consistently indicates lower cancer incidence and those databases in general are accepted as accurately classifying race and ethnicity. These studies include Edison's work in New Mexico (Edison et al, 1994) Nutting's review of screening policies among a Southwestern American Indian community (Nutting et al, 1994), Sorem's research in the Southwest among the Zuni (Sorem, 1985), and Black's work with tri-ethnic populations in New Mexico (Black & Key, 1980). In addition, SEER data from the New Mexico Tumor Registry consistently includes cancer incidence for Native Americans as lower than other racial groups, such as Whites and Blacks (Miller et al, 1992).

Some Cancer Sites are more Common Among American Indians in AK, ND, SD, and even in AZ and NM

According to the New Mexico SEER Tumor Registry (an accurate database with very few racial misclassification errors), American Indians living in New Mexico and Arizona have incidence rates for stomach, uterine cervix, primary liver, and gallbladder cancers that are higher than for the "U.S. All Races". American Indians have the highest gallbladder cancer incidence (10.9) of any racial group, such as Blacks, Whites, or Hispanics (Department of Health and Human Services, PHS, NIH, NCI, 1992).

Lanier's work in Alaska among the Eskimo, Athapaskan Indians, and Aleuts identifies elevated cancer rates (Lanier et al, 1989). Lanier is recognized by both Native and non-natives to accurately collect and record data and findings. Her work is of high quality, consistent and typically has few racial misclassifications or ICD coding errors. Data from the Alaska Native Tumor Registry indicates that Alaska Natives have excessive cancer incidence of cervix uteri, colorectal, gallbladder, kidney, oral cavity and pharynx. An asterisk in Table 1 below indicates the highest incidence of any racial group, such as African American, White, and so on.

Likewise, Welty's work also indicates a higher than "US All Races" rate for lung cancer in the Northern Plains American Indian Nations (Welty et al, 1993). The data within the northern plains states (e.g., South Dakota) are considered to have few racial misclassification errors and subsequently, Welty's work is regarded as accurately reflecting the cancer problem. (Burhansstipanov et al, 1996b)

Age-adjusted Cancer Incidence for American Indians and Alaska Natives

In general the most common types of cancer to occur among American Indian and Alaska Native peoples include colon/rectum, lung/bronchus, breast, prostate, gland, cervix uteri, oral cavity/pharynx, stomach, kidney, renal pelvis and gallbladder. Comparisons with other races, are summarized in Table 2.

<table>
<thead>
<tr>
<th>Cancer Incidence Site</th>
<th>AK Nat.</th>
<th>AK Nat.</th>
<th>Am Ind. (AZ &amp; NM only)</th>
<th>SEER White</th>
<th>SEER White</th>
<th>SEER Afr. Am.</th>
<th>SEER Afr. Am.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breast(^a)</td>
<td>44.2</td>
<td>Unk</td>
<td>21.7</td>
<td>Unk</td>
<td>93.3</td>
<td>Unk</td>
<td>74.9</td>
</tr>
<tr>
<td>Cervix uteri</td>
<td>*28.0</td>
<td>NA</td>
<td>20.5</td>
<td>NA</td>
<td>8.6</td>
<td>NA</td>
<td>19.5</td>
</tr>
<tr>
<td>Colorectal</td>
<td>*65.2</td>
<td>61.0</td>
<td>10</td>
<td>10.6</td>
<td>44.9</td>
<td>64.5</td>
<td>45.9</td>
</tr>
<tr>
<td>Gallbladder</td>
<td>*14.7</td>
<td>*6.7</td>
<td>*14.7</td>
<td>6.4</td>
<td>1.6</td>
<td>0.9</td>
<td>1.2</td>
</tr>
<tr>
<td>Kidney</td>
<td>*11.0</td>
<td>*11.4</td>
<td>7.3</td>
<td>8.1</td>
<td>4.5</td>
<td>10.7</td>
<td>4.5</td>
</tr>
<tr>
<td>Oral cavity and pharynx</td>
<td>*15.7</td>
<td>17.2</td>
<td>1.3</td>
<td>3.0</td>
<td>7.1</td>
<td>17.6</td>
<td>7.6</td>
</tr>
<tr>
<td>Pancreas</td>
<td>9.6</td>
<td>10.1</td>
<td>4.5</td>
<td>7.1</td>
<td>7.9</td>
<td>11.6</td>
<td>*11.4</td>
</tr>
<tr>
<td>Prostate</td>
<td>NA</td>
<td>34.5</td>
<td>NA</td>
<td>37.6</td>
<td>NA</td>
<td>73.6</td>
<td>NA</td>
</tr>
<tr>
<td>Stomach(^b)</td>
<td>8.4</td>
<td>22.4</td>
<td>13.8</td>
<td>22.3</td>
<td>5.8</td>
<td>13.3</td>
<td>8.6</td>
</tr>
<tr>
<td>Liver(^c)</td>
<td>2</td>
<td>10.8</td>
<td>1.1</td>
<td>4.1</td>
<td>1.2</td>
<td>3.1</td>
<td>1.9</td>
</tr>
</tbody>
</table>

\(^a\) the racial group with the highest breast cancer incidence is Native Hawaiians (108.5)

\(^b\) the racial group with the highest stomach cancer incidence for females is Native Hawaiians (28.8)
and for males is Japanese (41.3)

\(^c\) the racial group with the highest liver cancer incidence is Chinese (females=3.9; males=20.8)

SOURCE: Department of Health and Human Services, PHS, NIH, NCI, 1992
(Burhansstipanov et al, 1996b)

Variable Incidence among First Nations peoples
The American Indian data from the New Mexico Tumor Registry provide an excellent overview of cancer incidence for indigenous peoples living in Arizona and New Mexico. However, according to NCI supported research projects implemented by the Indian Health Service (IHS), cancer incidence among different IHS Areas varied significantly for specific cancer sites. A brief review of these data clearly illustrates the variability of cancer incidence among IHS Areas. Examples of IHS age-adjusted incidence data (age adjusted to 1970 U.S. Population) from 1982-1987 follow (Nutting et al, 1993).

Breast Cancer Incidence Rates
Table 2 provides a summary of breast cancer data. However, the incidence varies greatly by tribe. The age-adjusted (1970 Standard) Breast Cancer (ICD Codes 174.0-
174.9) incidence per 100,000 female population and 95% C.I. for each of the selected seven Nations for whom data bases have fewer racial misclassification errors than other Native communities included here.

<table>
<thead>
<tr>
<th></th>
<th>ALEUT</th>
<th>APACHE</th>
<th>ATHA-</th>
<th>ESKIMO</th>
<th>NAVAJO</th>
<th>SIOUX</th>
<th>TOHONO</th>
<th>O'ODHAM/</th>
<th>PIMA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n=3,834</td>
<td>n=12,781</td>
<td>n=17,252</td>
<td>n=89,815</td>
<td>n=27,348</td>
<td></td>
<td></td>
<td>n=14,360</td>
<td></td>
</tr>
<tr>
<td>♀</td>
<td></td>
<td></td>
<td>♀</td>
<td>♀</td>
<td>♀</td>
<td>♀</td>
<td>♀</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40.1</td>
<td>26.2</td>
<td>106.1</td>
<td>50.7</td>
<td>28.7</td>
<td>57.9</td>
<td></td>
<td></td>
<td>18.5</td>
<td></td>
</tr>
<tr>
<td>(0.0-81.4)</td>
<td>(9.7-42.8)</td>
<td>(48.3-163.9)</td>
<td>(30.4-70.9)</td>
<td>(21.8-35.6)</td>
<td>(40.0-75.7)</td>
<td></td>
<td></td>
<td>(5.7-31.3)</td>
<td></td>
</tr>
</tbody>
</table>

SOURCE: Nutting et al, 1993
Table 3. Female Age-adjusted Cancer Incidence per 100,000 population (1970 U.S. pop.) and 95% C.I. for Each of the Nine Major Tribal Groups.

<table>
<thead>
<tr>
<th>CANCER SITES (ICD-9 CODE)</th>
<th>ALEUT n = 3,834</th>
<th>APACHE n = 12,781</th>
<th>ATAPASKAN n = 4,474</th>
<th>EASTERN CHEROKEE n = 3,613</th>
<th>ESKIMO n = 17,252</th>
<th>NAVAJO n = 89,815</th>
<th>OKLAHOMA CHEROKEE n = 40,795</th>
<th>SIOUX n = 27,348</th>
<th>TOHONO O'ODHAM/PIMA n = 14,360</th>
<th>SEER WHITES</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOMACH (151.0-150.9)</td>
<td>6.9</td>
<td>7.9</td>
<td>7.3</td>
<td>7.4</td>
<td>12.2</td>
<td>10.9</td>
<td>2.5</td>
<td>11.3</td>
<td>10.9</td>
<td>4.7</td>
</tr>
<tr>
<td>(0.0-20.5)</td>
<td>(0.0-17.0)</td>
<td>(0.0-21.5)</td>
<td>(0.0-21.8)</td>
<td>(0.7-23.7)</td>
<td>(6.5-15.4)</td>
<td>(0.1-5.0)</td>
<td>(2.9-19.7)</td>
<td>(0.0-22.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COLORECTAL (153.0-154.1,159.0)</td>
<td>89.9</td>
<td>13.0</td>
<td>96.2</td>
<td>26.7</td>
<td>115.1</td>
<td>10.7</td>
<td>26.1</td>
<td>19.4</td>
<td>9.4</td>
<td>43.5</td>
</tr>
<tr>
<td>(26.9-152.9)</td>
<td>(1.1-20.5)</td>
<td>(31.9-160.6)</td>
<td>(0.0-53.7)</td>
<td>(80.9-151.3)</td>
<td>(8.4-15.0)</td>
<td>(18.0-34.2)</td>
<td>(8.7-30.2)</td>
<td>(0.0-20.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GALLBLADDER (156.0)</td>
<td>0.0</td>
<td>20.5</td>
<td>0</td>
<td>10.7</td>
<td>27.6</td>
<td>10.8</td>
<td>2.6</td>
<td>5.9</td>
<td>33.4</td>
<td>1.4</td>
</tr>
<tr>
<td>(5.0-35.9)</td>
<td>(5.0-35.9)</td>
<td>(0.0-31.8)</td>
<td>(10.2-44.9)</td>
<td>(6.3-16.4)</td>
<td>(0.1-5.1)</td>
<td>(0.1-11.7)</td>
<td>(4.5-22.3)</td>
<td>(0.0-10.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PANCREAS (157.0-157.9)</td>
<td>36.4</td>
<td>3.9</td>
<td>34.0</td>
<td>7.4</td>
<td>2.4</td>
<td>7.4</td>
<td>2.6</td>
<td>13.4</td>
<td>3.4</td>
<td>8.0</td>
</tr>
<tr>
<td>(0.3-72.5)</td>
<td>(0.0-11.4)</td>
<td>(0.0-73.6)</td>
<td>(0.0-21.8)</td>
<td>(3.6-11.2)</td>
<td>(0.1-5.2)</td>
<td>(0.1-11.7)</td>
<td>(4.5-22.3)</td>
<td>(0.0-10.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUNG (162.2-162.9)</td>
<td>101.7</td>
<td>8.3</td>
<td>111.3</td>
<td>36.2</td>
<td>53.2</td>
<td>4.6</td>
<td>16.4</td>
<td>34.1</td>
<td>17.9</td>
<td>36.3</td>
</tr>
<tr>
<td>(37.2-166.3)</td>
<td>(0.0-17.7)</td>
<td>(50.1-172.4)</td>
<td>(0.4-69.9)</td>
<td>(30.5-75.9)</td>
<td>(1.6-7.6)</td>
<td>(10.0-22.9)</td>
<td>(20.0-48.1)</td>
<td>(3.5-32.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BREAST (174.0-174.9)</td>
<td>40.1</td>
<td>26.2</td>
<td>106.1</td>
<td>43.9</td>
<td>50.7</td>
<td>28.7</td>
<td>37.7</td>
<td>57.9</td>
<td>18.5</td>
<td>106.0</td>
</tr>
<tr>
<td>(0.0-61.4)</td>
<td>(9.7-42.8)</td>
<td>(8.3-163.9)</td>
<td>(30.4-109.7)</td>
<td>(21.8-35.6)</td>
<td>(28.0-47.4)</td>
<td>(40.0-75.7)</td>
<td>(5.7-21.3)</td>
<td>(5.7-21.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CERVIX (180.0-180.8)</td>
<td>29.7</td>
<td>31.8</td>
<td>39.4</td>
<td>24.4</td>
<td>33.1</td>
<td>26.3</td>
<td>10.7</td>
<td>29.2</td>
<td>41.7</td>
<td>7.8</td>
</tr>
<tr>
<td>(0.0-61.9)</td>
<td>(14.1-49.5)</td>
<td>(4.1-74.8)</td>
<td>(0.0-52.0)</td>
<td>(17.9-48.3)</td>
<td>(19.7-32.8)</td>
<td>(5.7-16.7)</td>
<td>(17.7-40.6)</td>
<td>(21.6-52.0)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4. Male Age-adjusted Cancer Incidence per 100,000 population (1970 U.S. pop.) and 95% C.I. for Each of the Nine Major Tribal Groups.

<table>
<thead>
<tr>
<th>CANCER SITES (ICD-9 CODE)</th>
<th>ALEUT n = 3,953</th>
<th>APACHE n = 12,134</th>
<th>ATAPASKAN n = 4,812</th>
<th>EASTERN CHEROKEE n = 3,611</th>
<th>ESKIMO n = 17,789</th>
<th>NAVAJO n = 84,502</th>
<th>OKLAHOMA CHEROKEE n = 37,130</th>
<th>SIOUX n = 26,144</th>
<th>TOHONO O'ODHAM/PIMA n = 13,692</th>
<th>SEER WHITES</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOMACH (151.0-150.9)</td>
<td>37.4</td>
<td>13.4</td>
<td>15.3</td>
<td>9.7</td>
<td>28.9</td>
<td>10.8</td>
<td>5.6</td>
<td>11.3</td>
<td>12.2</td>
<td>10.7</td>
</tr>
<tr>
<td>(4.1-70.7)</td>
<td>(1.3-25.8)</td>
<td>(0.0-37.0)</td>
<td>(0.0-28.6)</td>
<td>(13.9-43.9)</td>
<td>(6.5-15.1)</td>
<td>(1.7-9.5)</td>
<td>(3.3-19.2)</td>
<td>(1.1-23.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COLORECTAL (153.0-154.1,159.0)</td>
<td>114.8</td>
<td>9.3</td>
<td>40.4</td>
<td>33.5</td>
<td>63.2</td>
<td>9.3</td>
<td>12.2</td>
<td>24.7</td>
<td>1.3</td>
<td>61.7</td>
</tr>
<tr>
<td>(47.3-182.3)</td>
<td>(0.0-19.9)</td>
<td>(4.8-76.9)</td>
<td>(0.6-66.6)</td>
<td>(32.7-73.7)</td>
<td>(5.3-13.3)</td>
<td>(6.4-18.0)</td>
<td>(12.6-36.8)</td>
<td>(0.0-3.8)</td>
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<td></td>
</tr>
<tr>
<td>GALLBLADDER (156.0)</td>
<td>0.0</td>
<td>0.0</td>
<td>9.2</td>
<td>0.0</td>
<td>3.8</td>
<td>0.0</td>
<td>6.2</td>
<td>0.0</td>
<td>0.0</td>
<td>0.8</td>
</tr>
<tr>
<td>(0.0-27.2)</td>
<td>(0.0-27.2)</td>
<td>(0.0-28.6)</td>
<td>(0.0-8.1)</td>
<td>(1.3-6.4)</td>
<td>(0.0-10.0)</td>
<td>(0.0-12.8)</td>
<td>(0.0-12.8)</td>
<td>(0.0-12.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PANCREAS (157.0-157.9)</td>
<td>16.4</td>
<td>3.3</td>
<td>20.7</td>
<td>9.7</td>
<td>15.7</td>
<td>7.9</td>
<td>5.0</td>
<td>6.2</td>
<td>0.0</td>
<td>10.8</td>
</tr>
<tr>
<td>(0.0-39.2)</td>
<td>(0.0-9.7)</td>
<td>(0.0-44.1)</td>
<td>(0.0-28.6)</td>
<td>(4.6-28.7)</td>
<td>(4.2-11.5)</td>
<td>(1.3-8.7)</td>
<td>(0.1-12.3)</td>
<td>(0.1-12.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUNG (162.2-162.9)</td>
<td>92.3</td>
<td>6.1</td>
<td>88.4</td>
<td>26.8</td>
<td>106.1</td>
<td>13.1</td>
<td>35.0</td>
<td>46.2</td>
<td>10.5</td>
<td>82.5</td>
</tr>
<tr>
<td>(34.7-149.8)</td>
<td>(0.0-14.6)</td>
<td>(36.3-140.5)</td>
<td>(0.0-57.2)</td>
<td>(77.3-348.4)</td>
<td>(8.4-17.9)</td>
<td>(25.4-44.8)</td>
<td>(29.7-62.7)</td>
<td>(0.2-20.9)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

19
<table>
<thead>
<tr>
<th>PROSTATE</th>
<th>47.3</th>
<th>3.3</th>
<th>91.8</th>
<th>74.8</th>
<th>19.4</th>
<th>26.5</th>
<th>26.5</th>
<th>32.5</th>
<th>29.7</th>
<th>88.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>(174.0-174.5)</td>
<td>(5.7-89.0)</td>
<td>(0.0-9.7)</td>
<td>(37.6-146.0)</td>
<td>(23.1-126.4)</td>
<td>(6.7-32.1)</td>
<td>(15.9-33.1)</td>
<td>(18.1-35.0)</td>
<td>(18.6-46.6)</td>
<td>(12.1-47.4)</td>
<td></td>
</tr>
</tbody>
</table>
Nutting, et al. (1993) summarized the more common cancer incidence sites for specific tribes. The tables from that particular work are included in Tables 3 and 4.

**Cervical Cancer Incidence**

It is obvious from Table 3 that the quality of the data are suspect, as per the large confidence intervals. These were the best data available. Cervical cancer incidence is high among all American Indian Nations when compared with other races. Alaska Native populations (Aleut, Athapaskan, and Eskimo) consistently have higher cervical cancer incidence than do other American Indian populations.

American Indian women do not appear to have a high prevalence of many of the risk factors which are commonly associated with cervical neoplasia among non-Native populations (Becker, et al., 1993). It is not known if genetics play a more significant role in cervical cancer within American Indian women as compared to non-Native women. Research is needed to improve understanding of the risk factors and the determinants of cervical cancer incidence among American Indians and Alaska Natives.

**Colorectal Cancer Incidence**
Alaska Natives living in the state of Alaska have the highest age-adjusted colon and rectum cancer incidence per 100,000 population for both sexes (Alaska, 1977-83) in comparison with all other racial groups, such as Blacks and Whites. Among the Alaska Native populations (Athapaskan, Aleut and Eskimo), unusual rates are noted both within the same subpopulation and between sexes. This unusual variability generates several questions regarding the risk factor behaviors of these men and women to result in such diverse incidence rates (Nutting, et. al., 1993). As is seen with all tribal incidence data, several of the confidence intervals are exceptionally large.

The Alaska Native rate is 62.6/100,000 and the White rate is 52.8/100,000. The American Indian (Arizona and New Mexico data) colon and rectum cancer incidence for both sexes is significantly lower (10.2/100,000) than the White rate. When tribal and IHS Area data are reviewed, the most striking data are for Alaska Natives. Alaska Native males have a colon and rectum cancer incidence of 61.0 which is similar to the White male rate of 64.5. Aleut males have a colon and rectum cancer incidence of 114.8. Other Alaska Native male groups are significantly lower in colon and rectum incidence. Eskimo males have a rate of 53.2 and Athapaskan Alaska Native males have a rate of 40.4. The American Indian male colorectal incidence from Arizona and New Mexico is the lowest of any racial group at 10.6. (Nutting, 1993, Burhansstipanov, 1993)

Alaska Native female colon and rectum incidence is the highest of any racial group with a rate of 65.2 (the second highest is 45.9 for Black women). Aleut females also have a high rate (89.9), but in comparison to the other Alaska Native groups, their rate is the lowest. Eskimo Alaska Native women have the highest rate of any other Alaska Native group at 116.1 and Athapaskan women have a rate of 96.2. The White female rate in comparison is 44.9 and the American Indian female rate from Arizona and New Mexico is exceptionally low at 10.0 (Nutting, 1993).

Comparisons between the sexes illustrate unusual diversity. For example, examination of the colorectal cancer incidence between Eskimo Alaska Native females (116.1) and males (53.2); or Aleut females (89.9) and males (114.6); or Athapaskan females (96.2) and males (40.4) generate several questions regarding the risk factor behaviors of these men and women to result in such unusual incidence (Nutting, 1993).

Gallbladder Cancer Incidence
Gallbladder cancer incidence is disproportionately high among both Native males and females. The incidence for Whites, both sexes, is 1.3/100,000 compared with 10.9 for American Indians living in Arizona and New Mexico and 10.6 for Alaska Natives (Department of Health and Human Services, PHS, NIH, NCI, 1992). Gallbladder cancer is 8.4 times more likely to occur in a Native person than in a White person.
The rates for gallbladder cancer are higher among women than men. Gallbladder cancer is approximately nine times more likely to occur in an American Indian or Alaska Native woman than in a White woman.

Lung Cancer Incidence
A quick review of the lung cancer incidence data in Tables 3 and 4 indicates why it is inappropriate to use New Mexico data (includes American Indians living in Arizona and New Mexico) to generalize to other population groups. Arizona and New Mexico databases include the Apache, Navajo, and Tohono O'Odham/Pima Nations. The lung cancer incidence among these Southwestern tribes is much lower than for those peoples living in Alaska and the northern plains, such as the Sioux, Eskimo, Athapaskan Nations.

Prostate Cancer Incidence
According to Table 4, prostate cancer incidence is low among both American Indians living in Arizona and New Mexico (37.6/100,000) and Alaska Natives (34.5/100,000) in comparison with other races. Tribal data show a range of incidence from 3.3 to 91.8 (Nutting, et al., 1993). The lowest prostate cancer incidence rate is 3.3 for the Apache. Again, the confidence intervals of those data are very large which indicates less likelihood of presenting an accurate, valid summary of what is actually happening among Native American males.

Stomach Cancer Incidence
Stomach cancer rates, as shown in Tables 3 and 4 are high among American Indians when compared with Whites and higher among males than females. American Indians living in Arizona and New Mexico have an age-adjusted stomach cancer incidence of 17.6 per 100,000. Alaska Natives living in Alaska have an incidence of 15.5 per 100,000. The White rate is 8.9 per 100,000.

Stomach cancer incidence is higher among males than females, but this difference is particularly pronounced among Native peoples. The Alaska Native male incidence is 22.4, but the Alaska Native female rate is 8.4. American Indian male stomach cancer incidence is 22.3 and the American Indian female rate is 13.8. The White male rate is 13.3 compared with the White female rate of 5.8.

As with each cancer site, there is significant variability among IHS Areas and geographically diverse tribes. Aleut males have the highest stomach cancer incidence (37.4/100,000) and Eskimo males have the second highest incidence (28.9). Athapaskan Alaska Natives rate is also high (15.3) but is the lowest in comparison to the other Alaska Native males.

Cancer Mortality Rates -- Lower in NC, Canadian Bands, NY
Cancer mortality rates have also been identified as lower than White rates in multiple research studies, such as Horner's work in North Carolina (Horner, 1990). There are
major racial misclassification errors among tribes throughout the east coast and it is not
known how accurate the data were in this study. However, based upon the databases
accessible to Horner, American Indians in North Carolina have lower cancer mortality
rates than Whites living in that region.

Mao conducted a review of Canadian national data (Mao, et. al., 1986) and based on
those data, aboriginal peoples had lower mortality rates than did Whites. The quality of
Canadian data has been questioned by several of the First Nations as having multiple
racial misclassification problems. Mahoney also studied cancer mortality of the Seneca
in New York and found lower rates than for Whites from the same region (Mahoney, et. al., 1989). His data were accepted by the Seneca Tribal Council as being accurate.
Creagan's review of U.S. national data (Creagan & Fraumeni, 1972) also indicated lower
mortality data; however the national data have numerous racial misclassification errors
and that database is highly suspect. The National Center for Health Statistics also shows
a lower cancer mortality rate among American Indians than among Whites and Blacks,
but again, this database is considered to have multiple racial misclassification errors and
to underreport cancer among Native people.

Age-adjusted Cancer Mortality Rates Higher for Specific Sites

According to the National Center for Health Statistics, American Indians experience
excessive mortality rates from uterine cervix and gallbladder cancers when compared
with "U.S. All Races". The annual age-adjusted cancer death rates (156/100,000) for the
Alaska Indian Health Service (IHS) Area exceed those of the "U.S. All Races"
(132/100,000) (Lanier, et. al., 1989). Alaska Natives have excessive mortality from cancers
of the uterine cervix, colorectal, esophagus, gallbladder, kidney, nasopharynx, and
salivary glands (see Table 5). Colorectal, breast, pancreas and cervical cancers are the
most frequent causes of cancer death among Alaska women. Stomach cancer mortality
rates are excessive for Alaska Native males when compared with White males. Alaska
Natives have the highest mortality rates of any racial group for cancers of the oral cavity,
colorectal, gallbladder, endometrial, and renal carcinoma.

Table 5. Selected Age-Adjusted (1970 U.S. Standard) Cancer Mortality Rates per
100,000 Population by Race and Cancer Site, 1977-1983

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast*</td>
<td>12.8</td>
<td>unk</td>
<td>9</td>
<td>unk</td>
<td>26.7</td>
<td>unk</td>
<td>26.9</td>
<td>unk</td>
</tr>
<tr>
<td>Cervix uteri</td>
<td>12.5</td>
<td>NA</td>
<td>5.5</td>
<td>NA</td>
<td>3.2</td>
<td>NA</td>
<td>8.7</td>
<td>NA</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------------</td>
<td>------------</td>
<td>------------</td>
<td>------------</td>
<td>-------------</td>
<td>-------------</td>
<td>----------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Colorectal</td>
<td>*27.2</td>
<td>22.1</td>
<td>8</td>
<td>10.1</td>
<td>18.4</td>
<td>*25.6</td>
<td>20.3</td>
<td>25.4</td>
</tr>
<tr>
<td>Gallbladder</td>
<td>*6.3</td>
<td>1.4</td>
<td>3.6</td>
<td>*1.5</td>
<td>1.2</td>
<td>0.6</td>
<td>0.9</td>
<td>0.5</td>
</tr>
<tr>
<td>Kidney</td>
<td>*4.4</td>
<td>*6.7</td>
<td>2</td>
<td>3.5</td>
<td>2.1</td>
<td>4.6</td>
<td>1.8</td>
<td>3.9</td>
</tr>
<tr>
<td>Oral cavity and pharynx</td>
<td>*6.3</td>
<td>*10.2</td>
<td>1.3</td>
<td>2.3</td>
<td>1.8</td>
<td>5.1</td>
<td>2.4</td>
<td>9.9</td>
</tr>
<tr>
<td>Pancreas</td>
<td>*10.3</td>
<td>9.3</td>
<td>4.2</td>
<td>5.3</td>
<td>6.8</td>
<td>10.4</td>
<td>9.3</td>
<td>*13.9</td>
</tr>
<tr>
<td>Prostate</td>
<td>NA</td>
<td>11.4</td>
<td>NA</td>
<td>11.8</td>
<td>NA</td>
<td>21.1</td>
<td>NA</td>
<td>*44.0</td>
</tr>
<tr>
<td>Stomach&lt;sup&gt;b&lt;/sup&gt;</td>
<td>7</td>
<td>17.2</td>
<td>4.3</td>
<td>7.6</td>
<td>3.6</td>
<td>7.6</td>
<td>6.5</td>
<td>14.9</td>
</tr>
<tr>
<td>Liver&lt;sup&gt;c&lt;/sup&gt;</td>
<td>2.6</td>
<td>15.2</td>
<td>1.1</td>
<td>3.1</td>
<td>1.3</td>
<td>2.7</td>
<td>2.1</td>
<td>5.6</td>
</tr>
</tbody>
</table>

<sup>a</sup> The racial group with the highest breast cancer mortality rate is Native Hawaiians (37.8)

<sup>b</sup> The racial group with the highest stomach cancer mortality rate for females is Native Hawaiians (14.5) and for males is Native Hawaiians (32.1)

<sup>c</sup> The racial group with the highest liver cancer mortality rate is Chinese (females = 3.8; males = 16.6)

* Highest mortality rate of any racial group for this gender (i.e., highest male rate or highest female rate)

SOURCE: Department of Health and Human Services, PHS, NIH, NCI, 1992

An Example of Tribal Variability for Specific Cancer Sites — Stomach Mortality Rates

Stomach cancer appears to be higher among American Indians living in New Mexico and Arizona than among other geographic regions, with the exception of the Sioux tribes which are primarily in the Dakotas. The age-adjusted cancer mortality rates per 100,000 population for both sexes (1977-83) are higher among Alaska Natives with a rate of 11.9 than the White rate of 5.2. The American Indian mortality rate is 5.8. Both American Indian and White male mortality rates are the same at 7.6 per 100,000. However, the Alaska Native male rate is 17.2. In comparison, the female mortality rates for Alaska Natives is 7.0, the American Indian rate is 4.3, and the White rate is 3.6. The stomach cancer mortality rates vary among IHS Areas.

When data on both sexes are reviewed, Alaska, Billings, Albuquerque, Navajo, and Tucson Areas had stomach cancer mortality rates that were significantly higher than the "U.S. All Races" rate. As geographic regions are examined, the IHS areas which are located in Arizona and New Mexico have higher rates among American Indian males, and
three IHS Areas, Tucson, Navajo, and Albuquerque, had stomach mortality rates for males that were significantly higher than the "U.S. All Races" rate. The Tucson area male mortality rate was 2.8 times the "U.S. All Races" male rate. For females, six IHS areas were significantly higher than the "U.S. All Races" female stomach cancer mortality rate. Navajo had the highest rate, 3.5 times the "U.S. All Races" rate (Valway, 1991).

How to Interpret Survival Data (Burhansstipanov & Dresser, 1994)

An earlier section of this chapter described how to interpret incidence or mortality data. Survival data are interpreted differently than are incidence or mortality rates. Survival data are presented as the percentage of patients remaining alive five years after diagnosis. The relative survival compares the observed survival for a set of cancer patients to that observed for a group of normal persons of a similar age, race, and sex distribution. This mathematically 'adjusts' for non-cancer causes of death such as accidents, heart disease, and others (Horm & Burhansstipanov 1992).

Five Year Relative Survival from Cancer

The relative five-year survival data for American Indians are among the poorest for all cancer sites combined of any racial group in the United States, such as African Americans, Whites, or Hispanics. When compared to non-Indian peoples in the Southwest, even cancers in American Indians diagnosed at an early stage result in poorer survival (Samet, et. al., 1987). Survival data are based on American Indian residents in the states of New Mexico and Arizona only. According to the data in Table 6, American Indians are less likely to be alive five years after diagnosis than are Whites. The asterisk identifies the poorest survival rate of any racial group. The zero survival from pancreatic cancer is true for people of all races. In about one-half of the diagnosed cases of pancreatic cancer, the cancer has already spread to other organs. This results in an overall five-year survival of just 3.2 percent for all races. Little improvement has been seen in five-year relative survival for liver cancer since the mid-1970's. The overall five-year relative survival for stomach cancer in all races is only 17 percent, but improves to 55 percent for cancers detected at the localized stage (Miller, et. al., 1992).

Table 6. Five-Year Cancer Relative Survival (%) By Race and Cancer Site, 1975-84

<table>
<thead>
<tr>
<th>Survival and Cancer Site</th>
<th>AK Nat.</th>
<th>AK Nat.</th>
<th>Am Ind. (AZ &amp; NM only)</th>
<th>Am Ind. (AZ &amp; NM only)</th>
<th>SEER White</th>
<th>SEER White</th>
<th>SEER Afr.</th>
<th>SEER Afr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast</td>
<td>NA</td>
<td>NA</td>
<td>*49.7 unk</td>
<td>75.7 unk</td>
<td>62.8 unk</td>
<td>unk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Survival and Cancer Site</td>
<td>AK Nat.</td>
<td>AK Nat.</td>
<td>Am Ind. (AZ &amp; NM only)</td>
<td>Am Ind. (AZ &amp; NM only)</td>
<td>SEER White</td>
<td>SEER White</td>
<td>SEER Afr. Am.</td>
<td>SEER Afr. Am.</td>
</tr>
<tr>
<td>--------------------------</td>
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<td>---------</td>
<td>------------------------</td>
<td>------------------------</td>
<td>-------------</td>
<td>-------------</td>
<td>---------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Cervix uteri</td>
<td>NA</td>
<td>NA</td>
<td>65.1</td>
<td>NA</td>
<td>67.2</td>
<td>NA</td>
<td>*61.3</td>
<td>NA</td>
</tr>
<tr>
<td>Colorectal</td>
<td>NA</td>
<td>NA</td>
<td>*42.3</td>
<td>*33.0</td>
<td>53.6</td>
<td>52.8</td>
<td>47.6</td>
<td>42.8</td>
</tr>
<tr>
<td>Gallbladder</td>
<td>NA</td>
<td>NA</td>
<td>*6.4</td>
<td>*3.0</td>
<td>9.4</td>
<td>9.4</td>
<td>8.6</td>
<td>8.9</td>
</tr>
<tr>
<td>Kidney</td>
<td>NA</td>
<td>NA</td>
<td>*36.2</td>
<td>*39.2</td>
<td>51.8</td>
<td>51.9</td>
<td>55.6</td>
<td>49.4</td>
</tr>
<tr>
<td>Oral cavity and pharynx</td>
<td>NA</td>
<td>NA</td>
<td>unk</td>
<td>*28.0</td>
<td>54.6</td>
<td>47.2</td>
<td>45.8</td>
<td>*28.0</td>
</tr>
<tr>
<td>Pancreas</td>
<td>NA</td>
<td>NA</td>
<td>*0.0</td>
<td>*0.0</td>
<td>2.7</td>
<td>3.0</td>
<td>4.8</td>
<td>3.3</td>
</tr>
<tr>
<td>Prostate</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>*51.4</td>
<td>NA</td>
<td>69.8</td>
<td>NA</td>
<td>62.0</td>
</tr>
<tr>
<td>Stomach</td>
<td>NA</td>
<td>NA</td>
<td>12</td>
<td>*4.7</td>
<td>18.7</td>
<td>15.1</td>
<td>18.6</td>
<td>17.2</td>
</tr>
<tr>
<td>Liver</td>
<td>NA</td>
<td>NA</td>
<td>unk</td>
<td>unk</td>
<td>6.5</td>
<td>2.8</td>
<td>6.7</td>
<td>2.1</td>
</tr>
</tbody>
</table>

* the racial group with the poorest survival from oral cavity and pharynx cancer for females is Native Hawaiians (36.4)

* the racial group with the poorest survival from stomach cancer for females is Filipino (8.4)

* the racial group with the poorest survival from liver cancer for both sexes is Japanese (females=3.7; males=1.2)

* Poorest survival percentage of any racial group for this gender (i.e., poorest male survival or poorest female survival)

**SOURCE:** Department of Health and Human Services, PHS, NIH, NCI, 1992

Published survival data are unavailable for Alaska Natives. As of late 1995, survival data for Alaska Natives were in the process of being organized into a summary report. An Alaska Native Tumor Registry collected data from 1969 to 1983 but due to the low number of cancer cases (less than 100 per year) the Registry lost its funding for several years. The Alaska Native Tumor Registry was reestablished through funding by the National Cancer Institute from 1989-1993 and was in the process of collecting information on incidence, follow-up, stage at diagnosis, and treatment. Unfortunately the registry lost its funding again in 1993 and it is not known how these invaluable data will be attained in the future (Horm & Burhansstipanov, 1992).

The low survival from cancer of American Indians reported by the National Cancer Institute (NCI) SEER data suggest that American Indian cancer patients experience the disease differently from other ethnic populations. More investigation needs to be done.
to explore the causative factors such as genetic risk factors, late detection of cancer, poor compliance with recommended treatment, presence of concomitant disease, or lack of timely access to state-of-the-art diagnostic and/or treatment methods should be investigated (Burhansstipanov & Dresser, 1993). Some types of cancer (e.g., uterine cervix) may act differently within Native people and Native cultures and may affect the way people respond to cancer and cancer programs. By studying specific cancer sites which are elevated among Native people, information may be acquired to help people of all races. In addition, data reflecting American Indian communities that have effectively avoided specific cancers might shed some light on some protective factors of health behavior, diet, and/or environment.

**Study Questions for Providers:**

1. What are the five most common rates of cancer among Alaska Natives?
2. Why are Southwestern American Indian tribes less likely to develop lung cancer than tribes from the Northern Plains?
3. Why do American Indians have poor cancer survival compared with other ethnic groups?

**Risk Factors for the More Common Types of Cancer among Elder American Indians and Alaska Natives**

**Risk Factors and Carcinogens**

"Cancer risk factors" refer to agents (e.g., high consumption of dietary fat) which, based upon scientific evidence, increase the likelihood of developing one or more types of cancer. In comparison, "carcinogens" include certain man-made and natural chemicals which cause cancer. For example, smoking and smokeless tobacco are carcinogens that cause changes that turn a normal cell into a cancer cell (NIH Pub No. 87-2059). When exposed to a carcinogen, given enough frequency, duration and/or exposure to that factor, a specific type of cancer will eventually develop in most people. For example, chronic tobacco use causes nearly 90 percent of lung cancer. There are substantial data to support that chronic tobacco use has a causal relationship to cancer rather than only a "risk".

**Genetic/Familial Risk**

A genetic predisposition for cancer occurs when an alteration in the DNA, the genetic material passed from parents to their offspring, changes the information stored in that DNA. Tumor suppressor genes, genes that protect us from developing cancer, are a
family of genes whose alteration can generate a predisposition to cancer. One such
gene, p53, is altered in about 50 percent of all tumors (Greenblatt, et al, 1994). When
individuals have an alteration in one copy of their p53 gene, they are at increased risk
of developing cancer because each of their cells has only one functional copy of p53.
These p53 alterations can be detected by examining a person’s RNA isolated from white
blood cells, a normal component of human blood (Flaman, et al, 1995).

An “Oncogene” is a genetic defect that is carried on chromosomes and found in cancer
tumor cells. All humans have some oncogenes present in their genes, but in most people
they remain inactive. Oncogenes transform normal cells into malignant cells. For an
oncogene to become “active” requires a three step process: (1) initiation, (2) promotion,
and (3) progression.

Carcinogens, or cancer-causing agents such as use of tobacco products or exposure
to radon, begin to damage body cells (e.g., lung cells) during the “initiation” step.
“Promoters” change the cells already damaged by the initiator from normal cells to
cancer cells, but usually do not cause cancer. Alcohol or hormones (i.e., estrogen) are
considered “promoters”. “Progression” is when the cancer cells spread to other parts
of the body. (Printed with permission. Morra & Potts, 1994, p. 50).

Advances in genetic research related to cancer has escalated in recent years. As
chromosomes are “mapped” as part of the Human Genome Project, greater insight has
been gained about the complexity of the human gene. Through such research, over 100
specific oncogenes have been identified, such as p53, ras, HER-2/neu, p16, myc, BRCA1
and BRCA2. Some oncogenes are found in many tumors, such as “p53”. Others, such
as BRCA1 and BRCA2 are specific for particular types of cancer: breast and ovarian
cancer. This does not mean that all cancers are genetic, but it does mean that there will
be more and more genetic tests to assist with the diagnosis of cancer. This will also
change the way genetic forms of cancer are likely to be treated in the very near future.
Cancer diagnosis and treatment are changing continually as scientists learn more about
these oncogenes.

Tobacco

Ceremonial Versus Chronic Tobacco Use

The hazards of chronic smoking and smokeless tobacco use are well documented in
numerous publications. However, there is a difference between ceremonial and chronic
tobacco use. Not all tribes include tobacco in ceremonies, but many tribal groups who
use tobacco spiritually do not feel it should be associated with chronic use/abuse of
tobacco. Ceremonial tobacco use varies greatly among tribes. Specific ceremonies
involving tobacco are not described. Native Americans reserve the right to privacy
regarding the ceremonial use of tobacco. It is inappropriate for Native Americans to
discuss specifics of how tobacco is used as a sacrament. Native respondents to survey questionnaires and other inquiries are likely to refuse to answer or provide an inaccurate response.
Table 7. Summary Chart - Risk Factors for Specific Cancer Sites (Burhansstipanov & Dresser, 1993)

<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>Breast</th>
<th>Cervix</th>
<th>Colo-rectal</th>
<th>Lung</th>
<th>Prostate</th>
<th>Gallbladder</th>
<th>Stomach</th>
<th>Pancreas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Habitual Tobacco Use</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>High Fat/Calories</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Low Fiber/Fruits and/or Vegetables</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Food Preservation</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>✓^3</td>
<td></td>
</tr>
<tr>
<td>Alcohol misuse</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple sexual partners</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menarche age 12 or younger</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early Age at First Coitus</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Late Age (30+) at First Birth</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diseases/Disorders</td>
<td>✓^4</td>
<td>✓^5</td>
<td>✓^6</td>
<td>✓^7</td>
<td>✓^8</td>
<td></td>
<td>✓^9</td>
<td>✓^10</td>
</tr>
<tr>
<td>Air Pollution</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemical exposure (e.g., Occupational)</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ionizing Radiation</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socioeconomic</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>✓^1</td>
<td></td>
<td></td>
<td>Low</td>
</tr>
</tbody>
</table>

Note: ▲ indicates a significant risk factor for the specified cancer site.
<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>Breast</th>
<th>Cervix</th>
<th>Colo-rectal</th>
<th>Lung</th>
<th>Prostate</th>
<th>Gallbladder</th>
<th>Stomach</th>
<th>Pancreas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genetics/Family History</td>
<td>✓³⁶⁸</td>
<td>✓¹</td>
<td>✓</td>
<td></td>
<td>✓¹</td>
<td>✓</td>
<td></td>
<td>✓¹⁷</td>
</tr>
<tr>
<td>Increasing after age ___</td>
<td>30</td>
<td>50</td>
<td>50</td>
<td>65</td>
<td></td>
<td></td>
<td></td>
<td>30</td>
</tr>
<tr>
<td>Hormone(s)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>✓¹⁸</td>
</tr>
</tbody>
</table>

Footnotes

1. Possible risk factor
2. Risk for anal cancer
3. Pickled, salted, smoked foods
4. Previous breast disease
5. Human Papilloma Virus (HPV), Herpes Simplex Type 2
6. Human Papilloma Virus (HPV) may be related to anal cancer; inflammatory bowel disease; polyps, clostridia, syphilis
7. Urinary tract infection
8. Biliary disease; gallstones, cholecystitis, ulcerative colitis
9. Pernicious anemia; atrophic gastritis
10. Diabetes
11. Asbestos
12. Asbestos, arsenic, mustard gas manufacture, copper smelter workers, nickel
13. Cadmium exposure; rubber industry
14. Nitrosamines/nitrites
15. Uranium mining; atom bomb survivors
16. Mother or sister
17. Blood Type A
18. Geographic Distribution (higher rates in the North); may be screening phenomenon
Although cancer is a growing problem among American Indians and Alaska Natives, both non-natives and First Nation's peoples are less aware of the growing cancer dilemma than they are of alcohol, violence, diabetes, depression and other well promoted and widely-dispersed conditions among Natives. In the last half of the twentieth century, cancer has become the leading cause of death for Alaska Native women, and it is the second leading cause of death among Alaska Native men (Department of Health and Human Services, 1992; Valway et al, 1992). Cancer is currently the third leading cause of death for American Indians and Alaska Natives of all ages (Office of Planning, Evaluation and Legislation, 1992), and is the second leading cause of death among American Indians (both sexes) over age 45 (Department of Health and Human Services, Indian Health Services, 1994). Cancer is the third most frequent reason for hospital stays among Indian Health Service beneficiaries served by the Alaska Area Native Indian Health Service (Department of Health and Human Services, Indian Health Services, 1994). Cancer rates which were previously reported as being lower in American Indian and Alaska Natives have been shown to be increasing in the past twenty years (Hampton, 1993; DHHS, PHS, IHS, OPEL, DPS, 1995). Incidence rates among Alaska Natives have exceeded "U.S. All Races" rates for most cancer sites in Alaska (Lanier et al, 1993). Cancer rates are similarly increasing for Canadian bands (Lanier et al, 1989).

Case Study: Raymond
North Central Tribe, colon cancer survivor

Raymond lives and works on his home reservation in one of the north central states. He is a 50 year old artist and singer and practices a traditional lifestyle. He wears his hair the old way, participates in reservation ceremonies and celebrations. He is a member of a drum. He greets the sun each morning with a prayer for the Creator thanking Him for another day. He is divorced and has three children, two of whom are grown and living on their own and the third is 20 years of age and is under Raymond's custody. He is a Vietnam War veteran.

Raymond was diagnosed with colon cancer 5 years ago. At that time, Raymond began to experience a change in his bowel movements: gas pains and constipation. Many years prior to these symptoms appearing, he had experienced some bleeding with his bowel movements and had seen a provider through the local Indian Health Service (IHS) clinic. The doctor found a polyp growing in his rectum that was benign and was removed using a sigmoidoscope through the rectum. When the new symptoms developed, he returned to the same IHS clinic, but the provider was no longer on staff and the clinic no longer had the sigmoidoscope (or comparable) equipment. The IHS provider placed him on the contracted health services (CHS) priority list so that he could be examined by another clinic. He was prioritized as number "2" since he had a history of having had a polyp. He was sent to the Phoenix Indian Medical Center, and then to UCLA for the examination.
Smoking, Tobacco Use, and Cancer Risks

The *chronic* use of tobacco is estimated to be responsible for about 30% of cancer in people of all races. Cigarettes are estimated to be responsible for over 400,000 deaths annually. Tobacco use is responsible for more than one of every six deaths in the United States and is the most important single preventable cause of death and disease in our society (DHHS, 1991).

Tobacco is a "carcinogen" and habitual tobacco use or exposure is responsible for causing nearly 90 percent of all lung cancer (DHHS, 1990). Tobacco also causes cancers of the following sites: larynx, oral cavity, esophagus, bladder, kidney, pancreas, and stomach (DHHS, 1986). In addition, women who smoke may be at higher risk for developing cervical cancer than non-smoking women.

Lung cancer risk is proportional to the amount smoked daily and the duration of time smoked (DHHS, 1991). Lung cancer mortality increases with increasing doses, as determined by number of cigarettes smoked daily, smoking history, and inhalation patterns. Those who smoke two or more packs a day have death rates 15 to 25 times greater than nonsmokers. Cessation of smoking, though, reduces the risk of death from lung cancer; after 15 years, former smokers have lung cancer death rates only about two times greater than nonsmokers. Those who smoke filtered, low-tar cigarettes gain some benefit, but they still have death rates much higher than nonsmokers.

Lung cancer is rare in individuals who have never smoked. Lung cancer risk is proportional to the amount smoked daily and the duration of time smoked. Cessation of cigarette smoking results in a gradual decrease in lung cancer risk. After 10 to 20 years of cessation, lung cancer rates for former smokers approach the rates of lifelong nonsmokers (DHHS, 1991).

### Risk Factors for Lung Cancer

- People who smoke (over 80% of all lung cancer is caused by habitual smoking of tobacco products) [the longer a person has smoked, the more cigarettes smoked per day, the greater the length, tar content and depth of inhalation, the greater the risk]
- People who work in uranium and hard rock mines and their families
- People who live in areas of high air pollution (e.g., exposure to second-hand smoke, or polluted urban areas)
- Asbestos workers
- People exposed to radon
- People who are older (e.g., 50 years of age and older)
- People who have genetic or hereditary predisposition
- People who are deficient in vitamin A

(Printed with permission. Morra & Potts, 1994, pp. 414-416)
Lung cancer is exceptionally difficult to treat. The primary reason for this is that it is almost always diagnosed in late stages when it has already spread throughout the body. This is why the best technique for addressing lung cancer is to prevent it from occurring (e.g., to not habitually smoke tobacco products). Nearly 90 percent of lung cancer patients die within 5 years of diagnosis. Survival improves modestly when lung cancer is detected at an early, localized stage, but few cases are detected early (DHHS, 1991).

American Indians and Alaska Natives do not have protection from developing lung or other types of tobacco-related cancers. Dr. Thomas Welty, former Medical Epidemiologist for the Aberdeen Indian Health Service, South Dakota, stresses, "If Indians smoke, they get cancer just as other populations do" (Welty, 1992).

Smokeless Tobacco Use

Smokeless tobacco products are primarily used by youth rather than elders. These products include moist or dry snuff and chewing tobacco. All smokeless tobacco products contain substantial amounts of nicotine. Smokeless tobacco use increases one's risk of developing leukoplakia, gingival recession and nicotine addiction. Smokeless tobacco use causes mouth and lip cancer. Both of these cancers are very aggressive (i.e., spread rapidly).

Alcohol and Cancer Risk

<table>
<thead>
<tr>
<th>Risk Factors for Prostate Cancer</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Age - usually occurs in males over the age of 50 (occurs at an earlier age in African-American men).</td>
</tr>
<tr>
<td>• Race - African-American males are at greater risk for prostate cancer than are most other racial groups.</td>
</tr>
<tr>
<td>• Family History - Men with a family history of prostate cancer are at an increased risk of the disease compared to men without this history.</td>
</tr>
<tr>
<td>• Diet - High fat intake</td>
</tr>
<tr>
<td>• Occupation - men who work with cadmium, zinc, rubber, and in oil refining</td>
</tr>
<tr>
<td>• History of sexually transmitted diseases</td>
</tr>
<tr>
<td>• Alcohol may be a risk factor (NCI, PDQ, March 1996)</td>
</tr>
</tbody>
</table>

Prevention of alcohol abuse is a high health priority among Native American communities. In studies with other races, alcohol combined with cigarette use presents an even greater risk for cancer than if tobacco products were used alone. Alcohol is a powerful solvent and may enhance body absorption of carcinogens. 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 (DHHS, 1986b). No alcohol-cigarette use studies have been conducted with Native Americans.

Alcohol abuse is among the top health problems cited by Native American Nations, communities, and organizations. Alcohol misuse and abuse affects all
aspects of one's health, one's family, and one's community. Excessive alcohol intake increases the risk of heart disease, high blood pressure, chronic liver disease, and some forms of cancer. In addition to the well-known accompanying problems caused by alcohol abuse (e.g., violence, accidents), alcohol may be a risk factor for prostate cancer. It is a risk factor for cancer of the lung, breast, colon, and rectum (Burhansstipanov, 1993).

High Fat or High Calorie Food Consumption

Individuals need to reduce their daily fat intake to 30% or less of total calories. Diets high in fat, saturated fat, and cholesterol are linked to increased risk of chronic health problems which are disproportionately high in Native Americans in comparison with other racial groups: coronary heart disease, obesity, diabetes, and certain forms of cancer. Those cancers include, but are not limited to breast, colon and rectum, endometrium, ovary and gallbladder. High fat and high calorie food consumption may also be associated with prostate cancer.

Dresser (1993) of the National Cancer Institute emphasizes that a variety of foods eaten in moderation will not cause cancer. However, a 1987 review of the literature on caloric intake, body weight, and cancer, indicated that a large number of epidemiological investigators found an association of high relative body weight and high caloric intake with an increased risk of cancer of the breast, colon, rectum, prostate, endometrium kidney, cervix, ovary, thyroid, and gallbladder (Albinos, 1987a). Although the relationships among caloric intake, dietary macro nutrients, (e.g., fat), and body weight are complex and require further investigation. Albinos' review suggests that reducing caloric

<table>
<thead>
<tr>
<th>Examples of Risk Factors for Breast Cancer</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Age - Breast cancer is more likely to develop as the individual ages.</td>
</tr>
<tr>
<td>• Gender - The majority of breast cancer occurs in women, but a small number of males are diagnosed with breast cancer every year.</td>
</tr>
<tr>
<td>• History of breast cancer - If the individual has already had breast cancer, s/he is more likely to develop breast cancer again.</td>
</tr>
<tr>
<td>• Family history - If immediate family members (e.g., mother or sister) had breast cancer, one is more likely to develop breast cancer, especially if the family member had it at an early age.</td>
</tr>
<tr>
<td>• Other breast diseases - If the individual has had a breast biopsy that showed certain types of benign breast conditions, s/he may be more likely to develop breast cancer.</td>
</tr>
<tr>
<td>• More common in post-menopausal women than in pre-menopausal women.</td>
</tr>
<tr>
<td>• People who consume a diet high in fat and of excess calories.</td>
</tr>
<tr>
<td>• People who drink alcoholic beverages.</td>
</tr>
<tr>
<td>• People who live sedentary lifestyles.</td>
</tr>
</tbody>
</table>
intake and relative body weight may lead to a considerable decrease in cancer risk in humans. In laboratory studies on mice with multiple tumors, Albinos also indicated that total caloric intake was an important determinant of tumorigenesis, and that body weight may be a more sensitive indicator for this effect than is caloric intake alone. These findings, among others, implicate obesity as a potential risk factor for the development of cancer (Albinos 1987b; Burhansstipanov & Dresser 1993).

Low Fiber/Fruits and/or Vegetables

Foods high in fiber are primarily found in fruits and vegetables. A good secondary source is whole grains. There appears to be a protective chemo-preventive effect against certain types of cancer by consuming fruits and vegetables. Cruciferous vegetables (e.g., cabbage, broccoli) are particularly beneficial. The current National Cancer Institute Dietary Guidelines stress consuming at least five servings of fruits and vegetables per day. A serving is typically measured as one piece of fruit (e.g., an apple, banana, or orange) or one-half cup of cooked vegetables. The traditional American Indian way of measuring a serving was the amount that fit into one’s hand (which is usually about ½-¾ cup). Unfortunately, the majority of Native Americans today rarely consume five servings of fruits and vegetables daily. There are several reasons for this:

- These foods are expensive and most elder Native people live below the poverty level.
- Elders grew up on foods other than vegetables and may not have acquired a taste for them.
- These foods are unfamiliar to the population and people may not have learned to cook with them (other than in canned form through the food commodities program).
- Elders who subsist on the USDA food commodity program typically receive five servings of vegetables per week; thus, these foods are not accessible.

<table>
<thead>
<tr>
<th>Colon and Rectal Cancer Risk Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Hereditary conditions, such as familial polyposis, familial nonpolyposis syndromes, the cancer family syndrome (autosomal dominant)</td>
</tr>
<tr>
<td>• Hereditary site-specific colon cancer, and ulcerative colitis.</td>
</tr>
<tr>
<td>• Habitual user of tobacco products</td>
</tr>
<tr>
<td>• Personal history of adenomatous polyps (adenomas)</td>
</tr>
<tr>
<td>• Diets</td>
</tr>
<tr>
<td>◇ High in total fat</td>
</tr>
<tr>
<td>◇ Excess calories</td>
</tr>
<tr>
<td>◇ Low in fiber (e.g., fruits and vegetables)</td>
</tr>
<tr>
<td>• Alcohol consumption (especially for large bowel cancers)</td>
</tr>
<tr>
<td>• Age - risk begins to increase after the age of 40 and rises sharply at the ages of 50-55</td>
</tr>
<tr>
<td>• Sedentary lifestyle</td>
</tr>
</tbody>
</table>

(PDQ, NCI, March 1996)
The markets on many reservations are unable to obtain fresh, appealing fruits and vegetables and people are hesitant to purchase wilted, dried out, and costly foods.

Regular consumption of fruits and vegetables appear to help prevent several forms of cancer. Cancers of the cervix, colon, lung, stomach, and possibly the prostate decrease if one's diet includes high consumption of fruits and vegetables (Burhansstipanov & Dresser 1993).

**Sedentary Lifestyle**

Strongly correlated with overweight and obesity among Native Americans is the contemporary trend of leading a sedentary and non-physically active lifestyle. Exercise is a major contributor to attaining and maintaining normal body weight. Aerobic exercise on a regular basis (e.g., three times per week over 30 minutes and results in body perspiration) helps prevent obesity, coronary heart disease, and diabetes.

**Examples of Common Cancer Symptoms for Selected Cancer Sites**

Cancer symptoms vary depending on the cancer site. The following table provides a brief example of the variable symptoms for cancer sites which are common among Native Americans.

**Table 8. Cancer Symptoms for Selected Cancer Sites**

<table>
<thead>
<tr>
<th>Selected Cancer Site</th>
<th>Symptoms</th>
</tr>
</thead>
</table>
| Breast               | • Lumpy, uneven breasts (lumps may not be painful)  
|                      | • Thickening in the breast or under the arm  
|                      | • Change in the size or shape of the breast  
|                      | • Discharge from the nipple  
|                      | • Change in the color or feel of the skin of the breast or the skin around the nipple; such as dimpling, puckering or scaliness of the skin.  
|                      | • Other changes in skin color or texture, such as “orange peel” skin.  
|                      | • Swelling, redness or feeling of heat in the breast.  |

7 Signs of Cancer

1. Unusual bleeding or discharge.
2. A lump that does not go away.
3. A sore that does not heal within two weeks.
4. Change in bowel or bladder habits.
5. Persistent hoarseness or cough.
6. Indigestion or difficulty in swallowing.
7. Change in a wart or mole.
Selected Cancer Site | Symptoms
--- | ---
Colon and Rectum | • Changes in bowel habits such as constipation or diarrhea
• Dull, vague pain on the right side of lower abdominal area
• Gas pains, cramps, or bleeding from the rectum.
• Changes in stool color or shape (e.g., very narrow stool shape)
Lung | • Frequently has no symptoms until advanced stages.
• Most common symptom is a cough or a hacking cough
Prostate | • Frequently has no symptoms until more advanced stages.
• Frequent urination, especially at night.
• Trouble starting or holding back urinating.
• A weak or interrupted urine flow
• Pain or burning during urination
• Blood in the urine.
• Continuing pain in lower back, pelvis or upper thighs.

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The Role of Traditional Healing Within the Cancer Diagnosis, Treatment and Recovery Processes

Traditional healers who work with Native Americans diagnosed with cancer can provide strong spiritual and emotional support that greatly assists one’s ability to fight cancer. Traditional American Indian healers work quite differently than do Western medical providers. Carole laFavor (1996) provides a comparison of subtle differences between the ways both types of healers approach their patients (Burhansstipanov, 1996c).

Table 9. laFavor's Comparison of Western and Traditional Healers

<table>
<thead>
<tr>
<th>WESTERN MEDICAL PHYSICIAN</th>
<th>TRADITIONAL NATIVE HEALER</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;What are your symptoms?&quot; asks the Western medical doctor</td>
<td>The traditional Native healer waits patiently for you to tell him/her whatever you want to, in whatever order you choose.</td>
</tr>
<tr>
<td>A physician says, “You can pray if you want, but here’s a prescription for AZT. Don’t forget to take it.”</td>
<td>After praying as the Native healer prepares herbal medicines for you, the healer gives it to you to take, then counsels you about the importance of your state of mind when you take the medicine, and the importance of a prayerful life.</td>
</tr>
</tbody>
</table>
When you make an appointment with your physician, the receptionist asks about the kind of insurance you carry, and may ask, "Do you think this is a twenty minute visit, or will you need a half an hour?"

When you go to your Native healer, you bring tobacco, corn pollen, or some other offering of respect and honor (depending on your tribe's tradition), and you stay as long as you need to (e.g., one meeting required four hours).

Traditional healers may work with Western medical providers or may work independently in the treatment of cancer. When working with a Native person diagnosed with cancer, the healer establishes a long-term relationship that typically requires repeated interactions between the two and usually also involves family members. The healer focuses on symptoms and designs a treatment program specific to the individual and his or her spiritual needs. Two cancer patients with the exact same diagnoses will have different treatment methodologies from the same healer. Likewise, the involvement of the family varies with each patient.

Traditional American Indian healers treat the whole person. This requires a host of skills that are culturally acquired.

"Legitimate" traditional healers do not just announce themselves to be healers. An informal or formal mentorship or training experience is practiced where the individual works with a respected elder healer for years to learn to do things the correct way. This is critical because of the abundance of self-claimed fraudulent shamans who prey on people who are frightened, such as those who have learned of a cancer diagnosis. A legitimate healer does not charge a fee, but self-claimed charlatans typically attempt to collect a fee or obtain a costly trade for some type of property from the patient or the patient's family. Most legitimate healers will accept a gift, but do not request a lien on one's home.

Case Study Excerpt. Prior to Raymond (the colon cancer survivor) agreeing to surgical removal of his tumor, he insisted on consulting his traditional healer from his home reservation. The healer helped prepare both Raymond and his family for the upcoming surgery and accompanied Raymond back to UCLA for the treatment.

At the time of surgery, Raymond says that he was calm and comfortable because he felt that his healer had helped him prepare for the surgery. He felt that he could visualize where the tumor was located and could help the medications go directly to the tumor to kill the cancerous growth.

The western medical oncologist gradually realized that the healer's purpose in being there was to ascertain that Raymond was cured. Through the healer's guidance, natural pain medications were prepared and used by Raymond following the surgery. The healer's pain preparations had no contraindications.