Cancer Prevention and Care in South Carolina:

A Plan for Action

1999 – 2004

South Carolina
Cancer Prevention and Control

South Carolina Department of Health and Environmental Control

This report is dedicated to the people of South Carolina who have given thousands of hours, in clinics and in boardrooms, to close the gap between who lives and who dies of cancer, and it is dedicated to those we have yet to reach.

South Carolina Department of Health and Environmental Control

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Tobacco barn, Darlington County, SC, fall 1989 *© Gene Crediford*

Cancer Prevention and Care in South Carolina

Cancer claims more lives every year in South Carolina than accidents, suicides and homicides combined. *Cancer Prevention and Care in South Carolina, 1999-2004,* was developed under the direction of the South Carolina Cancer Control Advisory Committee (CCAC), to assess where we stand with cancer in this state and guide us to where we need to be by the year 2004. The Cancer Control Advisory Committee, which joins together representatives from hospitals, physician's organizations, volunteer organizations, universities, research centers, and hospice centers, is an advisory group to the Department of Health and Environmental Control Cancer Program.

South Carolina's cancer prevention and care program has roots that go back 60 years. In 1939, the SC State Board of Health joined with the South Carolina Medical Association (SCMA) in a cooperative plan to provide health services to indigent people with cancer. In 1941, the legislature made the first of continuing annual appropriations. Private physicians volunteered their time and work. This unique collaboration was originally known as the South Carolina Cancer Program and later evolved into the State-Aid Cancer Program.

A Cancer Clinic Advisory Committee has made recommendations for the policy and procedures of the state cancer clinics since the beginning of the program. In 1987, the committee's name was changed to the SC Cancer Control Advisory Committee and its role was expanded to address

a comprehensive cancer program for South Carolina. A long-range cancer plan was developed, with a central goal — to establish a South Carolina Cancer Registry, a surveillance tool which South Carolina desperately lacked.

The SC Central Cancer Registry

Funding for a SC Central Cancer Registry (SCCCR) came in 1994 with a grant from the Centers for Disease Control. State legislation establishing the SCCCR was signed into law in June, 1996. The passing of this legislation, while spearheaded by DHEC, was truly a collaboration of DHEC, the SC Medical Association, the SC Hospital Association, and the American Cancer Society, along with health care facilities, and physicians from throughout South Carolina, all with an interest in and commitment to cancer reporting.

DHEC and the American Cancer Society

A second goal of the original cancer plan was to address the devastating impact of breast and cervical cancer. This goal was realized in 1991, when South Carolina became one of the first four states to receive CDC funds to provide comprehensive breast and cervical cancer screening services to low-income, underserved women. The South Carolina Breast and Cervical Cancer Detection Program pioneered a collaboration between DHEC Cancer and the South Carolina Chapter of the American Cancer Society — the first partnership of its kind in the country.

The American Cancer Society and the DHEC Cancer Program have worked hand-in-hand to reach women in every county in the state. This partnership, known state-wide as the Best Chance Network, has provided over 55,000 screenings to underserved women in South Carolina.

Cancer Prevention and Care, 1999-2004

Because the goals of the first five-year plan were completed in 1994, the Cancer Control Advisory Committee began to develop a second five year plan to guide the direction and focus of cancer prevention and care in the state. *Cancer Prevention and Care in South Carolina, 1999-2004* is the result of those efforts. Writers included experts from throughout South Carolina who volunteered their time and energy to this project. This report is divided into eight chapters with the final section of this report describing the goals and objectives set forth for the next five years.

Overall Goals

Collaboration and Partnerships. Develop partnerships with the health care community, the private sector, research centers, and community organizations to build a comprehensive cancer program which will reach all South Carolinians.

Access to Cancer Care. Ensure that all South Carolinians have access to a full range of quality cancer care, including preventive care, treatment, and palliative care.

Surveillance. Establish a comprehensive cancer surveillance system for South Carolina.

Prevention/Tobacco. Decrease the rate of tobacco use among South Carolinians.

Prevention/Nutrition. Promote dietary habits which are known to prevent cancer.

Prevention/Skin Cancer. To reduce overexposure to the sun for both children and adults.

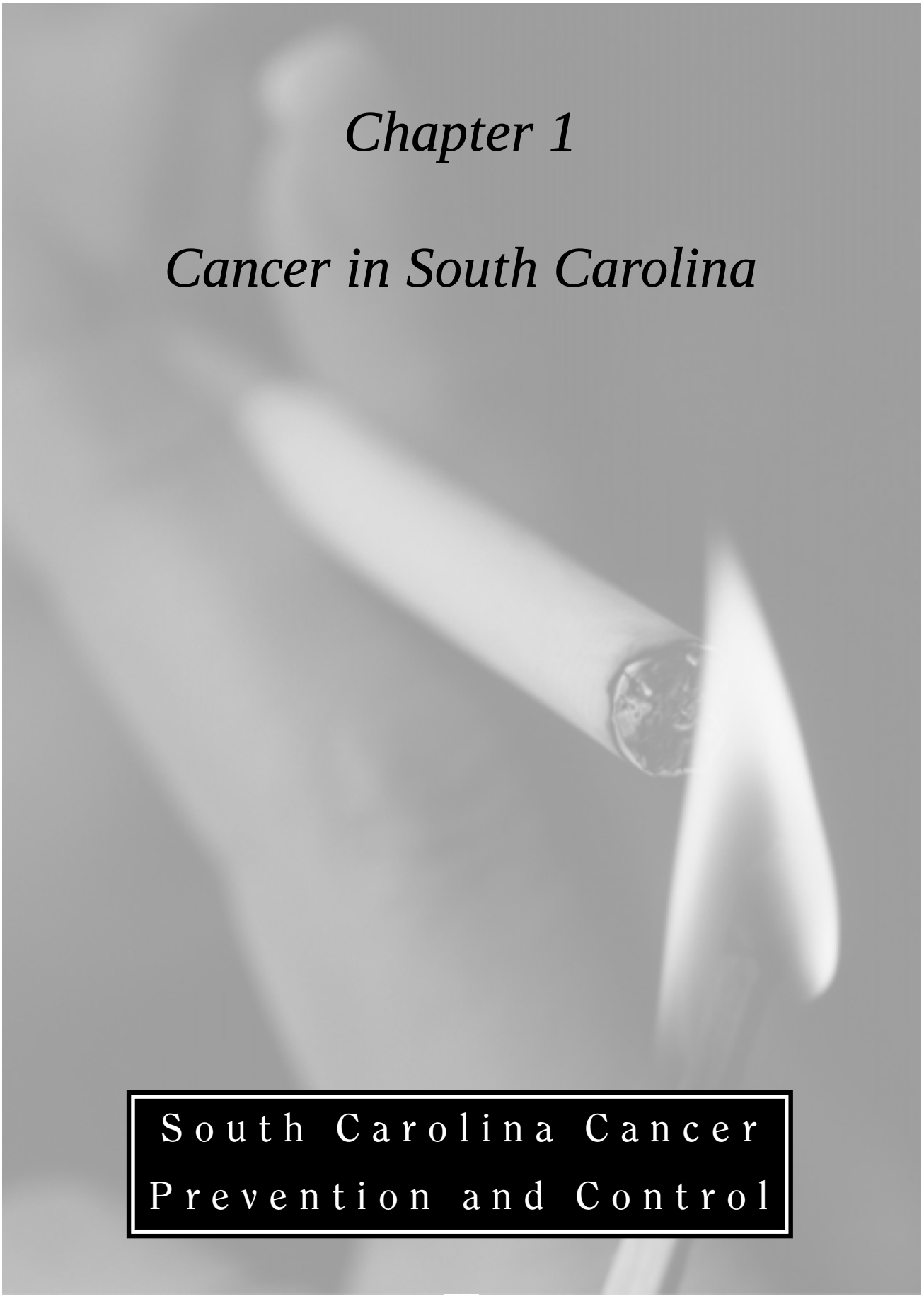
Detection. Increase the use of colorectal, breast, and cervical cancer screening and ultimately, reduce the number of lives lost to cancer in South Carolina.

Prostate Cancer Detection. Give men the education and support they need to make individual decisions regarding prostate cancer testing.

Cancer Genetics. Monitor the growing field of Genetic Risk Assessment and develop public policies and strategies in response to this rapidly changing field.

Cancer and the Environment. Monitor the impact of the environment on the health of South Carolinians and provide public education on cancer and the environment in South Carolina.

The ability to even begin to implement this plan is contingent on partnerships and collaborations with the medical community, the research community, and the private sector. These goals are both ambitious and idealistic — but so was the concept, almost sixty years ago, to ask private physicians to give their time for free to poor people with cancer. This report is dedicated to the people of South Carolina who have given thousands of hours, in clinics and in boardrooms, to try to close the gap between who lives and who dies of cancer, and it is dedicated to those we have yet to reach.



Chapter 1

Cancer in South Carolina

South Carolina Cancer Prevention and Control

Chapter 1. Cancer in South Carolina

Brenda Nickerson, RN, MSN, Pam Myers, MSPH, and Marie Shervais,
South Carolina DHEC Community Health

Cancer touches all of our lives. One in three Americans will be diagnosed with cancer during their lifetime, and it will affect two out of every three American families.

One of the most devastating aspects of cancer is the stigma of fatalism that it carries. For years it was believed that cancer was a death sentence — that once someone was diagnosed with this disease, no matter what type, no matter what stage, they were beyond saving. Today this idea is powerfully refuted by the lives of more than eight million Americans who are survivors of cancer.

A guiding strategy in developing this five-year cancer plan was to first identify the cancers which are the most deadly in this state, and of those, to focus on the cancers which we can do something about. In South Carolina, as in the United States, four cancers: lung, colorectal, breast, and prostate, are responsible *for more than half of all cancer deaths.* (Table 1.1)

Table 1.1 Cancer Deaths: The Top Four Killers
South Carolina 1992-1996

Type of Cancer	Percentage of Total Cancer Deaths	Number of Deaths
Lung	30%	10,570
Colorectal	10%	3,710
Breast Cancer	8%	2,817
Prostate Cancer	7%	2,630
Top Four Cancers	55%	19,727

Number of deaths represents combined years 1992-1996. Source: SC DHEC Division of Biostatistics, Office of Public Health Statistics and Information Systems.

We do not have a cure for cancer. Our greatest hope in reducing the number of lives lost to this disease is to target cancers which can be prevented or can be treated if they are detected at an early stage. The top four killers, lung, colorectal, breast, and prostate, are all cancers we can do something about.

Lung cancer deaths could be cut by as much as two thirds within a few decades if we can reduce the number of people who smoke. Breast, colorectal and prostate cancers can be detected at an early stage through routine, inexpensive, tests. People can live for years after a diagnosis of these diseases if they are caught early enough. (Table 1.2).

Table 1.2 What We Can Do To Save Lives in South Carolina

Cancer Type	Potential for Prevention/Detection	Survival Rates
Lung	Prevention: Tobacco-use cessation. No practical early detection methods.	49% Local Stage 02% Distant Stage
Colon	Prevention: Nutrition and exercise. Early Detection: FOBT, sigmoidoscopy	93% Local Stage 08% Distant Stage
Breast	Early Detection: Mammography and Clinical Breast Exams.	97% Local Stage 21% Distant Stage
Prostate	Early Detection: Prostate Specific Antigen (PSA) and Digital Rectal Exam (DRE).	100% Local Stage 31% Distant Stage

Survival rates are five-year relative survival rates, adjusted for normal life expectancy.
Based on cases diagnosed 1986-1993 followed through 1994, American Cancer Society, 1998.

The South Carolina Cancer Control Advisory Committee has targeted two additional cancers: cervical cancer and skin cancer for intervention. Cervical cancer is top priority because our death rates for this cancer are among the highest in the nation – *for a disease which is completely curable when detected early*. Skin cancer is a top priority because of the alarming rise in incidence rates and enormous potential for public health intervention.

The chapter which follows is an overview on cancer in South Carolina. The first section of this chapter provides a one-page summary on each of the six priority cancers: lung, colorectal, prostate, breast, cervical and skin. This section includes death rates, survival rates, and costs for hospitalization. We also discuss what we can do, through prevention or early detection, to save lives from each of these cancers. The second section of the chapter looks at how South Carolina compares to the rest of the United States in cancer deaths — for several cancers, South Carolina leads the nation in cancer deaths. The third section of this chapter is a preliminary review of the cancer mortality gap between blacks and whites in our state.

This information is intended as an overview only; a comprehensive report on cancer in South Carolina, which will focus on incidence rates and include county by county data, will be available from the SC Central Cancer Registry in early 1999.

Lung Cancer

Lung Cancer is the most common cause of cancer death in South Carolina. This single disease kills more South Carolinians every year than homicide, suicide and accidents combined.

Cigarette smoking is the major cause of lung cancer and far outweighs all other risk factors in its effect. Nearly 85% of lung cancer cases are attributable to smoking.

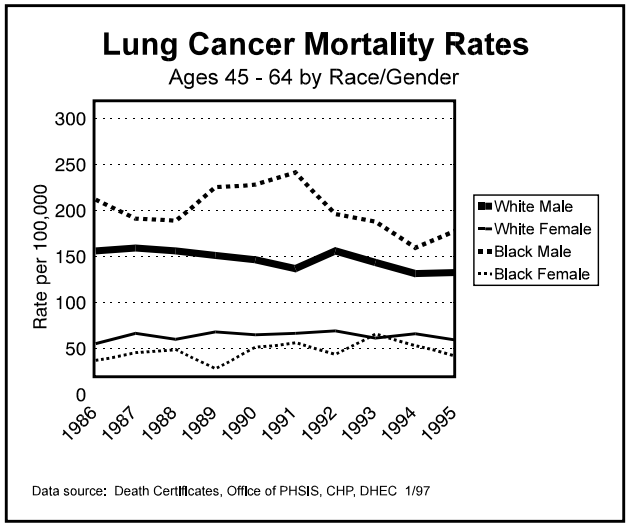
Lung cancer is the leading cause of cancer mortality in white men, black men, and white women in this state, and is second only to breast cancer for black women. (Figure 1.1, 1.2)

Although the mortality rate in men began to plateau in the late 1980's and has subsequently declined, the lung cancer mortality rate for American women has increased at an extraordinary rate. Between 1960-62 and 1990-92, lung cancer mortality rates for women increased 438%.

Hospitalization charges in 1996 from lung cancer were almost $40 million in South Carolina. It is estimated that the cost to society for the care of patients with lung cancer in America is 4.5 billion dollars per year.

Lung cancer statistics are grim. And though deaths due to lung cancer are largely preventable, change is not easy – nicotine is one of the most powerfully addictive substances on the market.

But there are also statistics which show that people can change. In South Carolina, 565,000 adults have stopped smoking and a 1995 survey found that 73% of current smokers want to stop (CDC, 1996; BRFSS 1995). A central goal of this five-year plan is to develop resources and policies to help them stop.



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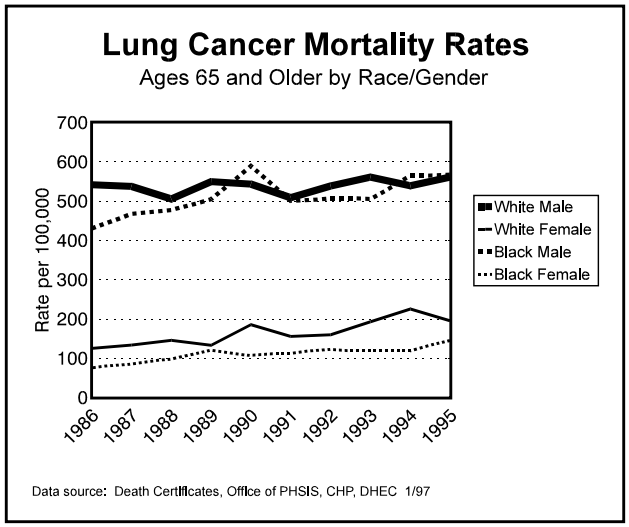

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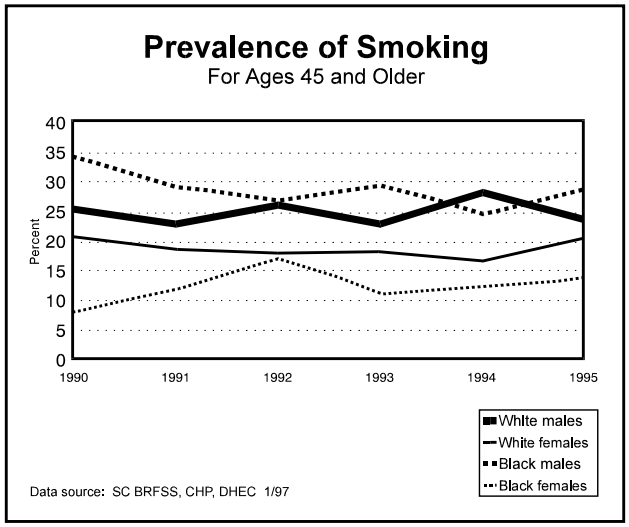


figure 1.3

Colorectal Cancer

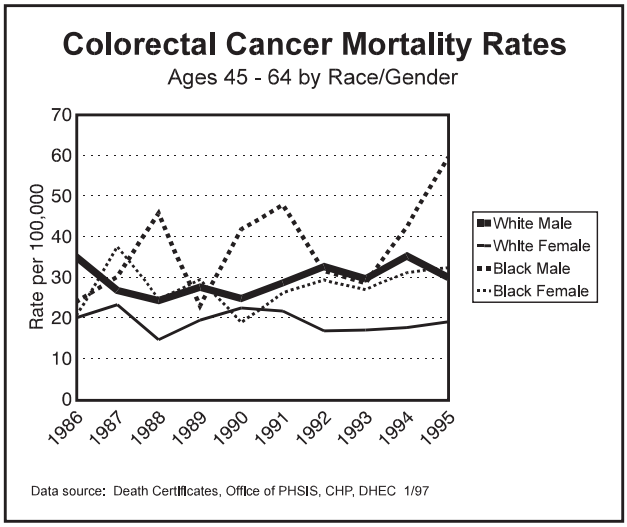
Cancer of the colon and rectum will afflict 4% of the people in the United States during their lifetime and is the second leading cause of cancer death in South Carolina. Colorectal cancer mortality is highest in the black male population (28.6 per 100,000 population) followed by white men (21.8 per 100,000), black women (18.6 per 100,000), and white women (14.1 per 100,000). (Figure 1.4, 1.5)

Risk factors include having a first degree relative with colorectal cancer and/or having familial polyposes or ulcerative colitis. Possible behavioral risk factors include a sedentary lifestyle and a diet high in saturated fat, and low in vegetables and grains. (Figure 1.6)

Survival depends crucially on the stage at which the disease is diagnosed. Five-year survival rates range from 91% at the earliest stage to 8% at the advanced stage. South Carolina hospitalization charges for colorectal cancer were more than $31 million in 1996, with an average cost of $16,994.

Early detection, through Fecal Occult Blood Testing (FOBT), Digital Rectal Exams, sigmoidoscopy, colonoscopy, and barium enema x-rays can help identify precancerous polyps and identify this disease while it is still at a curable stage.

There is a significant gap, however, between available medical technology and preventive behavior: a 1992 National Health Interview Survey of adults 50 and over showed that only 26% of the surveyed group had had an FOBT in the past 3 years, and 17% had never heard of the test. These statistics illustrate the need to educate both health care providers and the public about these life-saving tests.



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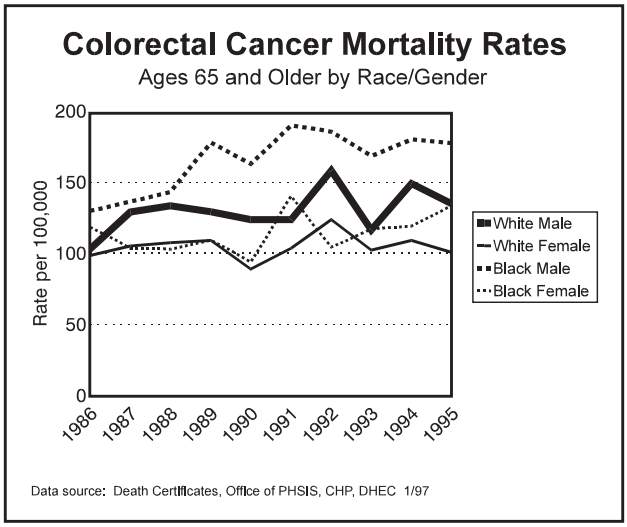

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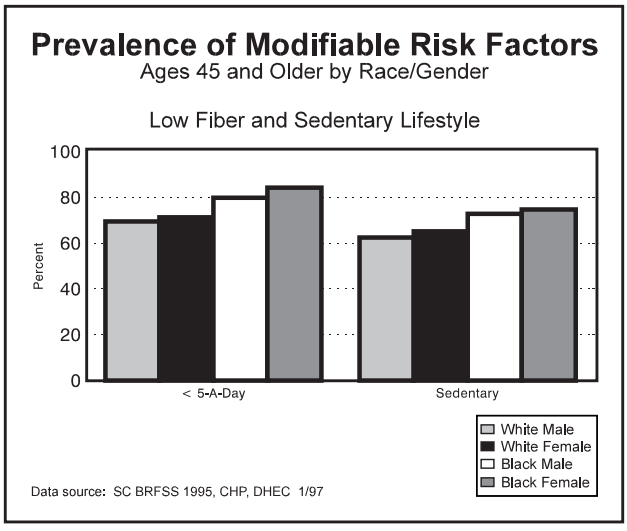


figure 1.6

Breast Cancer

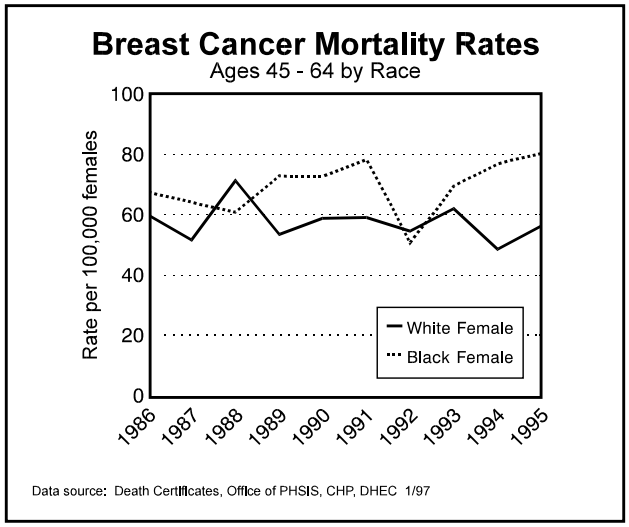
Breast cancer is the most commonly diagnosed cancer in American women, and the second leading cause of cancer death. One woman in eight will develop breast cancer in her lifetime.

In South Carolina, more African-American women die each year of breast cancer than any other cancer. Their mortality rate is 29.2 deaths per 100,000 women. For white women, breast cancer ranks second only to lung cancer and the corresponding mortality rate is 24.1 deaths per 100,000 women. (Figure 1.7, 1.8)

Five-year survival rates for breast cancer range from almost 100% for non-invasive or *in situ* cancer, 97% for localized cancer, 75% for cancer that has spread regionally, to 20% for distant cancers. The survival rate for African American women is 15% lower than for white women and, although black women have a lower incidence of breast cancer, they are twice as likely to die within the first five years of diagnosis.

The most powerful weapon against breast cancer is early detection through mammograms, clinical examination, and self examination. The American Cancer Society (ACS) recommends mammograms every 1-2 years for women aged 40-49 and every year for women 50 and over.

Women who are over 40, poor, rural, less educated and/or African American are the least likely to receive testing. (Figure 1.9) The Best Chance Network (BCN), a joint effort of DHEC and ACS, funded by the Centers for Disease Control was created to reach these women. Since inception, BCN has provided over 55,000 breast and cervical cancer screenings to underserved women in South Carolina.



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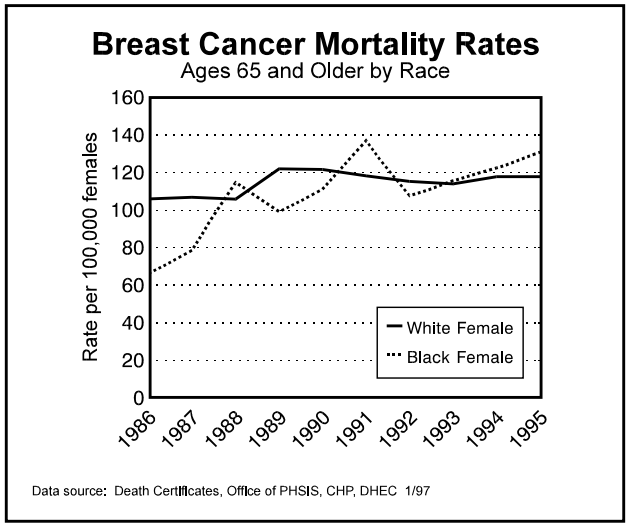

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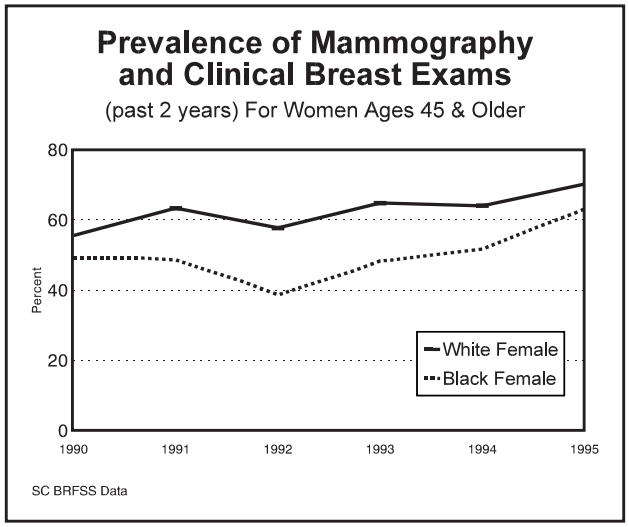


figure 1.9

Prostate Cancer

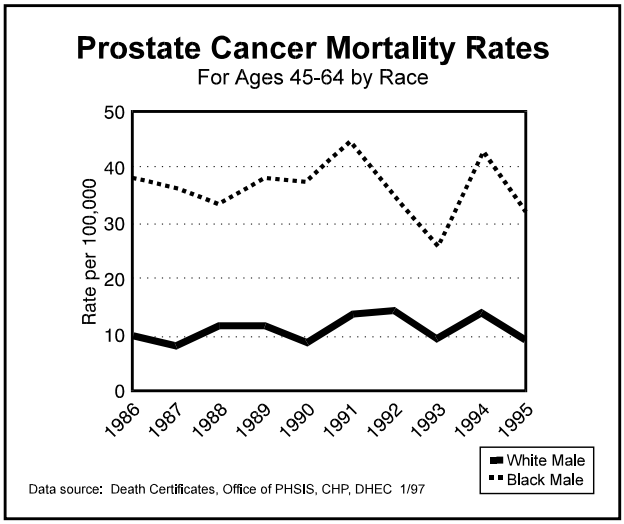
Prostate cancer is the most commonly diagnosed cancer among American men after skin cancer and the second leading cause of cancer death in men after lung cancer. More men die of prostate cancer in South Carolina than in any other state in the union.

The number of men diagnosed with prostate cancer in the US has increased dramatically in the past fifteen years, due largely to new detection techniques, such as Prostate Specific Antigen (PSA) testing. From 1980 to 1990, prostate cancer incidence rates increased 65%.

African American men, who have one of the highest incidence rates of prostate cancer in the entire world, are hit particularly hard by this disease. While incidence rates are not yet available, the death rate for black males in SC, at 62.8 deaths per 100,000, *is more than twice* the rate of white males, at 27.5 deaths /100,000 (Figure 1.10, 11). The causes of prostate cancer are not well understood, although some researchers believe that a high-fat diet may be implicated. (Figure 1.12).

As with other cancers, survival is related to the progress of the disease at diagnosis. When prostate cancer is caught early, survival rates are excellent: the five-year survival rate is 100% at the localized stage compared to 31% if the cancer has spread to a distant site in the body. Hospitalization charges for prostate cancer were almost $26 million for South Carolina in 1996.

National leaders such as General Norman Schwartzkoph, Intel founder Andy Grove, and Senator Robert Dole, have all battled this disease and survived. The challenge ahead, for doctors and the public health community, is to give the average South Carolina man the same chance for survival as our national leaders.



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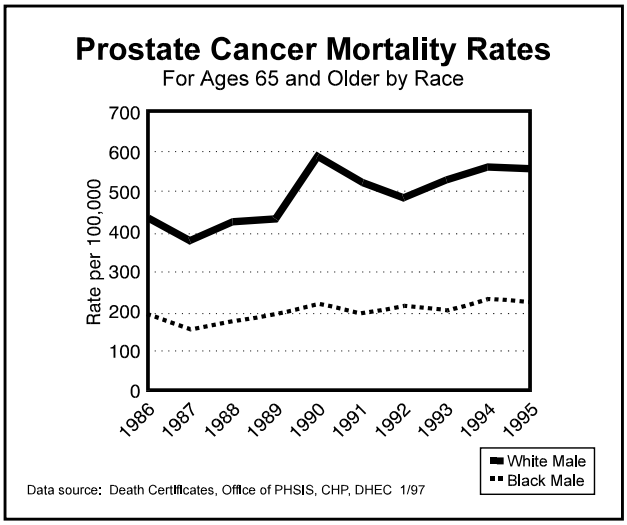

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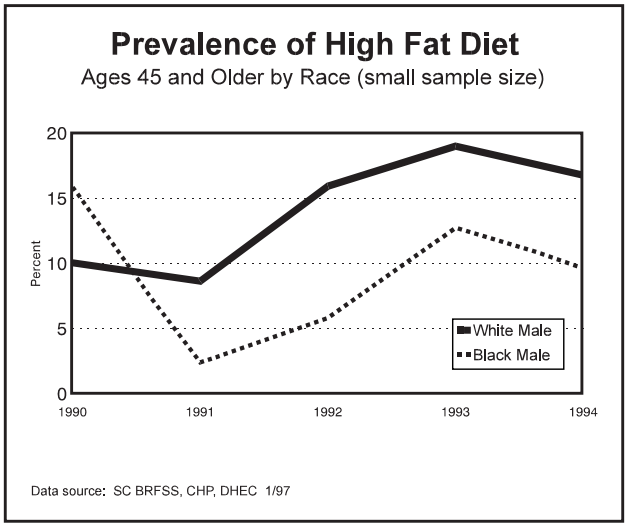


figure 1.12

Cervical Cancer

South Carolina has the fourth highest mortality rate in the nation for cervical cancer, *a disease which is 100% curable, if found in its earliest stages.*

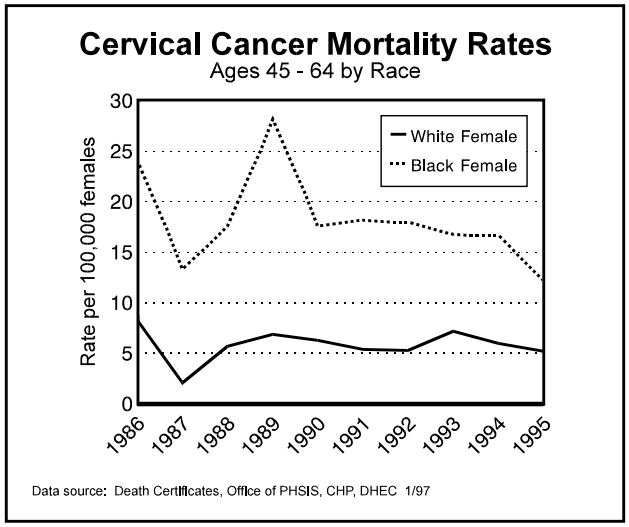
South Carolina's cervical cancer death rates have been declining in both white and non-white women. However, the rate among black women, at 7.2 deaths per 100,000, continues to be nearly three times greater than white women, at 2.5 deaths per 100,000. (Figure 1.13)

Survival rates for this disease range from 92% when the cancer is diagnosed early to 9% when the cancer has spread to a distant site in the body. Total hospitalization charges were more than $2.6 million for cervical cancer in 1997. The average cost per patient was $10,398.

African American women are at high risk for cervical cancer, along with women with a history of genital HPV of certain types. Cervical cancer is also prevalent among women who have sexual intercourse at an early age; have been pregnant more than five times, starting at an early age; and who have had multiple sexual partners, or partners who have had multiple sexual partners.

Cervical cancer deaths can be largely explained by the lack of early detection. Even though screening indisputably saves lives and a Pap smear examination costs as little as $75, there are women in South Carolina who are still not being tested (Figure 1.14).

Women who are over 40, poor, rural, less educated and/or African American are the least likely to receive testing. The Best Chance Network (BCN), a joint effort of DHEC and ACS, funded by the Centers for Disease Control, is designed to reach these women. Since inception, BCN has provided over 55,000 breast and cervical cancer screenings to underserved women in South Carolina. (Figure 1.15)



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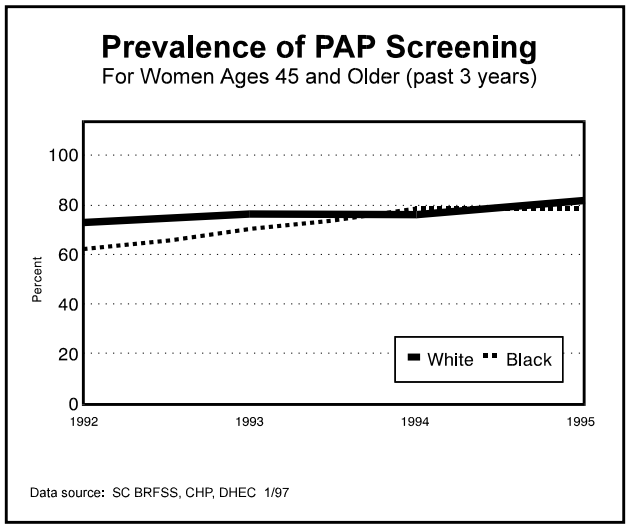

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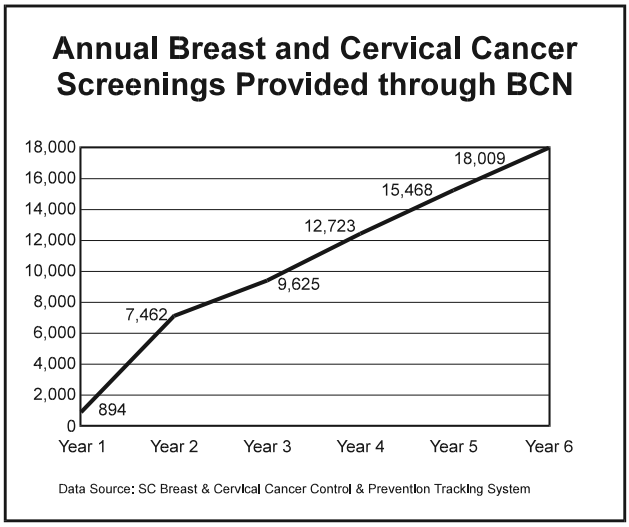

figure 1.15

Skin Cancers

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Skin cancer, the most common type of cancer in the United States, is a largely preventable disease. There are three forms of this cancer: basal cell carcinoma, squamous cell carcinoma, and melanoma.

An estimated one million new cases of basal cell or squamous cell carcinoma will be detected this year; approximately 40,000 new cases of melanoma will be diagnosed. Melanoma accounts for about 75% of skin cancer deaths. One person an hour dies from malignant melanoma.

Skin cancer incidence rates are increasing at an astonishing rate, both in the US and worldwide. In 1930, the chances of an American developing skin cancer was 1 in 1500. By the year 2000, researchers have estimated that the risk will be 1 in 75. Skin cancer rates are rising faster than any other cancer for men and are second only to lung cancer in women.

The primary risk factor for skin cancer is too much sun, particularly for lighter skinned people, who are predisposed to this cancer. Other risk factors are a family history and/or personal history of skin cancer.

Non-melanoma skin cancer is highly curable if treated early. Five-year relative survival rates for malignant melanoma range from 94% at the localized stage, to 60% for regional disease to 16% for cancer which has spread to a distant site in the body.

Children are particularly vulnerable to the effects of sun exposure. It is estimated that children receive three times the annual sun exposure of adults and that 80% of lifetime sun exposure generally occurs before the age of 18. Parents and caregivers can have a tremendous impact on the amount of sun exposure a child receives, and consequently, on their risk of cancer over a lifetime.

Table 1.3. SC Cancer Deaths vs. US Cancer Deaths

Cancer Type	SC vs US	SC Men	SC Women
Prostate	2	2	—
Cervical	4	—	4
Oral/Pharynx	3	3	12
Larynx	12	5	20
Esophagus	4	4	27
Multiple Myeloma	2	4	2
Pancreatic	7	14	10
All Sites	20	6	33

Based on SEER Cancer Statistics Review 1973-1994. Rankings are based on age adjusted cancer mortality rates by state, 1990-1994. A ranking of 1 highest; 51 is lowest.
(Prepared by SC Central Cancer Registry, 1997)

How South Carolina Cancer Rates Compare to the United States

South Carolinians' death rates from some cancers, including prostate and cervical, rank among the highest in the nation. (Table 1.3.)

Risk Factors for these Cancers

Prostate and Cervical Cancer, which are top priorities in this state, were discussed previously in this section and will be discussed in more detail in the Detection Chapter.

Oral Cancer. Oral cancer is related to behavioral risk factors, such as smoking, dipping smokeless tobacco and drinking alcohol.

There are no routine screening tests available for oral cancers, although these cancers can often be detected through careful dental or physical examinations. (ACS, 1997)

Esophageal Cancer. Those who are at highest risk of developing esophageal cancer include people over 60; males, especially African-Americans; and long-term smokers or drinkers. Smoking and drinking alcohol are especially dangerous in combination. There are no routine screening tests for esophageal cancer.

Multiple Myeloma. Scientists do not know what causes multiple myeloma and the course of the disease varies widely among those who have it. Those who are at highest risk for multiple myeloma include the elderly; African-Americans, who develop the disease twice as often as whites; and people who have been exposed to materials such as asbestos, benzene, pesticides, and others used in rubber manufacturing. (ACS, 1997)

Pancreatic Cancer. Those who are at greatest risk for pancreatic cancer include people between 60 and 80 years of age; men (slightly more common than women); people who smoke; workers exposed to solvents and petroleum compounds; and people with a history of pancreatic cancer in a close family member. (ACS, 1997)

Table 1.4a. Cancer Deaths for Men
South Carolina Combined Years 1992-1996

White Male	Number	Rate
Lung	5,352	85.5
Prostate	1,526	27.5
Colorectal	1,320	21.8
Pancreas	594	9.6
Leukemia	531	8.9
Non-Hodgkins	500	8.1
Brain	432	6.8
Bladder	366	6.3
Kidney	353	5.6
Oral/Pharynx	310	5.0
Esophagus	311	4.9
Stomach	288	4.8
All Cancers	14,211	232.4

Black and Other Male	Number	Rate
Lung	1,720	95.1
Prostate	1,104	62.8
Colorectal	521	28.6
Esophagus	343	19.2
Stomach	290	16.0
Pancreas	264	14.6
Oral/Pharynx	246	13.3
Leukemia	155	8.2
Mult. Myeloma	147	8.1
Kidney	106	5.7
Larynx	98	5.6
Liver	100	5.4
All Cancers	5889	325.4

Table 1.4b Cancer Deaths for Women
South Carolina Combined Years 1992-1996

White Female	Number	Rate
Lung	2,831	33.4
Breast	2,002	24.1
Colorectal	1,323	14.1
Ovarian	695	8.2
Pancreas	675	7.4
Non-Hodgkins	493	5.3
Leukemias	441	5.0
Brain	322	4.1
Kidney	247	2.8
Mult. Myeloma	240	2.7
Cervical	203	2.5
Uterine	222	2.4
All Cancers	11,933	136.6

Black and Other Female	Number	Rate
Breast	815	29.2
Lung	666	24.2
Colorectal	545	18.6
Pancreas	353	12.0
Ovarian	218	7.6
Cervical	203	7.2
Uterine	194	6.7
Stomach	183	6.0
Mult. Myeloma	162	5.6
Leukemia	121	4.0
Esophagus	80	3.0
Non-Hodgkins	81	2.9
All Cancers	4503	157.5

Based on SC Mortality Data, 1992-1996. Number of deaths represents combined total for 5-year period. Rates are per 100,000 population, age-adjusted to 1970 US standard population. “Black and other” includes all non-white populations (96% Black; 4% Hispanic, Asian, and other). Prepared by the SC Central Cancer Registry.

Racial and Gender Differences in Cancer Deaths

Although cancer can strike anyone – young or old, rich or poor, black or white, there are significant disparities in death rates among different groups of people in South Carolina. (Table 1.4)

African American men have the highest death rates from cancer (325.4 per 100,000 population), followed by white men (232.4), black women (157.5) and white women (136.6). Disparities in death rates from individual cancers are noted below:

Lung Cancer rates for both white men and black men are both considerably higher than for white or black females.

Esophageal Cancer ranks 4th in cancer mortality for African-American men. Their death rate from this cancer is almost four times as high as the death rate for white men and six times higher than that of African-American women. Esophageal cancer is considered to be a rare cancer; it accounts for less than 2% of all cancers in the United States.

Stomach Cancer is also more likely to affect African-American men than others – their death rate from the disease is two and one-half times higher than African-American women, three times the rate of white men, and eight times that of white women.

Bladder Cancer mortality rates are higher for white men, at 6.3 per 100,000 population, than any other group. Bladder cancer ranks 8th in cancer mortality for white men in South Carolina. Although incidence rates are not yet available for South Carolina, bladder cancer is the 4th most common cancer in American men and 8th most common cancer in American women.

The Uterine Cancer mortality rate for black women, at 7.2 deaths per 100,000, is nearly three times greater than that of white women, at 2.5 deaths per 100,000.

Ovarian cancer is the 6th deadliest cancer in South Carolina overall and is among the top ten cancers for both white women (4th) and black women (5th). The mortality rate for white women, 8.2 per 100,000 population, is higher than black women at 7.6 deaths per 100,000 women.

Risk Factors for these Cancers

Lung Cancer has been discussed previously in this section and will be covered in detail in the Prevention Chapter and Cancer Care Chapter of this report. *Esophageal Cancer* has also been discussed earlier in this chapter.

Stomach Cancer has been declining rapidly in the past decades, due mainly to improved methods of food handling and refrigeration. According to the American Cancer Society, those at highest risk for stomach cancer include people between 50 and 70; males; people who eat pickled or highly salted foods; people with pernicious anemia; and people who have had *Helicobacter pylori* infection. There are no routine screening tests used for stomach cancer in this country.

Bladder Cancer is more common among white men, smokers; people between the ages of 60 and 80; and among workers exposed to industrial chemicals such as benzidine and beta-napthylamine, aniline dyes, and organic chemicals used or produced in rubber manufacture, leather treatment and paint production. No routine screening tests are available for bladder cancer.

Ovarian Cancer. Women who are at higher risk of developing ovarian cancer are those with a first degree relative (mother, sister, or daughter) or second degree relative (grandmother or aunt) who has had the disease. (*See the Genetics Chapter of this document for more detail*.) Other risk factors include women who have had no children, who delayed childbirth until after age 35; and women with a history of breast or endometrial cancer. No routine screening tests are currently available for ovarian cancer.

Uterine Cancer. The causes of uterine cancer are unknown. Researchers believe that prolonged exposure to estrogen, without the balancing effects of progesterone is implicated. Uterine cancer is higher in women who have not had children, who took estrogen replacement therapy without progesterone (common in the 1970's), and who experience late menopause. Obesity also is a risk factor. There is no general screening test for uterine cancer.

It is difficult to design intervention programs for this group of cancers (esophageal, stomach, bladder, uterine, and ovarian), because there are no routine screening tests and also because we do not know enough about who gets the cancers and what regions need the most help. The new South Carolina Central Cancer Registry (SCCCR) will begin to give us this information this year, and can help build the foundation for public education/outreach programs to address these discrepancies in cancer death.

Owing to the absence of the SCCCR in the past, the data in this report and other assessments are based largely on mortality information (i.e., deaths). In years past, these data were regarded as generally consistent with the overall cancer patterns. Yet in recent years, with the improvement in detection and treatment, they are less representative. Mortality data may describe the populations where less access to early detection is occurring, or where there are medically underserved populations.

But mortality data does not provide a perspective on the number of persons diagnosed with cancer who are successfully treated and who survive their disease. The SCCCR will provide exactly that data, as well as much more, e.g., treatments received. These data on cancer deaths (not cancer deaths alone) will provide the 'full picture' and serve as a great benefit for evaluating successful screening programs and educational initiatives.

Chapter 2

Surveillance

South Carolina Cancer Prevention and Control

Chapter 2. Surveillance

Susan Bolick MSPH, CTR, Director, South Carolina Central Cancer Registry

The South Carolina Central Cancer Registry (SCCCR) is a population-based system for the collection, storage, analysis, and interpretation of data on South Carolinians with cancer.

It is located in the SC Department of Health and Environmental Control (DHEC), Office of Public Health Statistics and Information Systems (PHSIS). The SCCCR works cooperatively with DHEC Cancer Prevention and Control. Planning began for the registry in September, 1994, with a grant from the Centers for Disease Control and the registry began its full operation on January 1, 1996.

The central registry collects information on new cases of cancer in the state. For every new case of cancer, the registry records:

- When the cancer was diagnosed.
- Where the cancer occurred in the body.
- How far advanced the cancer was when it was found.
- Cancer type.
- The patient's treatment.
- Basic information like name, address, age, race, gender and county of residence.

Data will be used to determine the number, types, and severity of new cancer cases diagnosed each year in the state; to study trends on how often cancers occur in a defined area; to identify high risk groups that need to be targeted for cancer education, prevention, and screening; to provide information necessary to answer public questions about cancer in the community; to investigate the possible occurrence of more cancer cases than normal in a geographic area; and to provide information for scientific and medical research about cancer in the state.

Basic information comes from patients' medical records. All names and all data that could identify a patient are kept strictly confidential.

Registry Process

A mechanism for collection of cancer data is now established in all South Carolina acute-care hospitals, either through the individual hospital cancer program or through affiliation with a regional cancer registry operating in the state. These hospitals are categorized as: 1) hospitals with cancer registries, 2) hospitals reporting to regional cancer registries, 3) hospitals which neither have a cancer registry nor report to a regional cancer registry.

There are 22 hospital-based cancer registries staffed by trained cancer registrars. These hospitals are tertiary care centers providing treatment for patients referred from local facilities. Four of these hospitals report cancer data via a regional cancer registry. These hospitals are visited by a "circuit-riding" abstractor periodically. These hospitals have signed voluntary agreements with DHEC to allow the respective regional registry to report hospital data to the SCCCR. This policy avoids duplication of reporting. Thirty-seven hospitals do not have cancer registries and are not served by a regional registry. The SCCCR field abstractor monitors cancer cases at these facilities. No cost is incurred by the hospital for this service.

Coordination with State Agencies

Before the SCCCR was established, the only cancer morbidity data available in South Carolina was from the SC Budget and Control Board, Office of Research and Statistical Services (ORSS) which records all state hospital discharges by specific diagnosis. SCCCR continues to use statistical information from ORSS, and also cooperates with the Governor's Data Oversight Council. The SCCCR will also coordinate with the Geographic Information Systems group within DHEC to monitor geographic variation of cancer occurrences across the state.

Coordination with Non-Hospital Data Sources

In compliance with standards established by the American College of Surgeons and the North American Association of Central Cancer Registries (NAACCR) Council, information is collected from non-hospital sources. Because many cancer patients are diagnosed and treated in ambulatory care settings, the registry has initiated procedures to collect cancer patient data from both pathology laboratories and physicians' offices.

Benefits of SCCCR Data Collection and Analysis

The SCCCR allows DHEC to finally achieve long-standing objectives. An overall evaluation of the timeliness of patient diagnosis and efficacy of cancer treatment will emerge from analysis of the SCCCR database. Since data collection is conducted according to the guidelines of the National Program of Cancer Registries standards, the SCCCR data will be readily incorporated into national cancer surveillance efforts.

Behavioral Risk Factor Surveillance System

The Behavioral Risk Factor Surveillance Survey (BRFSS) is another key surveillance group within DHEC. BRFSS is coordinated by the Centers for Disease Control (CDC), and collects information about lifestyle choices and screening practices. This information is critical to the fight against cancer because a large percentage of cancers are associated with personal health behaviors. Over half of all annual cancer deaths in the US are attributable to behavior: one third to tobacco use and another third to unhealthy diets. BRFSS monitors such behaviors as:

- Tobacco and alcohol use.
- Dietary patterns.
- Physical inactivity.
- Use of preventive health services, such as breast and cervical cancer screening.
- Access to health care.

BRFSS interviewers contact adults 18 and older in a periodic telephone survey. Participants are selected through a random digit dialing method, so all South Carolinians with telephones are eligible. Data are then forwarded to CDC for weighting.

A separate survey, the Youth Risk Behavior Survey (YRBS), is conducted among high school students between grades 9 and 12. Questions in the YRBS survey include behaviors which result in the greatest premature morbidity, mortality, and social problems among youth, including: tobacco use, alcohol and other drug use, sexual behaviors that could result in HIV infection, unintended pregnancies, and dietary excesses and imbalances.

Because the BRFSS and YRBS surveys are conducted in every state, they allow researchers

and public health planners to compare South Carolina with the rest of the nation. These surveys help researchers compare differences within the state as well: between men and women, blacks and whites, different age groups, and people with different income and education levels. This information helps determine which public health problems warrant the most attention and also helps DHEC tailor health education programs toward those who most need them.

Cancer and the Environment

Cancer Cluster Investigations

Rachel Mayo, Dr PH, Clemson University

DHEC maintains a Cancer Cluster Hotline to respond to citizens' concerns about cancer in their communities. When citizens call the SC Cancer Cluster Hotline, investigators gather information about individuals with cancer in that community, as well as provide cancer education and resources to help the caller learn more about cancer.

A "cancer cluster" is a group of more cancer cases than normal in a small area, like a neighborhood, or within a short period of time. People report suspected cancer clusters to DHEC when they believe that an unusual number of their friends, family, neighbors or co-workers have cancer, even though cancer is very common.

A "true cancer cluster" is a very rare event, and exists when several cases of cancer, especially rarer cancers like bladder cancer, occur during a short time period in a group of people or if cancers are seen in young people. The group of people may have something in common, like living in the same neighborhood or working in the same plant, over time.

Pollution and workplace exposures account for only about seven percent of cancers. Some common agents in the environment can cause cancer, like asbestos, ultraviolet rays from the sun, radon, and benzene in gasoline. If an individual is exposed to these agents, at work or at home, his/her risk of getting cancer depends on how much of the cancer-causing agent they came in contact with, and for how long.

DHEC's cancer cluster staff work closely with the South Carolina Central Cancer Registry to find out if the number of reported cases is greater than what would be expected for that size population or time period. Investigations of reported clusters are important, because they can help determine an excess of cancer in a community or examine cancer risks in the environment. Nationwide, cluster investigators find that about 90 percent of reports are not "true clusters".

There are an increasing number of reports of clusters among neighbors, friends, and co-workers for several reasons:

- People are living longer, and age is the number one risk factor for cancer.
- The word cancer is no longer taboo and individuals in our society are more likely to discuss this disease.
- Today survival rates for most cancers are much higher, therefore, we are more likely to know someone who has had cancer.

Savannah River Regional Health Information System

Dan Lackland, Dr PH, Medical University of SC

Another resource for South Carolinians who are concerned about the impact of the environment on their community is the Savannah River Regional Health Information System (SRRHIS). SRRHIS began as a joint project of the Medical

University of South Carolina and Emory University to develop and maintain a cancer registry incorporating counties within 50 miles of the Savannah River Site (SRS), and those downstream to Beaufort and Savannah. This region comprised 22 counties in all, 10 in South Carolina and 12 in Georgia.

In January of 1997, SRRHIS published its first report about the occurrence of cancer in the Savannah River region. This report was based on more than 13,000 cases of cancer identified as newly diagnosed among SRRHIS residents during the years 1991 through 1993. The program aims were to provide a precise measure of the incidence of cancer in the area; to track their frequency over time; to promote research on the causes of cancer and ways to prevent or detect them earlier; and to promote the dissemination of information to the residents and professionals of the geographic area.

SRRHIS Community Education

In 1996, the SCCCR took over data collection for the Savannah River region. The current priority of SRRHIS is to be a forum for health concerns of the area's residents. A particular emphasis includes cancer rates and risks for the citizens in the Savannah River Region.

The SRRHIS Steering Committee is made up of multi-disciplinary professionals and residents of the Savannah River Region who serve in an advisory capacity to the project director. The 12 committee members constitute a variety of backgrounds representing Georgia and South Carolina. The committee meets quarterly, rotating the meeting place among the cities in the Savannah River Region. These meetings are open to the public and notices announcing the time and location are placed in local newspapers.

In an effort to inform the regional residents that SRRHIS recognizes their concerns about possible adverse health effects from environmental hazards, a series of community information/education meetings were developed. Through these meetings, SRRHIS informs the community about its goals and methods. They also constitute a forum for bringing out and identifying resident suggestions and concerns.

Risk Perception

Kathleen Whitten, University of Virginia

People often have difficulty knowing what poses a risk to their health. There might be several reasons for this — they can't read well and so they don't understand complex, technical information, or they refuse to believe that pleasurable activities like sunbathing or eating barbecue could contribute to their risk of developing cancer. Studies have shown that people are willing to accept 1,000 times the risk of injury of illness from an activity they want to do, like swimming or skiing, than from something they can't control, like pollution or a nuclear accident, even if they think the benefits are the same. In general, people say they have more fear of risks that they can't control, that might be fatal, are involuntary and might affect future generations (Weiss and Lee, 1996).

People are less fearful about known risks they can control, such as tobacco and alcohol use, than about nerve gas accidents and nuclear war, even though the latter are far less likely to cause health problems because they are so very rare. But people's distorted perceptions of risk might affect the way they react to health messages about the risks of smoking, alcohol and high-fat diets in relation to cancer. Inaccurate risk perceptions may also lead people to make inappropriate decisions about changing their risky behaviors. Health professionals need to take psychological reactions to risk into account in designing educational campaigns that encourage risk reduction.

Chapter 3. Cancer Prevention

Daniel Nixon, MD, Associate Director, Cancer Prevention and Control,
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In 1996, 555,000 *Americans lost their lives to cancer More than. half of those deaths could have been prevented with existing scientific knowledge on cancer prevention. Yet only a fraction of the nation's total health care dollars, less than one percent, goes toward prevention.*

There are urgent reasons to increase the emphasis on and funding for cancer prevention. These include an upward trend in cancer incidence, the increasing cost of cancer and the unfortunate lagtime between scientific progress and medical and public health applications.

Cancer Incidence

Cancer rates are increasing. The total number of new cases in the United States grew to about 1.2 million in 1997. Ten years ago, one in four Americans would experience cancer during his or her lifetime; now the rate is one in three.

Health Care Costs

Health care costs are increasing enormously because of expensive technology being applied to the management of chronic disease in an increasingly older society. More than a third of Medicare dollars are spent in the last months of life.

Lagtime

It generally takes years, even decades, for cancer prevention knowledge and technology to reach average people. The Pap smear, for example, was developed in the early 1940's but was not widely used until the 1970's. Mammography became available in the 1950's but was not widely promoted until the early 1980's. This same pattern is mirrored today in tobacco control efforts and in dietary recommendations (diet and cancer relationships have been suspected for nearly 100 years). These delays cost people their lives - and the delays are even more significant among working class, poor, and rural populations.

Behavioral Risk Factors

A large percentage of cancers are associated with lifestyle: what we eat, drink and smoke and how much exposure to the sun we get. Of the annual cancer deaths in the US, about one third are related to tobacco use (especially lung cancer and probably bladder and pancreatic cancers). Another third may be related to unhealthy diets; these include breast, colon and prostate cancers. Excess alcohol consumption also contributes to cancer, and has been implicated in cancer of the head and neck and esophagus. External factors such as environmental pollution contribute to a very small percentage of cancers.

Tobacco Use

Using tobacco causes about one-third of the annual cancer deaths in the US, especially lung cancer and oral cancers. The evidence for this

goes back almost 50 years. Chronic exposure to passive or secondhand smoke also contributes to cancer mortality. Smoking is also implicated in bladder, kidney, esophageal and pancreatic cancers.

An estimated 23.9% of South Carolinians smoke, according to the state's most recent Behavioral Risk Factor Surveillance Survey (BRFSS Data, 1995). This includes 28.0% of the male population and 20.1% of the female population. Whites are more likely to smoke than blacks (26% to 18.3%) and men are more likely to smoke than women (28 % to 20.1%). Trend data indicate that the percentage of South Carolinians who smoke is decreasing: from 30.2% in 1985 to 23.9 percent in 1994.

The trend data for adolescents, however, is alarming. In South Carolina, the percentage of youths who use tobacco increased roughly 60% from 1991 to 1995 and is still on the rise. More than 40% of both white males and white females smoke MRS, 1995). According to the Campaign for Tobacco-Free Kids, one-third of these kids will eventually die of tobacco-related

Diet and Cancer

Unhealthy diets are related to another one-third of cancer deaths in the US. The cancers related to diet are those of the gastrointestinal tract (colon, rectum, esophagus, stomach, pancreas and liver) and those of hormone-related origin (breast, ovary, endometrium and prostate).

The diet and cancer link was originally recognized from epidemiologic studies, because cancer rates vary widely around the world. People in industrialized countries who consume high-fat, low-fiber diets have much higher rates of breast, colon, and prostate cancer than people in non-industrialized nations.

A second link between cancer and diet came from migration studies. When people move to a new country, they tend over time to acquire the cancer risk of their new location. Japanese immigrants to the United States, for example, have a much higher risk of breast and colon cancer than native Japanese. Control studies have also demonstrated that diets low in fat are associated with tower cancer risks.

More recent studies indicate that what we eat may be as important as what we avoid. Dietary fiber, micronutrients and vitamins, along with phytochemicals, a host of non-nutrient components in vegetables and fruits, can lower cancer risk and protect people from cancer. An example of a phytochemical is ellagic acid, which is found in raspberries, strawberries, walnuts, and many other plants. Approximately 1000 potential chemopreventive compounds are now recognized and more are being tested in clinical trials.

In 1997, the American Cancer Society updated their guidelines for nutrition/ diet and cancer prevention. These guidelines encourage people to 1) Choose most food from plant sources; 2) Limit intake of high-fat foods, particularly those from animal sources; 3) Be physically active: achieve and maintain a healthy weight; and 4) Limit consumption of alcoholic beverages. BRFSS data indicate that 68.6% of South Carolinians eat fewer than five fruits or vegetables daily (BRFSS, 1995).

Alcohol and Cancer

Excess alcohol consumption is implicated cancer of the mouth, pharynx, larynx, esophagus and liver. Alcohol is particularly deadly when it is used in conjunction with tobacco. Chronic abuse of both tobacco and alcohol increases the risk of oral and respiratory tract cancer significantly Poor nutrition, often combined with alcohol abuse, also increases the risk of head, neck, and esophageal cancers.

Physical Activity

Physical inactivity is increasingly recognized as a cancer risk factor. Colon cancer risk is greater in sedentary people, and evidence is accumulating that low levels of physical activity increase the risk of breast and prostate cancer as well. The US Surgeon General recommends 30 minutes of moderate physical activity a day. This could be met by walking briskly for about two miles, activities such as swimming, calisthenics or jogging, or everyday activities such as gardening, housework, or yardwork. BRFSS data indicate that more than half of all South Carolinians, 63.4% of the population, lead a sedentary lifestyle.

Occupational Exposures

Pollution and work-place exposures account for only about 7% of cancers (Doll and Peto, 1981), although most people believe that the figure is much higher. Some common agents in the environment can trigger the develop of cancer, like asbestos (lung cancer), benzene in gasoline fumes (leukemia), radium (bone cancer), coal tar (skin cancer) and radon (lung cancer). If people are exposed to these agents, at work or at home, their risk of getting cancer depends on how much of the cancer-causing agent the person came in contact with and the length of exposure.

Strategies for Public Health Intervention

Enormous efforts by national public and private health organizations have fallen short in their attempt to make real, sustained changes in our behavioral habits. Many authorities believe that further cancer control lifestyle changes will require significant changes in social norms and values promoted by individual, community and environmental strategies along with targeted mass media campaigns and national policy decisions. Figure 3.1 (after Bal, *1995),* depicts how this process can work using dietary change as an example.

Cancer Prevention Through Diet

Existing ACS Programs as Examples

CHANNEL → ACS PROGRAM	PUBLIC AWARENESS	ORGANIZATIONAL DEVELOPMENT	FOOD SUPPLY
Grocery Store → Eating Smart	Media Events	Education of Supermarket Personnel, Coupons, Sales	In-store Information, Merchandising
Schools → Changing the course	Student, Parent, Community Education	Staff Education, Classroom Curriculum	Cafeteria Program
Mass Media → Great American Food Fight	Publicity Events, Media Advocacy	Education of Community Leaders	Grocery store, Cafeteria, Restaurant Menu Items
Worksites → Taking Control	Video, Small Group Sessions	Volunteer Training, Testimonials	Cafeteria Vending Machine Changes
Government → Public Affairs	Publicity About Diet – Cancer Statistics	Alliances for Legislation, Local Ordinances	Laws, Policies, Standards; ACS Catering Guidelines

STAGE OF CHANGE (What programs must accomplish for individuals and groups)	**PRECONTEMPLATION** (Learn why people are not thinking about change)	**CONTEMPLATION** (Create interest, motivation and readiness to change)	**PREPARATION** (Help people in their first attempts, remove barriers)	**ACTION** (Environmental: introduce cues, resources, and support to maintain the new behavior)

Adapted from Bal & Foerster

Figure 3.1

Community Level Change

Kathleen Whitten, University of Virginia

The choices people make about healthy lifestyles and the communities they live in have a major impact on their health. Most health conditions are not caused by a lack of medical technology or lack of access to medical professionals (Healthcare Forum, *1994).* The solutions to many of the leading causes of illness and premature death do not rest with hospitals; instead, they lie in socioeconomic factors, behavioral choices and the practices we encourage or condone as family members, neighbors and fellow citizens in communities (Healthcare Forum, *1994).*

Community organization is based on two principles: community participation and local leadership or ownership. The principle of participation means that large-scale behavioral change requires the people affected by a problem to be involved in defining it, creating ways to solve it, and establishing structures to make sure that the change endures. Local ownership means that local people must have a sense of responsibility for and control over programs promoting change in their communities, so that change continues after the initial organizing efforts end. Both principles are based on the premise that change is more likely to be successful and permanent when the people it affects are involved in as many phases of that change as possible.

Skin Cancer Prevention

Edward McClay and Mary-Eileen McClay
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The most efficient way to reduce mortality from skin cancer is to prevent the development of the disease. There are several epidemiological facts that support the theory that UV radiation from the sun is responsible for the majority of malignant melanomas. The incidence of melanoma is highest in the Caucasian population, especially in those who cannot tan effectively; the incidence of melanoma generally increases closer to the equator; melanoma is most common in Caucasian patients who have had blistering sunburns; and UV radiation has been shown to be a complete carcinogen and to induce melanoma in animal models (Ley et al., 1989; Setlow, et al., 1989; Romerdhal, et al., 1989). As the sun is the primary source for UV radiation exposure for the majority of people, then avoidance of the sun should ultimately reduce the risk of developing melanoma. There are a variety of strategies suggested to accomplish this: avoid sun exposure between the hours of 10am to 3pm when UV rays are strongest, cover up as much as possible, wear wide-brimmed hats and apply sunscreen, using an SPF of at least 15.

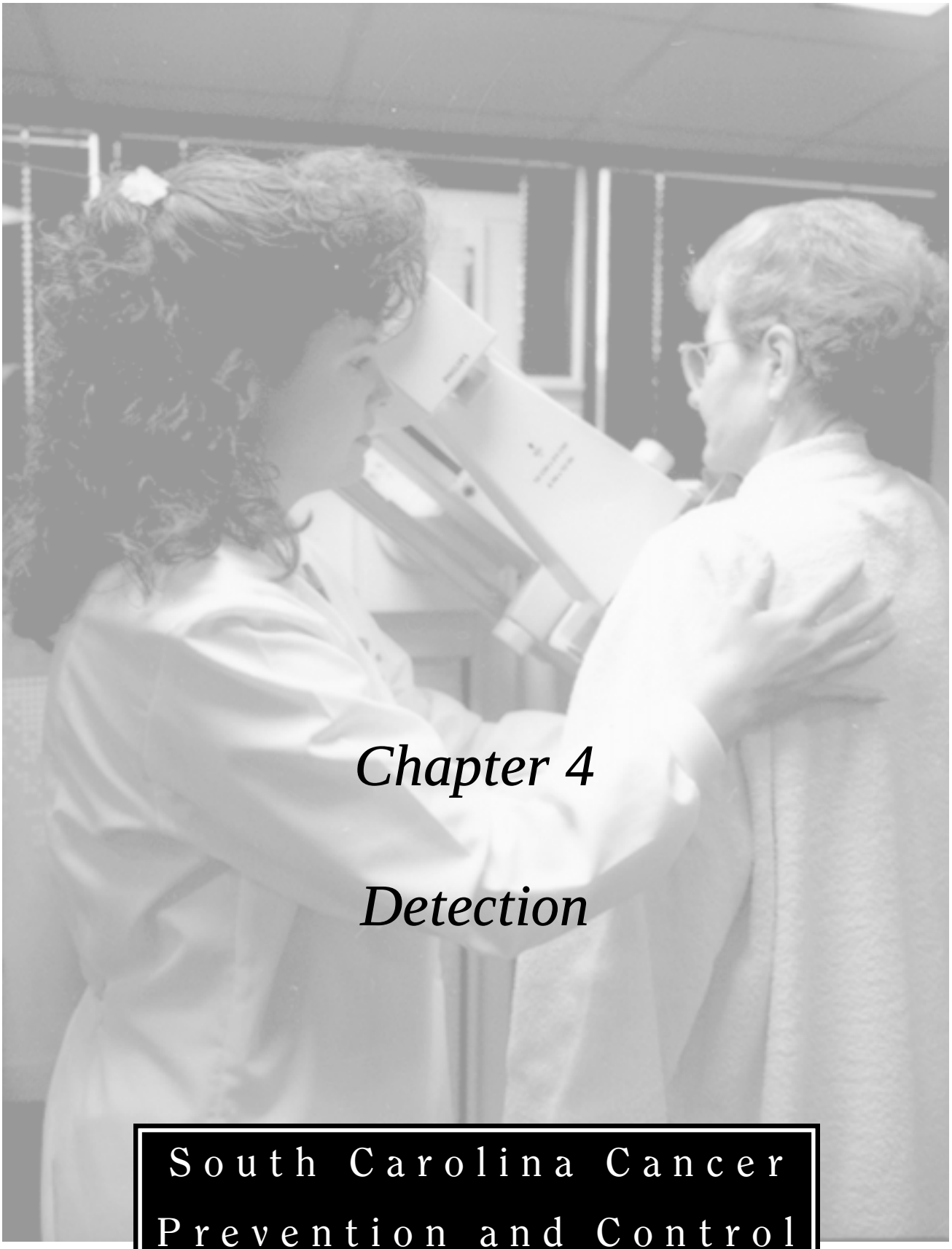
Sunscreens

Recent studies on the use of sunscreen in Australia have demonstrated that the regular use of sunscreens with an SPF of 17 decreased the incidence of new solar keratoses and also enhanced healing of already established lesions (Thomoson, et al., 1993). Similar data is not available to support a relationship between the use of sunscreens and melanoma. Two population-based studies conducted in Europe have suggested that the use of sunscreens is associated with an increased risk of developing melanoma (Autier, et al.; Westerdhal, et al., 1995). In contrast, a similar study conducted in the US, which evaluated melanoma in women, showed that a failure to use sunscreen was an important risk factor in the development of melanoma (Holly et at., 1995). These studies must be interpreted with caution, as they were conducted using retrospective data. Controls such as the type of sunscreen, the amount used and a previous history of sunburn were not always employed. Additionally, the amount of sun exposure, protected or unprotected was not quantified.

At the present time, there is good data to support the fact that sunscreens can prevent the development of solar keratoses and allow healing of solar elastoses. On this basis, it is justifiable to recommend the use of sunscreens routinely before sun exposure. However, while it is reasonable to conclude that a similar protection for melanoma exists, we should caution our patients that this area is more controversial and that the best advice is still to avoid sun exposure whenever possible.

Prevention Strategies

The most obvious target to begin with is the parents of young children. As 80% of our lifetime sun exposure generally occurs before the age of 18, parents can have a tremendous impact on the lifetime sun exposure of the upcoming generations. The education of parents can take many forms. Public service ads should be developed and run on a year-round basis. The Australian program of "Slip, Slop ‘and Slap" (Slip on a tee shirt, Slop on the sunscreen and Slap on a hat) was a tremendous success and became the model for future programs. Deliverers of health care, physicians, nurses, physician assistants, and nurse practitioners need to be educated about prevention of skin cancer. Many patients are far more likely to visit a primary care physician than a dermatologist. Pediatricians can also play a role in educating children and monitoring their sun exposure.



Chapter 4

Detection

South Carolina Cancer Prevention and Control

Chapter 4. Early Detection

There are more than one hundred different kinds of cancer but most share a common element: early detection can mean the difference between life and death.

Four of the most deadly types of cancer in South Carolina: colorectal, breast, cervical and prostate cancer, can all be detected at an early stage through routine, inexpensive tests. The challenge for the public health and medical communities in South Carolina is to determine how to make sure that people know about these life-saving tests and to help them break through financial, psychological, and transportation barriers to get the health care they need.

Colorectal Cancer

Colorectal cancer claims more lives in South Carolina than any other malignancy besides lung cancer, even though we have the medical technology to detect signs of this cancer long before it becomes deadly. Cancerous polyps and their precursors may be present in the colon for years before invasive cancer develops. Reducing mortality from colorectal cancer depends on detecting and removing these polyps and on treating invasive cancer in its earliest stages. (CDC, 1996a). The American Cancer Society reports that survival rates for patients with colorectal cancer could be increased from 55% to 85% with screening and early detection in conjunction with appropriate management. Three tests are currently available for colorectal cancer:

Fecal Occult Blood Testing (FOBT) tests for blood in a patient's stool sample. A positive test can indicate bleeding from a precancerous growth or from colorectal cancer.

However, FOBT has the potential for false positive and false negative results. False positive results can be caused by medical conditions or by certain drugs; false negatives can result because polyps and some cancers may not cause bleeding or may do so only intermittently. (ACS, 1997)

Sigmoidoscopy uses a hollow, lighted tube to visually inspect the wall of the rectum and distal colon. The 35cm sigmoidoscope can detect about 50-55% of polyps; the longer 60cm flexible scope is capable of detecting about 65-75% of polyps and 40-65% of colorectal cancers. (ACS, 1997)

Digital Rectal Examination (DRE) is the most commonly used screening test for colorectal cancer because it can be incorporated easily into routine physical exams, and requires no special equipment. (ACS, 1997)

Recommendations for Screening

American Cancer Society (ACS) recommends that the DRE test be performed every year after age 40; FOBT every year after age 50; and sigmoidoscopy, preferably flexible, every 3-5 years after age 50.

The US Preventive Services Task Force recommends that physicians include colorectal cancer testing with periodic flexible sigmoidoscopy and/or annual fecal occult blood testing (FOBT) in the periodic health examination of all persons aged 50 and over (CDC, 1996a).

Barriers to Detection

While there is compelling evidence that testing for colorectal cancer can find cancer at earlier and more curable stages, most Americans are not tested. National BRFSS data from 1992-1993 found that overall, 43% of the respondents reported having had a DRE during the preceding year, and only 28% reported having had a proctosigmoidoscopy during the preceding five years. Results from a 1992 National Health Interview Survey, of adults 50 and older, were even more disturbing: only 26.3% of those surveyed reported having had an FOBT; and only 9.4% reported having had sigmoidoscopy in the preceding three years. (CDC, 1996a) A preliminary review of existing studies indicates that there are four reasons why people are not receiving the early medical care they need to protect themselves from colorectal cancer:

1) Lack of information.
2) Patient reluctance.
3) Lack of physician referral.
4) Lack of financial resources.

Lack of Information. The 1992 National Health Interview Study looked at public awareness concerning colorectal cancer. The survey found that in the 50 and older age group, which is at highest risk for this cancer, nearly 17% had never heard of FOBT and 32% had never heard of sigmoidoscopy. (CDC 1996a)

Patient Reluctance. Many patients are advised of the screening recommendations but do not follow through on them. The nature of the exam itself is a barrier and generally does not raise an enthusiastic response from most patients. Second, scheduling a flexible sigmoidoscopy frequently involves a visit to another physician, if the primary care provider is not skilled at the procedure, which makes it easier for the patient to put off taking the test. (Seabrook, Pers. Comm., 1996.)

Lack of Physician Referral. Some research indicates that although physicians may agree with early detection guidelines, they may not always follow through with recommendations. In a survey conducted of North Carolina physicians, 80% of primary care physicians agreed with the ACS guidelines for screening sigmoidoscopy, but only 34% performed the procedure themselves and 27% referred patients elsewhere for the test. (NC Cancer Plan, 1996)

Lack of Financial Resources. As stated previously, fully one third of South Carolina's population is at risk of being medically indigent, with men more likely than women to be uninsured. Medicare does not currently cover screening for colorectal cancer, and SC insurers are not mandated by law to cover this type of testing.

Breast and Cervical Cancer Detection

Early detection of breast and cervical cancer can save lives. The low-dose X-ray mammogram can now detect a breast cancer smaller than a pea, at least two years before a woman or her doctor can feel a lump. At this stage, the disease is most curable – in fact, 92% of women who find the cancer early are alive five years later. But for women with cancer that has spread to nearby regions of the body, the survival rate drops to 71%; for those with cancer spread to distant parts of the body, it is only 18%. Breast cancer death rates could be decreased by an estimated 30% if women received mammograms at recommended intervals (Shapiro, 1989).

Cervical cancer could be controlled worldwide with the present level of knowledge and technology, if adequate funds and political support were channeled to it (Gusberg and Runowicz, 1991).

Cervical cancer has a relatively long preinvasive period, which can be detected by a Pap smear. The Pap test is usually done by a doctor or nurse as part of a pelvic exam. The five-year survival rate for women with cervical cancer found in the earliest stage is almost 100%; for localized cervical cancer, 88%; and for all cervical cancer patients, 66%.

Breast and cervical cancer deaths can be explained mostly by the lack of early detection of those cancers. Late diagnosis also increases health care costs. The cost of a Pap smear as part of a routine physical averages $75 and the cost of follow-up for an abnormal smear averages $500. Treatment at later stages can range from $5000 up to $22,000.

The SC Hospital Discharge Data System provides information on the total and average costs for hospitalizations for breast and cervical cancer. The average cost of a hospital stay for breast cancer in 1996 was $9,536; for cervical cancer, $10,398. Costs include only hospital charges, not surgeons' fees, pre-hospital tests, radiologists' fees, anesthesiologists' charges, or any of the dozens of other costs that add to a hospital bill. Average costs vary little by race or age. But the costs in dollars and in loss of life underscore the need for earlier detection and prevention efforts.

Barriers to Detection

There are several barriers which prevent older women and particularly older African-American women from taking advantage of early detection and screening methods. (AMC, 1992)

Lack of Referral. African-American women are more likely than whites to come to a physician for acute or chronic problems than for health maintenance issues. Many women who are in the health care system because of chronic problems, (diabetes, high blood pressure, or arthritis) are not appropriately referred for Pap tests or mammography. This makes it less likely that they will be screened and more likely that disease will be diagnosed at a later stage. In addition, studies strongly indicate that physician referral positively affects patient screening practices and that many older women cite this as the key reason for getting a mammogram.

Lack of Information. Many women believe that mammograms are unnecessary unless they have symptoms. Unscreened women often do not understand the purpose of regular screening. This is especially true if they are no longer sexually active, are not having babies, and have had negative experience with the health care system. Finally, many women do not understand that their personal risk for breast cancer increases with age regardless of family history.

Psychological and Physical Restraints. Many poorer women refuse to practice early detection because they fear cancer. In addition, African Americans hold attitudes that are distinct from non-Hispanics and whites in two areas — use of alternative health providers and fatalism regarding particular medical diagnosis. Some women feel that if they have a disease they would rather not know and that illness is part of God's will. Other women are simply afraid that mammography will hurt or are embarrassed to undress in front of strangers.

Lack of Financial Resources. Uninsured women and underinsured women are less likely that those with health insurance to have screening because of the cost. Medicare copayments can also be a financial barrier for low income women aged 65 and older.

Lack of Transportation and Access. Older women who live in rural areas and are immobile or live on fixed incomes are often confronted with this barrier to early detection. In many areas of South Carolina another real barrier is "health manpower shortage areas" – the actual number of providers able to deliver care is limited.

Prostate Cancer

Prostate cancer is the most commonly diagnosed cancer among American men after skin cancer and the second leading cause of cancer death in men after lung cancer. One out of every five American men will develop this cancer in his lifetime. *More men die of prostate cancer in South Carolina than in any other state in the union.*

Prostate Cancer Detection – The Controversy

The most effective test for this type of cancer, *Prostate Specific Antigen (PSA)*, a simple blood test, can identify tumors years earlier than previous testing methods. This test, when used in conjunction with the Digital Rectal Exam (DRE) has the potential to save lives. But the PSA test can only indicate the presence of a tumor in the prostate — it cannot forecast its progression. It could be years or decades before the disease begins to cause the patient harm. A key question underlying the prostate cancer debate is "Do the benefits of prostate cancer screening outweigh the potential harm?" Some researchers believe that for one third of men with prostate cancer, the disease will remain indolent and will not cause significant harm. They warn that a diagnosis of cancer will inevitably lead to treatment, with significant unwanted side effects. A national trial, the Prostate, Lung, Colorectal, Ovarian (PLCO) trial, is designed to answer key questions about the efficacy of screening. Results are anticipated in about eight years.

Table 4.1 (after Correa, 1997) summarizes where major medical groups stand on prostate cancer detection. ACS recommends that all men 50 and over undergo both a DRE and a PSA test on an annual basis. Men in high-risk groups, such as African Americans, or those with a strong family predisposition, may start at a younger age.

The US Preventive Task Force recommends against routine PSA and DRE testing for asymtomatic men at this time and the Centers for Disease Control supports this position. In contrast, the American Urological Association recommends that African-American and other high risk men start testing at 40 years, as does the National Medical Association.

These groups have placed special emphasis on African American men because *they have one of the highest incidence rates of prostate cancer in the world.* African Americans are 37% more likely to get prostate cancer than are white men. Many reasons, ranging from socioeconomic, to diet and lifestyle, to genetics have been proposed for the startling differences between African Americans and other ethnic groups. The underlying reasons why more black men die from prostate cancer are still not completely understood. In South Carolina, where black men make up 31% of the male population and black men die of prostate cancer at a rate which is more than twice the rate of white men, these questions are critically important.

The South Carolina Prostate Cancer Task Force

The Prostate Cancer Task Force was established in 1997 as part of this overall five-year plan to address prostate cancer detection issues. This Task Force was formed because of 1) the critical problem of prostate cancer in South Carolina, which leads the nation in prostate cancer deaths 2) the controversial nature of prostate cancer detection, and 3) concern about the soaring rates of prostate cancer among African American men in South Carolina.

The purpose of the Prostate Cancer Task Force was to first develop a consensus statement on what we could *agree* about concerning advocacy, public education and professional education for this cancer. A summary of the recommendations from that group follows.

Table 4.1 Prostate Cancer Screening
Where the Medical Groups Stand

American Academy of Family Physicians Men aged 50 to 65 should be counseled about the known risks and uncertain benefits of screening.	November 1996
American Cancer Society PSA and DRE should be offered annually starting at age 50 to men with a life expectancy of at least 10 years and to younger men (ie, age 45) who are at high risk.* Information should be provided about risks and benefits.	June 1997
American College of Physicians Physicians should describe the potential benefits and known harms of screening, diagnosis, and treatment, listen to the patient's concerns, and then individualize the decision to screen.	March 1997
American College of Radiology A combination of DRE and PSA levels should be used as an initial screening procedure. Use TRUS to evaluate men who have an abnormal DRE or PSA level.	1991
American Urological Association Annual PSA and DRE substantially increase early detection and are most appropriate for men age 50 and older (40 and older for men at high risk*). Such patients should be given information about these tests and given the option to participate in screening or early detection programs. PSA testing should continue in a healthy man who has a life expectancy of 10 years or more.	January 1995
US Preventive Task Force Routine screening with DRE, PSA, and TRUS is not recommended.	December 1995
* Men with a family history of prostate cancer and African-American men.	

SC Public Health Position Statement on Prostate Cancer

Recommendations on Early Detection

- All men must be offered information regarding the risks and benefits of detection and treatment and additional guidance should be given to men at high risk or advanced age.

- Early detection may be clinically beneficial for the majority of men, especially African-American men between the ages of 40-70 years of age, and/or any man who has two or more family members with prostate cancer.

- All men are encouraged to make individual decisions about prostate cancer testing in consultation with their private physicians.

- Men without private physicians or clear access to health care need to be a priority in prostate cancer detection efforts in South Carolina. All men at high risk for prostate cancer should have access to detection, follow-up and treatment.

To be effective, prostate cancer detection efforts must incorporate the following:

- Use of state-of-the-art PSA testing.

- Use of generally accepted diagnostic procedures recommended by the American Urological Association.

- Appropriate interpretation of prostate cancer test results.

- Patient education, so that men are able to make informed decisions regarding follow-up for abnormal findings.

Recommendations on Support for Prostate Cancer Patients

Support groups are particularly important for men diagnosed with prostate cancer because of the overwhelming number of choices that a man and his family must make when a man is facing treatment for this disease. Support groups are also important because men have not traditionally had an established healthcare pathway. Support should incorporate a variety of strategies, including:

- Advocacy for patients to be partners in their care and to be active in decision making and seeking support. The quality of care is partly determined by the quality of communication between the patient, family, and physician.

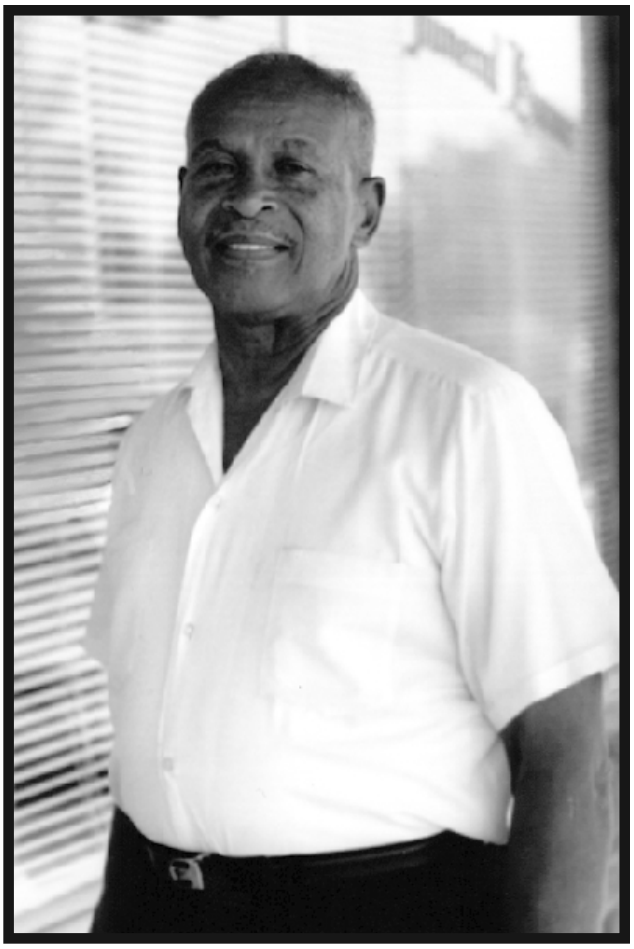
- Educational programs and materials for the patient and family to help the family understand the disease and the options available to them.

- Education for the medical community throughout South Carolina so that they are aware of the importance and availability of support groups for men who have either been diagnosed or treated for prostate cancer.

- Resources should be available for individual counseling, family counseling, and group support for prostate patients and their families.

- For men who are unable to attend conventional support groups, innovative methods for providing support, such as telephone counseling should be made available.

- Prostate cancer survivors and survivor's groups should be involved in developing a support network and health care pathway for men in South Carolina.



Recommendations on Advocacy

Even though a consensus does not exist in the public health community on what specifically should be done regarding prostate cancer detection and treatment, we must begin to develop solutions to this critical public health problem in South Carolina.

Resources – Resources and personnel must be available to address all aspects of prostate cancer.

Health Care and Capacity – Information on access to health care services and the quality of these services must be obtained to ensure availability and accessibility of state-of-the-art detection and treatment for all men in South Carolina.

Prostate Cancer and the African American Community

In November, 1997, "Prostate Cancer in the African American Community: An Agenda for Action" was convened in Atlanta, co-sponsored by the American Cancer Society, Centers for Disease Control and Prevention, and the National Cancer Institute and held in conjunction with the Intercultural Cancer Council, and 100 Black Men of America. The recommendations from this meeting included a call to incorporate community involvement in developing creative and innovative public education programs.

A guide issued to state health departments called for public health leaders to look at the issue of prostate cancer detection as more than a scientific issue: "We have come to realize that prostate cancer screening, like other public health issues is not only a scientific matter, but a social, political and cultural one as well. To address screening as a strictly scientific issue will risk alienating and angering a group with whom public health has an ethical and professional responsibility to build positive and useful relationships." The guide urged state health departments to build inroads into the communities through this issue: "There is an old public health care adage: *Start where the people are*. Ideally, instead of focusing solely on the contentious details of the screening debate, health departments can work with this issue as a bridge to other pressing health problems in the African American community." (CDC, *Preparing to Speak to Mass Media Organizations About Prostate Cancer Screening*, 1998.)

Community Leadership – Community leaders and policymakers must be educated to enable them to provide leadership. Outreach should focus on church leaders, legislators, agencies, health care providers, corporate leaders, medical universities and communities throughout South Carolina who can work together to develop solutions.

Prostate Cancer Network – A network must be created to bring South Carolinians together to address this issue.

This network should demonstrate an attitude of inclusiveness and respect, welcoming the ideas and concerns of all individuals. A central component of this network must be a grassroots, statewide effort to reach men who are poor and underserved, and have traditionally been outside the health care system. This network should empower these men to learn about their options, ask questions, be involved, make their own health care decisions, and seek the health care they need. The goal should not be to create one stance on any issue, but to share insights, culturally sensitive information, and opportunities to find solutions to the problems brought about by prostate cancer.

Cancer Genetics

Karen Brooks, MS, CGC, Division of Genetics, USC School of Medicine

Medical genetics is moving out of the laboratory and into the mainstream. Physicians are exposed to article upon article in medical journals while patients are increasingly bombarded by sensational reports in daily newspapers and television presentations. Breakthroughs in cancer genetics are occurring faster than any other field as more research is targeted toward uncovering the mysteries of the genetic code behind such common malignancies as breast cancer and colorectal cancer.

Most cases of cancer occur by chance in individuals who do not have a family history of cancer. Although all cancers are genetic, only about 5-10% are thought to be inherited. Another 10 to 15% are thought to comprise both hereditary as well as environmental factors, while the remainder are thought to occur sporadically. Table 4.2 illustrates our current understanding on individual cancers and genetic factors.

Table 4.2. Cancer Genetics

Cancer	Genetic Marker	Percentage Due to Hereditary Factors
Breast Cancer	BRCA1/ BRCA2	5-10%
Colorectal Cancer	MSH2, MLH1, PMS1,2, APC	15-20%
Prostate Cancer	HPC1	5-10%
Ovarian Cancer	BRCA1/BRCA2	5-10%

Cancers with Genetic Markers

Breast and Ovarian Cancer. Identification of the Bract and BRAC2 breast and ovarian cancer genes has made physicians, and the women they treat more aware of how family history can affect a person's risk for developing cancer. Breast cancer is the most common cancer in women. The chance that a woman who lives to the age of 85 will develop breast cancer is 1 in 9 (11%). Ovarian cancer is much less common than breast cancer with a 1 in 70 (1-2%) lifetime risk for women in the United States.

Most cases of breast or ovarian cancer occur by chance in women who do not have any family members diagnosed with cancer. However, 5-10% of women who develop breast or ovarian cancer will have a strong family history of one or both of these malignancies.

Colorectal Cancer. Colorectal cancer is the second most common cancer diagnosed in the United States. The chances that a person will develop colorectal cancer in his or her lifetime is 6%. Approximately15-20% of people who develop colorectal cancer will have a family history of the condition.

Prostate Cancer. Prostate cancer is the most common form of cancer diagnosed in males in the United States. The chance that a man will develop prostate cancer in his lifetime is 9.5%. An aging population, as well as improving detection methods, continues to make prostate cancer a common malignancy. As with other cancers, most cases of prostate cancer occur by chance in individuals who do not have any family members diagnosed with prostate cancer. However, 5-10% of men who develop prostate cancer will have a strong family history of this malignancy.

Genetic Counseling

For some people, having a family history of one of these four cancers means that they have a high chance of developing one of these cancers, and in some cases, other cancers as well. Cancer runs in these families due to an inherited mutation in a single cancer-disposing gene. This is called hereditary cancer.

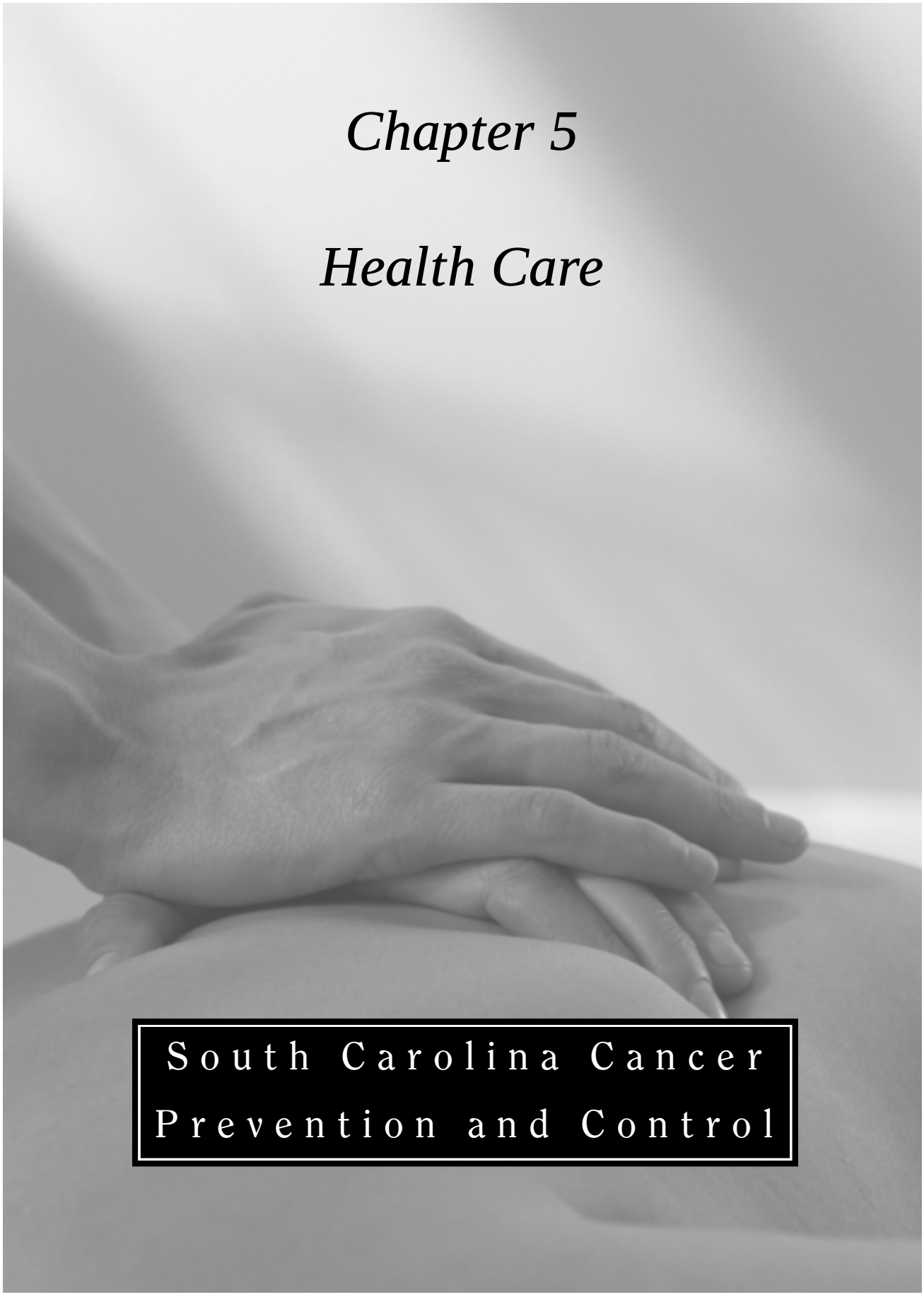
Identifying individuals at increased risk for hereditary cancer begins by constructing a three-generation, cancer-targeted pedigree and/or asking very structured questions regarding the family history. The purpose of pedigree analysis/family history assessment is to look for characteristics of hereditary cancers. If a family history is suggestive of hereditary cancer, the next step is to refer the patient for genetic counseling and cancer risk assessment. Genetic counseling for genetic risk assessment is a service which involves translating basic genetic concepts into an understandable form of information for patients, confirming family histories via medical record documentation for cancer diagnoses, discussing the nature and magnitude of cancer risks, reviewing the benefits, risks and limitations of cancer genetic testing, and recognizing the psychosocial impact of cancer risk assessment.

When a family history does show a pattern of hereditary cancer, then genetic testing may be an option. These blood tests allow scientists to look directly at specific genes for cancer-causing mutations. It is often necessary to have a blood sample from a family member with cancer in order to participate in genetic testing. This test cannot rule out the possibility of ever developing any cancer. Yet, within a hereditary cancer family, it can identify those individuals at higher risk (i.e., those who inherited the mutated cancer gene) versus those whose cancer risk is not increased.

The goal of genetic counseling is to make families aware of their genetic risk. Sometimes, people learn that their cancer risk is less than they expected. Yet it is also important to identify people who may have a higher chance of developing cancer so that these individuals can be followed carefully by their physicians. Possible medical management strategies include increased cancer screening, guidelines for nutrition and exercise, prophylactic surgeries, and chemopreventive agents. The ultimate goal is early cancer detection or prevention.

Cancer Genetics and Public Policy

Advanced genetic testing gives us a screening tool which can be used before cancer has even had a chance to develop. For individuals who carry a genetic marker for cancer predisposition, clinicians can recommend surveillance and possibly aggressive surgery. This new technology has the potential to save lives. At the same time, these advances open an ethical frontier for clinicians, public health professionals and legislators. Without clear legislative protection, patients could potentially become uninsurable if their medical records carry documentation for the genetic predisposition of certain cancers. These issues, which are unprecedented, must be dealt with legislatively to ensure that South Carolinians are protected as new molecular biologic techniques are introduced.



Chapter 5

Health Care

South Carolina Cancer Prevention and Control

Chapter 5. Health Care

Whether South Carolinians receive the best, most effective services, barely adequate care, or none at all depends on many factors, including income and where they live.

Because South Carolina is a rural state, many people live in counties without doctors who specialize in cancer care and without hospitals offering cancer services.

Income is also a factor. A study funded by the South Carolina Hospital Association found that nearly a third of South Carolinians are at risk of becoming medically indigent. People who are "medically indigent" cannot fully pay for all the health services they need. They include people who cannot pay all of their hospital or doctor bills, and people who decide not to get the care they need because they cannot pay for it. The medically indigent include South Carolinians who are unemployed, who work part-time and people who work full-time.

Most people think that Medicaid pays for medical care for all poor people in South Carolina, but because of tight eligibility requirements, more than half of the poor are uninsured at some point during the year. A South Carolinian does not qualify for Medicaid unless he/she is blind, permanently and completely disabled, or pregnant. On an average day, there are more than 500,000 uninsured people in the state. *Nearly half of the uninsured in South Carolina are in families headed by a worker* (Conover, 1992).

The medically underserved do not get the preventive health care they need. Poor uninsured women, for example, are 50% to 60% less likely than insured women to have Pap smears and mammograms. For them and for the economy, that decision is penny-wise and pound-foolish: a study in Washington, DC, found that nearly 40% of all hospital care provided to the uninsured was medically preventable. In South Carolina, that translates to roughly $25 million a year wasted on avoidable hospital care for the uninsured.

The total bill for medically indigent people is even higher. In 1990, US taxpayers spent $1.5 billion to subsidize health care for those who did not fully pay their bills. The federal government, or taxpayers in all the states, paid about half of that $1.5 billion. State and county governments covered $258 million directly. Other sources, like cost-shifting to private paying patients in South Carolina, accounted for more than $500 million.

The patchwork system of paying for health care for South Carolinians, and for all Americans, means that some people fall through the cracks of coverage into serious illness and death from preventable diseases, including cancer. It also means that some people will delay getting tested for cancer because they cannot afford it. When their cancers are eventually diagnosed, they will be advanced and will cause more suffering and earlier death than if they had been found early.

State-Aid Cancer Program

Solita McDowell, Coordinator, South Carolina State-Aid Cancer Program

The State-Aid Cancer Program was established in 1939 to treat medically indigent people diagnosed with cancer or abnormal Pap smears. Today, nine hospitals in South Carolina serve patients in the State-Aid Cancer Program (Table 5.1).

Eligibility

Patients must be residents of South Carolina to participate in the State-Aid Cancer Program. Additional eligibility is determined by medical and financial criteria. Patients in the program must be referred by a physician.

Medical Eligibility

To be medically eligible, the patient must have one of the following:

- A confirmed diagnosis of cancer by a cancer specialist.
- A high-grade precancerous cervical lesion.
- Diagnosis of Atypical Glandular Cells of Undetermined Significance (AGUS).
- Diagnosis of gestational trophoblastic disease.
- Blood disorders, including: myeloproliferative disease, myelodysplastic disease, and polycythemia vera.

As of August, 1998, the most prevalent cancer diagnosis in the State-Aid Cancer Program was breast cancer, followed by cervical cancer, lung cancer and colon cancer. (Table 5.2)

Table 5.1 State Aid Cancer Program
Total Active Caseload by Provider

Provider	Number of Active Cases
Anderson Area Medical Center	72
Baptist Medical Center	84
Greenville Memorial Hospital	328
McCleod Regional Medical Center	123
Medical University of SC	584
Orangeburg Regional Medical Center	9
Richland Memorial Hospital	340
Self Memorial Hospital	54
Spartanburg Regional Medical Center	184
Total	1,778

Active cases as of August, 1998.
Prepared by State Aid Cancer Program staff.

Table 5.2. State Aid Cancer Program
Most Prevalent Cancer Diagnoses

Diagnosis	Number
Breast	326
Cervical	128
Lung	82
Colon	79
Skin	54
Lymph Nodes	48
Uterine	48
Blood Disorders	45
Prostate	31
Ovarian	27

Active cases as of August, 1998.
Prepared by the State Aid Cancer Program staff, 1998.

Table 5.3. Hospitals Providing State Aid Program Services

Hospital	Medical Oncology	Theraputic Radiology	Gynecological Follow-up	Outpatient Surgery
Anderson Area Medical Center	•	•		
Baptist Medical Center	•	•		•
Greenville Memorial Hospital	•	•	•	•
Regional Medical Center of Orangeburg	•	•		•
Medical University of South Carolina	•	•	•	•
McCleod Regional Medical Center	•	•		•
Richland Memorial Hospital	•	•	•	•
Self Memorial Hospital	•	•	•	•
Spartanburg Regional Medical Center	•	•	•	•

Financial Eligibility

To be financially eligible, a patient must be medically indigent (family income 250% of current Health and Human Services income guidelines), be without any type of insurance, and provide proof of medical indebtedness.

Services Provided

The State-Aid Cancer Program will pay for:

- Outpatient services.
- Prescription drugs for cancer-related treatment not provided by the Prescription Drug Patient Assistance Program.
- Outpatient dental care that is necessary for optimal cancer therapy.
- Palliative treatment for the relief of side effects/symptoms directly related to current or past cancer treatment.
- Outpatient surgery procedures.
- Radiation therapy.
- Chemotherapy.

Physicians' fees, transportation, inpatient care, cosmetic treatment or reconstructive treatment and home health care are not covered.

Physicians who care for State-Aid patients volunteer their services. Follow-up care is provided for five years from initial treatment. Patients are then referred back to their private physician.

Hospitals Participating in the State-Aid Cancer Program

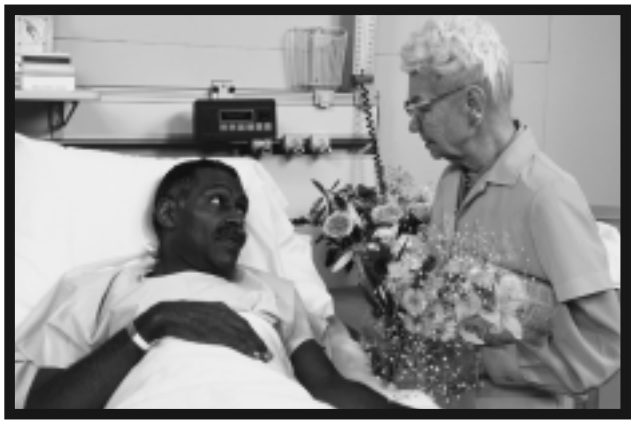
Hospitals must meet certain criteria to receive state funds for the State-Aid Cancer Program. These include:

- Have and maintain accreditation by the American College of Surgeons' Commission on Cancer.
- Have oncologists willing to provide free services.
- Qualify for Health and Human Services Disproportionate Share funds.

Hospitals which serve State-Aid patients cluster in only eight South Carolina counties, leaving patients in some parts of the state to drive at least one and one-half hours to reach a participating hospital.

The availability and distribution of cancer care services makes it even more difficult for patients to get the care they need. For example, gynecological follow-up is offered in only five of the State-Aid hospitals: Greenville Memorial, Medical University of South Carolina, Richland Memorial, Self Memorial, and Spartanburg Regional Medical Center (Table 5.3). This means that patients in the southwestern counties, which include some of the poorest sections of the state, must travel all the way to Charleston for medical care.

Each year, the Cancer Control Advisory Committee recommends that DHEC request additional funds for outpatient care from the South Carolina General Assembly. However, state appropriations have remained constant, at around $1.1 million per year.



Prescription Drug Patient Assistance Program

The Prescription Drug Patient Assistance Program provides prescription medicines free of charge to physicians whose patients might not otherwise have access to necessary medicines. Staff are encouraged to utilize all available free medication services to reduce costs to the hospitals, the State-Aid Cancer Program, and to the indigent patient.

Medically Indigent Assistance Program (MIAP)

This program covers up to $15 million of inpatient hospital care for people not eligible for Medicaid or other government programs, and who do not have adequate resources to pay for their care. Their gross family income cannot exceed 200% of federal poverty guidelines. There is a MIAP office in each SC county.

Hospitals and Clinics in South Carolina

South Carolina has 72 acute-care general hospitals. In 1997, sixteen of these hospitals, recognized as providing quality cancer care, were approved by the American College of Surgeons' Commission on Cancer. To be approved, hospitals are required to have the following:

- Specific resources for state-of-the-art diagnosis, treatment, supportive and follow-up care, and access to clinical research programs.
- Accreditation by the Joint Commission on Accreditation of Health Care Organizations or certification of non-hospital medical institutions by national accrediting bodies.
- The four essential components of a hospital cancer program: a cancer committee, cancer conferences, patient care evaluation through a quality management program, and a cancer registry.

Approved Hospitals are:

- HCA Aiken Regional Medical Centers
- Anderson Area Medical Center
- Baptist Medical Center (Columbia)
- Grand Strand Regional Medical Center (Myrtle Beach)
- Greenville Hospital System
- McLeod Regional Medical Center (Florence)
- Medical University of South Carolina (Charleston)
- Moncrief Army Community Hospital (Columbia)
- The Regional Medical Center of Orangeburg/ Calhoun Counties
- Richland Memorial Hospital (Columbia)
- Roper Hospital (Charleston)
- Self Memorial Hospital (Greenwood)
- Spartanburg Regional Medical Center
- St. Francis Hospital (Greenville)
- Trident Regional Medical Center (Charleston)
- William Jennings Bryan Dorn VA Hospital (Columbia)

SC Primary Care Association

South Carolina Community Health Centers (CHC's) are located in areas which have been designated as medically underserved or areas which have a medically underserved population. This designation indicates areas in need of affordable and accessible medical services. There are 17 federally funded centers providing service through more than 35 service sites. These service sites include alternative delivery sites such as schools. A comprehensive array of services is provided to patients based on the patient's assessed need. The centers also provide services such as nutrition and social work counseling, transportation, outreach, and financial resource assistance.

More than 140,000 South Carolinians use these services each year. Over 50% of these patients have little or no health coverage. South Carolina's centers provide services to 31 of the 46 counties in the state. In addition to these centers, there are more than 50 rural health clinics providing primary care to these targeted areas.

Clinical Trials

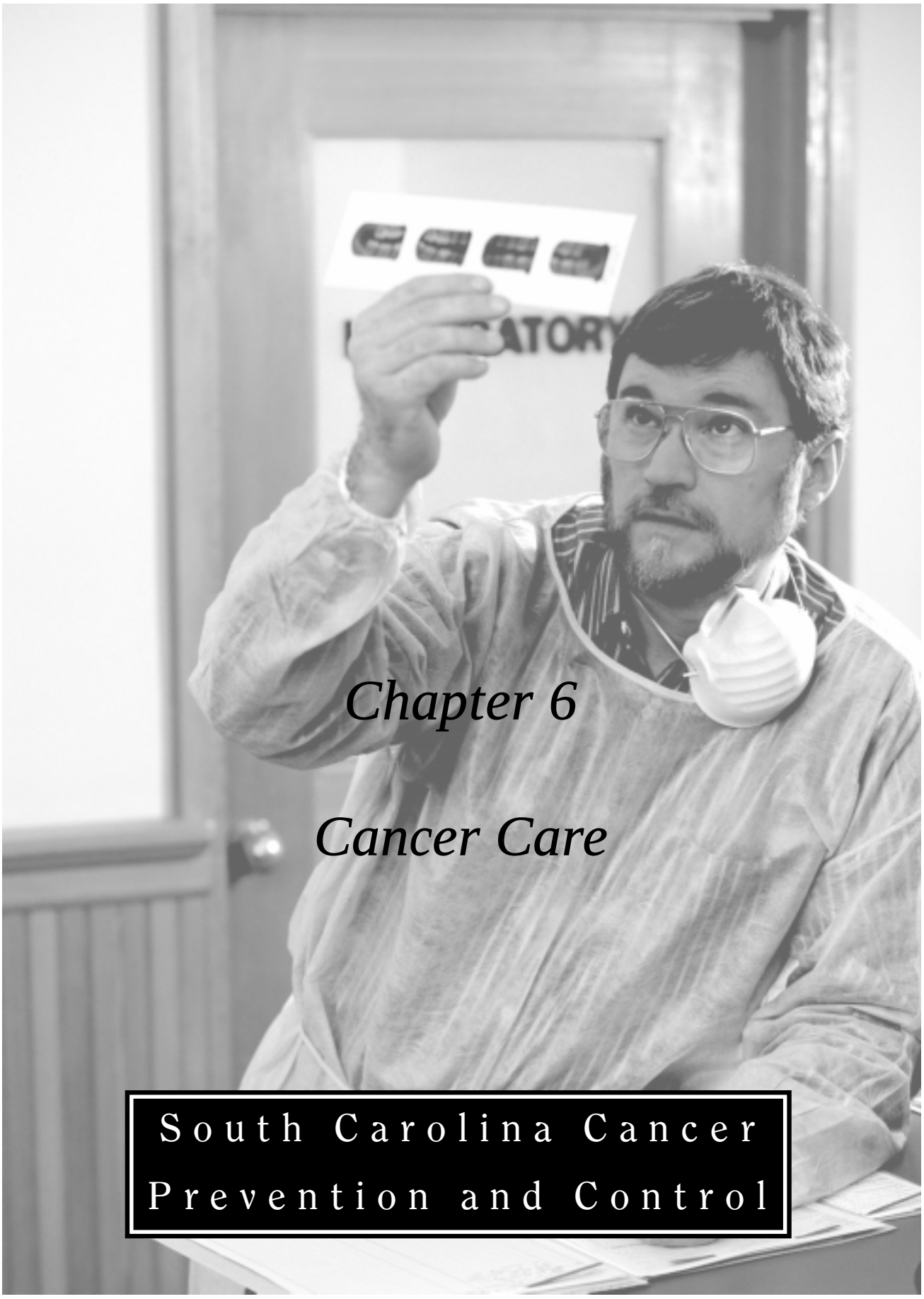
Reginald Brooker, MD, Medical Director, State-Aid Cancer Clinic, Greenville Memorial Hospital

There are many different types of clinical trials. They range from prevention, detection, and treatment of cancer to studies which lessen the stress of the disease and improve comfort and quality of life. However, they all have three important ingredients. They endeavor to answer research questions, to provide state of the art care, and to provide care in a manner which safeguards the recipients.

The basic purpose of clinical trials is to answer research questions and thus advance the knowledge and treatment of cancer. Until prevention or cure is found for all cancers, it is through the testing of new strategies and methods that therapy is advanced. This entails the uniform treatment and follow-up of many people, so that the true benefit of an intervention can be determined. New therapies can then be compared to current standards and adapted if proven to be better. At the same time, less effective treatments are superceded by better ones. In this way, overall treatment is improved and medical progress is advanced and this will benefit those who come afterward. The protocols are developed by experts in their field to provide the best known treatment in a preplanned manner that allows reliable conclusions to be drawn.

Safeguards are built into the treatment protocols to include institutional review by a board of physicians and lay persons to ensure the appropriateness and safety of a study. Patients must give informed consent stating that they have been fully informed about the study objectives, therapies and toxicities and have been informed about alternative treatment options. Additional safeguards are used to minimize toxicity and to make appropriate adjustments if toxicity occurs.

Physicians can thus be assured that through clinical trials they are rendering the best care, and patients can thus be assured that they are receiving the best care in the safest possible way while at the same time advancing treatment and understanding of cancer.



Chapter 6

Cancer Care

South Carolina Cancer Prevention and Control

Chapter 6. Cancer Care

A driving force influencing the delivery of cancer care, whether privately funded or publicly assisted, is the economic burden realized by this chronic disease.

Economics of Cancer Care

Catherine Harvey, Dr. PH., Vice President, Patient Relations, On Care, Inc.

While estimates remain crude, actuaries projected that in 1995, the direct cost of cancer care exceeded $57 billion, while indirect costs topped $111 billion. With 1.2 million new cases and 4.5 million prevalent cases, this translates into an average direct cost of $13,000 per year per case. With the graying of America, the growth in the population and the improvement in treatment options, it is anticipated that the overall rate of cancer is increasing annually by 4%. The incidence rate is increasing at a rate of 2% annually while prevalent disease is increasing at the rate of 3%, resulting in an increase in direct cost of $164 billion and an indirect cost of $250 billion by the year 2005.

Cancer is a disease of aging, with 61% of the incident cases occurring in the population over 65. Of the $57 billion in direct cost spent, 51% or $29 billion was spent on this group. By 2005, it is anticipated that this rate will reach 12,000 cases per 100,000 and direct costs will exceed $85 billion.

In 1995, public funding accounted for $31 billion of the direct costs of cancer care. The Medicaid population covered 31 million lives and cost $2 billion. The remaining $29 billion covered 34 million Medicare lives and covered the bulk of all direct costs for cancer care in this group. Of the 34 million enrollees, only 3 million were treated in Medicare HMOs, accounting for $3 billion in direct costs. This number is projected to increase as managed care becomes the standard.

South Carolina shares proportionately in the cost of care to its citizens. While cost per case data is unavailable, data from the South Carolina State Budget and Control Board on inpatient utilization reveal that inpatient care accounted for over $484 million in total charges in 1995. Of the $484 million billed, 5.6% or $27.2 million was indigent care, 8% or $38.5 million was Medicaid, 53% or $257.7 million was Medicare, and 33% or $160.6 million was private pay. Because these figures reflect only inpatient costs; the total cost of cancer is considerably higher. The National Center for Health Statistics (1990) estimates that inpatient costs for cancer account for only 65.3% of all medical expenditures.

It is anticipated that 19,500 new cases of cancer will be diagnosed in South Carolina this year. At a projected cost of $13,000 cost per year, these cases generate a continuing annual direct cost of $697,125,000 per year and an indirect cost of $1,357,250,000 or $390 per person in this state of 3.5 million people.

Lung Cancer

Gerard Sylvestri, MD and Tahir Javed, MD, Hollings Cancer Center, Medical University of South Carolina

At the beginning of this century, lung cancer was a rare disease. The present global epidemic is the direct result of governmentally sanctioned production and aggressive marketing of addictive tobacco products, primarily cigarettes. While an effective strategy for lung cancer treatment and control must include a broad spectrum of activities, the greatest long-term reduction in lung cancer mortality will come from a decrease in the number of people who smoke. This is especially true in South Carolina, which has limited resources to treat patients who develop lung cancer. And, because there is no cure for most lung cancer patients, it is imperative that the focus of the health care community be directed at prevention strategies.

An estimated 171,500 new cases of lung cancer will be diagnosed in the United States in 1998; 91,400 males and 80,100 females. The overall age adjusted incidence rate in men began to plateau in the late 1980's and has subsequently declined. Unfortunately the incidence continues to rise in women. Over the past several decades, the prevalence of cigarette smoking has increased significantly in women; concomitantly, changes in smoking practices have been accompanied by an increase in the relative and attributable risk of lung cancer. The risk of lung cancer in African-American men has also increased: over the past 10 to 15 years, lung cancer risk in African-American men has been approximately 50% higher than that in white men.

Prevention is the only way to decrease the incidence of lung cancer. The causal relationship between cigarette smoking and lung cancer was established by epidemiologic studies in the 1950's and 1960's. The carcinogens in tobacco smoke include the polynuclear aromatic hydrocarbons (PAHs), N-nitrosamines, aromatic amines, and other organic and inorganic compounds.

Overall, smoking is estimated to cause 85% of lung cancer deaths. Unfortunately, despite the clear association between tobacco smoke and lung cancer, 50 million Americans continue to smoke. The risk of dying from lung cancer is associated with the duration of smoking and with the number and type of cigarettes smoked each day. The health benefits of smoking cessation begin immediately after a smoker stops and the risk of developing lung cancer markedly decreases over the next eight years.

Exposure to environmental and occupational respiratory carcinogens may interact with smoking to increase the risk of cancer. Occupational risk factors include exposure to asbestos fibers, radon, arsenic, vinyl chloride, nickel and chromium.

In South Carolina about 25% of the population are smokers. Their family members and co-workers are also at increased risk for developing lung cancer from side smoke. A non-smoking member of a smoker's household has 1.2 to 1.5 times the risk of developing lung cancer as an unexposed nonsmoker. Approximately 3,000 deaths per year are attributable to exposure to side smoke in this country.

Survival from lung cancer is dependent upon cell type and stage of disease at presentation. Currently the overall five-year survival rate for patients with lung cancer is less than 15%, which is most likely due to the advanced stage of cancer at presentation.

Early Detection

There is no viable screening test for lung cancer. We can, however, identify high risk individuals and groups by using demographic factors such as age, smoking history, the presence of chronic obstructive lung disease such as COPD and occupational history (exposure to asbestos, uranium, and chloroethyl ether). These factors may eventually be used to target high-risk individuals who could benefit from early intervention.

Chemoprevention may also hold promise, because lung cancer is a multi-step process characterized by premalignant changes such as bronchial metaplasia and dysplasia in heavy smokers. Patients who survive two years after diagnosis of lung cancer have a risk of developing second smoking-related primary tumors at a rate of 2% to 14% per year. The actuarial cumulative risk 15 years from the start of treatment is 70%. Currently, the National Cancer Institute (NCI) is accruing Stage I non-small cell lung cancer patients for a chemopreventive trial using 13-cis-retinoic acid versus a placebo. A similar trial is planned for small cell lung cancer.

Treatment

The treatment of lung cancer depends upon the cell type and stage of disease at presentation. Because the majority of patients present with unresectable or metastatic disease, curative resection is only possible in a minority of patients: those with non-small cell lung cancer (NSCLC) who present with an early stage. Controversy exists regarding the best modality of treatment for unresectable disease. The role of neoadjuvent therapy (chemotherapy and radiation) given prior to surgery is currently under active investigation in clinical trials and whenever possible, patients should be enrolled in these trials.

Similarly, the benefits of chemotherapy are not clearly established in patients with Stage IV or metastatic non-small cell lung cancer. Overall survival has been increased only modestly through chemotherapy. Patient preferences should be included in treatment decisions and the small survival benefit from chemotherapy must be weighed against the toxicity of the treatment.

Small-cell lung cancer is not a surgical disease; chemotherapy and radiotherapy are the primary modalities of treatment. For this patient group, treatment options have traditionally included radiotherapy and chemotherapy, alone or in combination, depending on the extent of disease.

Comprehensive care of lung cancer requires expertise from various specialists. The effectiveness of a multi-disciplinary tumor board, which generally includes a medical oncologist, thoracic surgeon, pulmonologist, radiologist and radiation oncologist, should not be underestimated. A comprehensive approach to complicated lung cancer cases can lead to treatment plans tailored to a specific patient's needs.

Breast Cancer

Frederick L. Greene, MD, Chairman, Department of Surgery, Carolina Medical Center, Charlotte, North Carolina; formerly at USC School of Medicine

Malignant disease of the female breast continues to be a major health problem in all westernized countries. Although mammographic screening, self-examination, and other methods of early detection have increased the likelihood of finding breast cancer at an earlier stage, it is estimated that in 1998 over 180,000 women will develop breast cancer and that 43,500 women will die of this disease.

Although many risk factors have been identified for breast cancer, it is difficult to outline a program of primary prevention for this malignancy at this time. Diets low in fiber and high in fat may contribute to overall rates of breast cancer, but this remains controversial. The overall effect of hormone ingestion is equally controversial, although certainly women at higher genetic risk for breast cancer may be more susceptible to malignancy stimulated by estrogen.

Alcohol may also be a factor; as in other malignancies, it has been shown that women who consume higher levels of alcohol per day may be at greater risk for breast cancer. South Carolina should continue to monitor these primary risk factors, especially for women at higher risk for the disease.

Early Detection

The single most effective way to reduce the number of breast cancer deaths in South Carolina is to ensure that women enter screening programs which include mammography and breast self-examination. At this time, early detection is the only credible method to reduce breast cancer mortality and should be the focus of our resources and educational endeavors in South Carolina. Since 1990, there has been a small but steady increase in the number of women undergoing screening for both breast and cervical cancer in this state. Barriers to screening exist, however, especially among women who are economically disadvantaged, have less education, and live in rural areas.

Genetic Markers

Along with conventional screening, the advent of new techniques in genetic testing and molecular biology will hopefully identify women who are at a greater risk of breast cancer because of familial association.

Genetic research on the mutation of the BRCA1 gene has led to techniques which can identify women who are genetically predisposed to breast cancer. Advanced genetic testing gives us a screening tool which can be used before cancer has even had a chance to develop. For women who carry this genetic marker, clinicians can recommend surveillance and possibly aggressive surgery. This new technology has the potential to save women's lives.

At the same time, these advances open an ethical frontier for clinicians, public health professionals and legislators. Without clear legislative protection, women could potentially become uninsurable if their medical records carry markers for the genetic predisposition of breast cancer. These issues, which are unprecedented, must be dealt with legislatively to ensure that women are protected as new molecular biologic techniques are introduced.

Treatment

The use of mammography has created the ability to identify breast cancer at early stages when the disease is amenable to lumpectomy, a breast-sparing surgery. The percentage of women undergoing lumpectomy in South Carolina, however, continues to be slightly below that of women in northeastern and far western states. These differences may be related to socioeconomic factors such as the availability of post-operative radiation and other non-surgical treatment. In any case, they are significant, because the less invasive the treatment, the more likely women are to seek help.

The liberal use of adjuvant chemotherapy for women in South Carolina generally equals that seen in other areas of the country. Many regional hospitals are now able to treat patients with radiation therapy and chemotherapy, which, for many patients, reduces the significant obstacle of traveling to distant cancer centers.

In addition, the use of either immediate or delayed reconstruction following mastectomy is increasing. This is an important psychological factor in encouraging women to seek medical assistance once breast tumors are identified. General surgeons must continue to work closely with their plastic surgical colleagues to make reconstruction available for all patients. Proponents for women's health must support legislative policy which ensures that all South Carolina women have the opportunity for modern reconstructive procedures.

The hope for reduction in cancer deaths depends on our ability to create new knowledge through basic and clinical science, and clinical trials are central to that research. Academic medical institutions throughout South Carolina direct research in the epidemiology and overall management of breast cancer. Unfortunately, the current percentage of women entering clinical trials is low and can only be increased through educating both patients and physicians. It is hoped that this process will not be legislated but will become important to all physicians treating breast cancer even in the age of managed care.

Colorectal Cancer

Frederick L. Greene, MD, Chairman, Department of Surgery, Carolina Medical Center, Charlotte, North Carolina; formerly at University of South Carolina School of Medicine

Overview

During 1998, it is estimated that approximately 131,000 Americans will be diagnosed with carcinoma of the large intestine, including the rectum. Death from carcinoma of the colon and rectum will total approximately 56,500 in 1998 in the United States. In South Carolina, an estimated 2000 people will be diagnosed with colorectal cancer and there will be an estimated 900 deaths.

Early Detection

It is unlikely that primary prevention through dietary education or the identification of other risk factors will significantly reduce the incidence rates of colorectal cancer during the next several decades. The thrust of planning for this disease must center on detection since early recognition of colon and rectal cancer will allow for the possibility of curative treatment.
The most appropriate management scheme at this time is to recommend that the American Cancer Society (ACS) guidelines for colorectal screening be adhered to and that digital rectal examination, stool blood tests, and

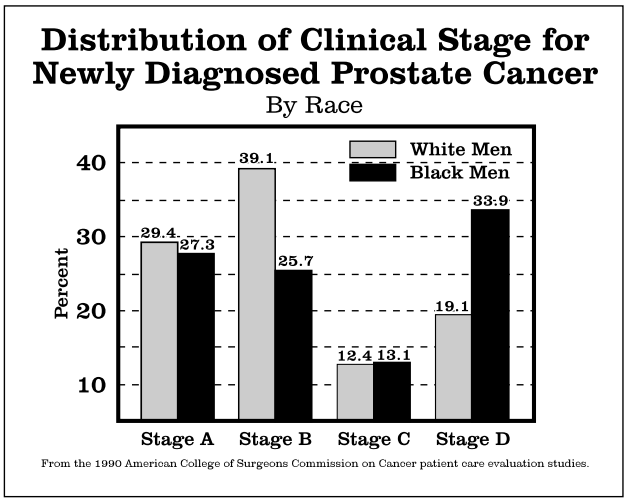


figure 6.1

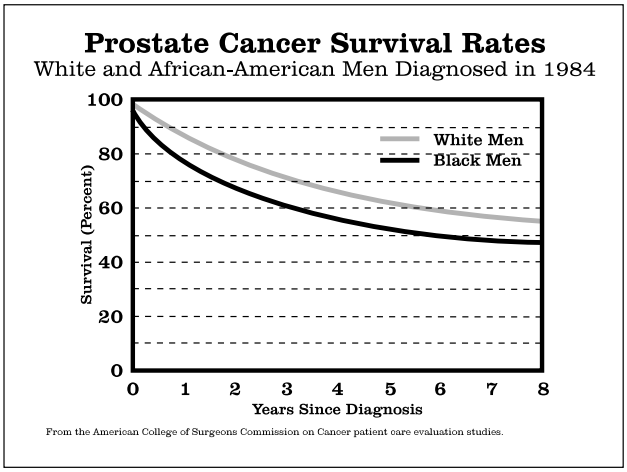


figure 6.2

sigmoidoscopy be initiated at appropriate ages in the general population. ACS recommends that the digital rectal examination be performed annually after the age of 40 and that the stool blood test be done annually after the age of 50. Sigmoidoscopy should be performed at the age of 50 and repeated every three to five years in the asymptomatic population.

Genetic Screening

The greatest number of colon cancer patients have sporadic colorectal cancer (94%). However, a high risk group, with a genetic predisposition for Non-Polyposis Colon Cancer, has recently been identified. This means that earlier screening and genetic testing may identify patients who are at significant risk for cancer but do not have the polyps usually associated with this disease. Commercial genetic tests are being developed but have not yet been released for universal population screening. Patients identified as having Hereditary Non-Polyposis Colon Cancer (HNPCC) make up only approximately 5% of total colon cancer patients. Another small percentage (1%) may be identified as having Familial Adenomatous Polyposis.

Early detection can identify patients who have small tumors with minimal penetration in the wall of the colon and rectum. Surgical excision in these patients will hopefully remove tumors which are small and have not yet affected regional lymph nodes. Early diagnosis and screening will hopefully reduce the overall mortality from colorectal cancer in South Carolina by the year 2002.

Prostate Cancer

Steven J. Hulecki, MD, Lexington Urology Associates, President of the South Carolina Urological Association 1996-1997

Prostate cancer is the most commonly diagnosed cancer among American men after skin cancer and the second leading cause of cancer death in men after lung cancer. More men die of prostate cancer in South Carolina than in any other state in the union.

The greatest promise for saving lives from prostate cancer is early detection through a simple blood test called Prostate Specific Antigen (PSA). The American Cancer Society recommends that both the PSA test and the digital rectal examination (DRE) be offered annually, beginning at age 50, to men who have a life expectancy of at least 10 years and to younger men who are at high risk. The Detection Chapter of this report discusses this issue in more detail.

It is not clear at this time whether prostate cancer screening discovers cancer at an earlier stage in all populations. National data from the American College of Surgeon's Commission on Cancer (1974 vs. 1990) shows that some improvements have been made in prostate cancer diagnosis – at least for white men. (Figure 6.1.) In this group, the number of early stage diagnoses increased, and the number of late stage diagnoses declined (ACS, 1994; Chodak, 1995; Osterling, 1996).

Corresponding data for African-American men, however, is considerably different. Nationally, early stage diagnoses actually decreased and late

stage diagnoses increased in the African-American population. African-American men are less often diagnosed with curable, Stage B cancer compared with Caucasian men by a large margin: 25.7% to 39.11%. And African-American men are much more likely to be diagnosed with metastatic, clinical Stage D or end-stage prostate cancer by a margin of 33.9% to 19.11%. This may be due to the fact that African-American men have higher pretreatment PSA values than whites and tumors in African-American men may be more advanced and more aggressive (Urology Times, July, 1995). (Figure 6.2)

South Carolina data from Charleston and Columbia cancer centers indicates that prostate cancer is being diagnosed in the early stages (Stage I and II) at a frequency rate of about 80% (RMH, 1994; BMC, 1995; RCC, 1994). This is a significant improvement from 1980 statistics, which indicated that the majority of men were diagnosed with prostate cancer at Stages III and IV (Stage C and D). A significant majority of these new cases are from the Caucasian population, which is unsettling because we know that African Americans have a statistically higher incidence of prostate cancer. (Data is from 1994 statistical reports submitted to the National Cancer Data Base.)

Treatment Methods

Most men with prostate cancer, especially in early stages A, B, and C often have no symptoms. When symptoms occur, they can include painful or frequent urination or blood in the urine, lower back pain, pelvic pain or upper thigh discomfort. Patients are given a PSA test and/or digital rectal exam to determine whether a tumor is present. PSA tests are generally agreed to be significantly abnormal when greater than 4.0 nanogram per ml. (Ng/Ma). However, abnormal elevation of PSA can also be associated with Benign Prostatic Hyperplasia (BPH).

There are several important steps that need to be undertaken if a Digital Rectal Examination (DRE) and/or PSA test are abnormal. Transrectal ultrasound of the prostate (TRUS) and a biopsy are completed. When the ultrasound or biopsy are negative, the patient should have follow-up surveillance at intervals specified by his physician.

When the tests are positive, a brief evaluation for staging should be done before treatment is rendered. Current guidelines for the metastatic evaluation include a whole body bone scan (nuclear medicine study) and thorough pathological evaluation of the biopsy specimens to determine the Gleason Score.

The clinician combines the patient's age, biopsy results, (including Gleason Score), PSA, bone scan and general health evaluation to determine the clinical stage (A,B,C or D). Based on these factors, treatment recommendations can be explained to the patient. If prostate cancer is diagnosed, there are several options: 1) no intervention or surveillance; 2) hormone manipulation and/or drug therapy; 3) radical prostatectomy; 4) radiation therapy. The patient and his physician should thoroughly discuss these options before deciding which is best to pursue. The choice of treatment depends on the stage of the disease, along with the patient's age and general state of health.

Option 1: Surveillance (Observation), No Intervention

"Watchful waiting" is the term that is presently used for treating prostate cancer if the cancer is confined to one site in the prostate gland, causing little or no physical discomfort, and the life expectancy without treatment is greater than 10 years. Since prostate cancer is frequently a slow growing cancer, a clinician can simply monitor these patients with periodic examinations, instead of immediately using an aggressive treatment modality. In general, this approach is more often used in elderly men. For

example, a man over the age of seventy who is in otherwise good health with a life expectancy of 10 years, may be a suitable candidate for watchful waiting. Statistical analysis has shown that he may die of other causes before the prostate cancer can cause serious harm.

Option 2: Hormone manipulation and/or drug therapy

Testosterone is necessary for normal prostate tissue to grow and many cases of early prostate cancer involve androgen stimulation. Prostate cancer depends on the presence of male hormones for its growth and development. By the use of hormone manipulation or drug therapy, the growth is eliminated. Hormone manipulation can be accomplished by surgically removing the testicles (orchiectomy), commonly known as castration. Newer regimens, including drug therapy with Lh-Rh agamous therapy can be delivered through a monthly injection. And newer forms of this particular medication can now be given every three months. When combined with an anti-androgen tablet, these therapies can provide total androgen blockade. There is some concern that hormonal therapy may only last for a few years. Many prostate cancers eventually become hormone resistant, possibly due to a mutation in the androgen receptor gene. New methods of treatment for androgen-resistant prostate cancer may lie in the field of genetic manipulation, which is currently being researched.

Option 3: Radical Prostatectomy

If the prostate cancer is confined to the gland only and has not penetrated the capsule, then surgical removal of the prostate can be an effective treatment regimen. This operation has fortunately been significantly modified since 1982. Currently, radical prostatectomy is considered the gold standard of therapy and all other treatments are measured against its results. Surgical improvements over the past few years have reduced the significant side effects of postoperative urinary incontinence and impotence (Walsh, 1993; Oesterling, 1994; Darrett, 1994).

Option 4: Radiation Therapy

Early stages of prostate cancer can be effectively treated with radiation therapy. For a patient in the early stage of disease with a low Gleason Score (Stage A or Stage B), radiation therapy can offer results that approach the success of radical prostatectomy.

Currently there are two ways to deliver radiation therapy to prostate cancer patients. The most common is external beam radiation therapy. Men who have developed later stages of the disease (metastatic or Stage D) are frequently treated with external beam radiotherapy, which uses three-dimensional views to target tumor sites. This process can alleviate the pain associated with bony metastases and frequently prevent bone fractures that may result from the invasion of the metastatic prostate cancer deposits into the skeletal bones. The newest type of delivery, which actually has been used since the 1970's in an open surgical technique, and since the late 1980's in an outpatient setting, is percutaneous delivery of radioactive seeds (Ragde, 1995).

Option 5: Cryosurgical Ablation of the Prostate

This is considered an investigational form of therapy and its use is currently controversial. It was initially used in the mid-1960's at the University of Iowa, but was abandoned by the mid-1970's. This form of treatment started to regain popularity again in the late 1980's because of the development of ultrasound, which allowed physicians to limit the freezing to the prostate alone.

Over the past five years, short term results of this therapy have shown promise, with approximately 85% of patients treated having normal PSA levels and negative biopsies. Long term results are currently not available. Within

the next year, we should have five-year results indicating whether or not this is an appropriate therapy for prostate cancer. However, in men who have had radiation treatment and who are now exhibiting biochemical failure (rising PSA) or persistent cancer after two years of radiation therapy, cryosurgical ablation may be the only alternative to hormone ablation.

Men in South Carolina fortunately have all of these options for treatment available within our state.

Getting the Message Out

At this time, we cannot hope to contain prostate cancer through preventive measures. We do, however, have powerful new tools which can identify this cancer in its early stages and save lives. Our dilemma is to find the most effective way to educate the public at large of the importance of early diagnosis for prostate cancer. For groups addressing the problem of prostate cancer in South Carolina, please refer to the Resources Chapter of this report.

Skin Cancer

Edward F. McClay, MD, Director, and Mary-Eileen McClay, Clinical Study Coordinator, Melanoma Research Program, Hollings Cancer Center, Medical University of South Carolina.

Overview

Malignant melanoma incidence is increasing faster than any other malignancy in the United States (Figure 6.3, after Ries, et al. 1990). Each year there are an additional 4-5% new cases of melanoma diagnosed. For the year 1998, it is estimated that there will be a total of 41,600 new cases of melanoma with 7,300 deaths attributable to this disease. In South Carolina, there will be approximately 500 new cases of melanoma (ACS, 1998). In the United States, melanoma of the skin ranks as the eighth most common cancer among Caucasians and it is the most common cancer in whites between the ages of 25 to 29.

Mortality rates for malignant melanoma for individuals in South Carolina from 1973-1992 show that we rank in the third quartile of all states (CDC, 1995). That means that more than 50% of the states have a higher risk of dying from melanoma than South Carolina. However, it is important to keep in mind that our state has a large black population. If we calculate the risk for developing melanoma in only the Caucasian population, we then move up to being in a group of states ranking 7th on the list of states with the highest mortality from melanoma. Even more worrisome is the fact that when we

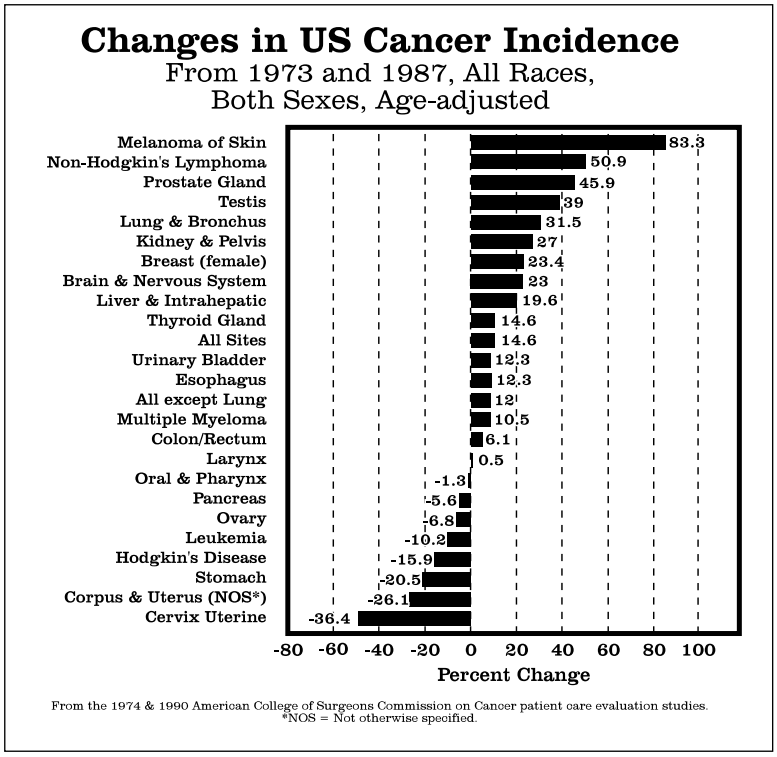


figure 6.3

consider only Caucasian males, South Carolina ranks with a group of states with the third highest mortality rate from melanoma.

Survival

The five-year survival rate for patients with melanoma is 87% (ACS, 1996). Between 3 to 5% of patients with melanoma will develop a second primary melanoma in their lifetime. Patients with the atypical mole syndrome referred to as the dysplastic nevus syndrome or the Familial Atypical Multiple Mole-Melanoma syndrome (FAMMM) have a much higher risk. Thus the prevention of a second melanoma is of great importance in this population. These patients should be entered into follow-up programs where they are evaluated at least every six months. Sun avoidance and the use of sunscreen is of the utmost importance in these individuals.

Treatment

The primary treatment for a newly diagnosed melanoma is complete surgical removal. The diagnosis and treatment of a lesion suspected of being a melanoma is generally accomplished in a two-step procedure. The initial step is to biopsy the lesion to confirm the diagnosis. This material is sent to the pathologist to confirm diagnosis and determine the depth of invasion. The depth of invasion is then used to determine how much normal tissue is to be included in the wide re-excision, Step 2 of the initial therapy.

Following the initial diagnosis, the stage of prognosis is determined using the TNM system developed by the American Joint Committee on Cancer (AJCC). Whether or not the patient will require extensive staging studies to determine the presence of metastases will depend upon the risk of the primary and the clinical status of the patient. Patients with low risk melanomas generally should not undergo extensive radiologic testing as the likelihood of a positive study is minimal and the expense is significant. Patients who develop metastatic disease generally are offered either chemotherapy or treatment with one of a variety of biological agents. Several recently identified regimens seem to produce a modest improvement in response rates when compared with single treatment, which is currently accepted as standard therapy.

Therapy in South Carolina

In January of 1994 the first melanoma research program in South Carolina was established at the Hollings Cancer Center at the Medical University of South Carolina in Charleston. This program has provided patients with all stages of melanoma with new cutting edge treatment options that were previously unavailable. Currently available programs include screening for high risk individuals and their families, new surgical approaches, and clinical trials which evaluate new prevention options for patients who have had melanoma and are at high risk.

New surgical advances including the use of the sentinel lymph node biopsy have added options for patients who may be at risk of disease that has spread into their lymph nodes. This approach provides the same information that previously required more extensive surgery that frequently resulted in chronic painful swelling of either arms or legs.

Preventive programs include the use of a vaccine that is made from the patient's own tumor and injected into the patient's skin on a monthly basis. Preliminary studies have demonstrated that this vaccine is extremely effective at preventing recurrent disease in patients who have suffered one recurrence and were able to have this disease removed at surgery. This vaccine is available at only one other institution in the US.

New chemotherapeutic advances have also been developed at the Hollings Cancer Center which have resulted in the first advancement in the treatment of patients with metastatic disease in more than 20 years. This program is used in both the preventive situation as well as for patients with established metastatic tumors. Response rates have risen from 20% to more than 50%.

Community physicians have contributed significantly to the success of the melanoma research program. Their active participation has brought these therapeutic options to more patients and frequently means that the patients can be treated closer to home, making the treatment more tolerable.

Programs for the Future

Despite our best efforts people will continue to develop this disease and ultimately die as a result of overwhelming tumor burdens. Support for basic science continues to be undercut each year. Money to support new research has become more and more difficult to find, forcing many scientists to limit their studies. We must continue to support current research efforts and develop new funding opportunities.

It is generally not recognized that our ability to conduct clinical trials has been severely curtailed. Clinical trials are our only means to develop new treatments, however, as government funding has decreased so has our ability to support these studies. In fact, many young physicians are opting to leave academic medicine for private practice as a result of the inability to obtain funding to conduct clinical trials. Additionally, in today's health care insurance environment, insurance companies continue to refuse to pay for patients entered into these studies. Pressure must be brought to bear on these companies at the government level, however we as consumers and as patients must also continue to insist that insurers support these endeavors.

Cancer Pain

Debbie Seale, MN, RN, Director of Clinical Programs, Palmetto Richland Memorial Hospital and Judith Blanchard, MS, Director of Operations at the National Coalition for Cancer Survivorship

Research over the last fifteen years paints a dismal picture of how cancer pain is treated but a hopeful picture of how it can be successfully controlled in most cases. More than eight million people in the United States have cancer or a history of cancer, and an estimated 50 to 70% experience pain at some point in their disease. In addition, 25% of all cancer patients die with severe unrelieved pain (Dout and Cleeland), and 75% of cancer patients with advanced disease have pain (Foley). The hopeful picture would tell the same story that the research indicates — that 90-95% of patients can have their cancer pain controlled by relatively simple, currently available means and that 85-90% of all cancer pain can be effectively managed with oral analgesics (Goissis et al.). If, in fact, current methods are available to ensure adequate pain relief for the majority of cancer patients, why is cancer pain undertreated? Several factors account for this disparity which can be summarized into three broad categories:

- Health care professionals are lacking in their ability to adequately assess cancer pain and the training to manage that pain.
- Health care professionals and the public have unwarranted concerns about addiction.
- Regulatory issues may interfere with effective pain management.

Pain control deserves a high priority for several reasons. Unrelieved pain causes needless suffering. Patients living in pain may have significantly more emotional problems, may

respond poorly to treatment, and may even die sooner than patients whose pain is effectively treated. Pain also restricts physical activity, disrupts appetite and sleep and diminishes that patient's overall quality of life. Cancer pain prevention and relief should be an expectation of all persons with cancer and thus a top priority in the routine care of these patients.

Pharmacological approaches remain the cornerstone of effective pain management, but medication is not the only answer. Many non-pharmacological approaches such as relaxation techniques, massage, biofeedback, transcutaneous electrical nerve stimulation, hypnosis, and support groups are effective as adjunctive therapies. The key is finding what works for each individual patient and family unit.

Goals of the South Carolina Cancer Pain Initiative

When South Carolina became the 29th state to establish a state cancer pain initiative, its members recognized the need to establish a multidisciplinary organization committed to promoting optimal cancer pain management throughout the continuum of care. Hence, its ".. mission is one of education and advocacy; our fundamental purpose is to make pain prevention and relief a top cancer care priority and an expectation of all persons with cancer." To accomplish its mission, the South Carolina Cancer Pain Initiative (SCCPI) established five broad goals:

- To enhance the knowledge, skills, and attitudes of health care professionals.

- To provide accurate information and promote positive attitudes about cancer pain relief among patients, families, significant others, and the public.

- To identify and eliminate barriers to optimal cancer pain management through interactions with legislators, regulatory agencies, organizations, institutions, and individuals involved with cancer care.

- To conduct, disseminate, and use research to ensure state-of-the-art cancer pain management.

- To create a statewide network of multidisciplinary cancer pain treatment resources to promote professional and public education.

Barriers to Pain Management

Barriers to proper cancer pain management include problems related to health care professionals, problems related to patients, and problems related to the health care system.

Professionals are still concerned about regulatory guidelines of controlled substances; professionals and the public alike are still concerned about patient addiction, side effects of analgesics, and patients becoming tolerant to analgesics. It is important that health care professionals themselves discern the difference between physical addiction and physical dependence. Cancer patients do not take drugs for a "high"; cancer patients take analgesics to make their pain tolerable so that they may go about their normal activities of living. Professionals who care for patients with cancer pain should study and practice the Agency for Health Care Policy and Research (AHCPR) Guidelines for Cancer Pain Management.

Knowledge of effective cancer pain management strategies will enable them to dispel the myths associated with pain medications and to educate patients, families, and the public. Additional emphasis must be placed on appropriate pain management for cancer patients in medical, nursing, and allied health care school curricula.

Financial and Other Considerations

Other problems include inadequate reimbursement and access to treatment. Determining the overall cost of cancer pain management is difficult to ascertain as the cost is not separated from other treatment costs but rather included as part of the inpatient or outpatient visit. Access to professional services, prescription drugs, and even medical equipment is necessary for effective pain management. Reimbursement or lack of it influences the way pain is treated, where it is treated, as well as the supportive services available. More than 74% of the state's physicians practice in urban areas located in 15 of the state's 46 counties.

Reimbursement policies of third party payers for pain management differ. Outpatient oral analgesics reimbursement remains nonexistent to slim at best, while more expensive, more invasive inpatient treatments are covered at a significantly higher reimbursement rate. Over 300,000 South Carolinians are on Medicaid and are limited to three prescriptions a month. If they are on multiple prescriptions, they are seemingly faced with the dilemma of which medication regime(s) they should follow.

A patient's economic status may influence how they are treated. Collaboration with patients and their families is essential when considering the cost of drugs and technologies in search of the most effective pain management strategy for each individual. African-Americans are known to be at increased risk for undertreatment of cancer pain.

These factors have served to guide the initiative's focus. For example, because a large portion of the state's population lives in rural areas and is considered to be medically indigent, educational projects must focus on reaching out to rural health care providers and others who serve these populations. The fact that South Carolina is a small state makes networking possibilities among cancer professionals easier, enhancing the possibility of disseminating information to providers across the state.

Objectives for Change

Although the SCCPI has certainly accomplished much since its inception in 1992, the multidisciplinary organization is still far from achieving the mission of making cancer pain prevention and relief a top priority and an expectation of all people with cancer. A current challenge of the SCCPI is to maintain the high level of individual commitment evidenced by members thus far, while recruiting new members to become actively involved with the initiative.

Perhaps the mission could best be achieved through the development of satellite regional groups within the state (e.g., Lowcountry, Midlands, Upstate), which would be responsible for expanding the knowledge base of their own constituents. In addition, since so many cancer patients are cared for by primary care physicians, the SCCPI would like to make certain that these providers have an active role in and access to the SCCPI and accurate cancer pain management publications; this could be accomplished through membership in the initiative and associated educational forums.

Finally, while none of us in cancer care believes needless suffering by patients with cancer has been eliminated, it is important to understand that it can be. The importance of the issue of cancer pain management to South Carolinians demands that our current and future challenges be met so that receiving appropriate pain management becomes the common expectation of all people with cancer.

To find out how you can become actively involved with the SCCPI or for additional information, please contact the South Carolina Cancer Pain Initiative at (803) 739-6628.

Psychosocial Oncology

Sue Heiney, MN, RN, CS, Manager, Psychosocial Oncology, Center for Cancer Treatment and Research, Palmetto Richland Memorial Hospital

The psychosocial care of patients with cancer has been shown to have a profound impact on a cancer patient's quality of life (Speigel, et al., 1989). Psychosocial care increases the length of time that patients are able to be productive members of society and saves money for the healthcare system; a poorly adjusted patient could cost the healthcare system 75% more than a well-adjusted one (Heiney, 1995).

Because cancer affects the entire family, and because three out of every four American families can expect to be touched by cancer, this aspect of health care can have an impact on almost all of our lives.

In South Carolina, hospitals, the American Cancer Society and other organizations offer peer support groups for cancer patients. including programs at Richland Memorial Hospital, Lexington Medical Center, Baptist Medical Center, Hollings Cancer Center (Charleston), Anderson Area Medical Center, and Self Memorial Hospital (Greenwood). A particular challenge of psychosocial oncology in a rural state like South Carolina is to provide support to patients in rural areas and small towns.

Goals of a Successful Psychosocial Care Program

The purpose of psychosocial care is to:

- Reduce morbidity and suffering while enhancing recovery and healing for people with cancer, their family and the community.
- Educate the patient, family, staff and community about coping with all phases of the cancer experience.
- Support the patient, family, staff, volunteers and community through all phases of the cancer experience.
- Provide for rehabilitation of the cancer patient.
- Promote research to document the effectiveness of psychosocial interventions and encourage patient participation in clinical trials.

Health Care Trends

The constraints of dwindling resources, and the increasing number of patients with cancer could force cancer centers to decrease psychosocial services and programs (Heiney, 1995). The challenge to medical and public health professionals is to find innovative and effective ways to continue to provide support to cancer patients including advocating for and locating funding for such care.

Hospice Programs

Tambra Medley, MSPH, Executive Director, South Carolina Hospice for the Carolinas

Hospice offers palliative care to persons with a limited life expectancy and their families, regardless of diagnosis, age, gender, nationality, race, creed, sexual orientation, disability, or ability to pay. Patients appropriate for hospice care should meet the following criteria:

- Have a limited life expectancy with the anticipated prognosis determined by the physician to be six months or less.
- Have a designated attending physician who is willing to work with the hospice team.
- Be seeking palliative, comfort care rather than curative treatment.
- Have a responsible caregiver or agree to develop an alternate plan of care consistent with the patient's safety and needs and in compliance with Hospice standards of care.

Hospice recognizes the patient and the patient's family as the unit of care. An interdisciplinary team of health professionals and volunteers provide medical, emotional, social and spiritual services. This team includes physicians, nurses, social workers, home health aides, chaplains, volunteers and other health professionals needed for the individual care of a patient. Bereavement staff is available to help the family cope with the patient's death.

Hospice services are covered by a variety of reimbursement systems including Medicare, Medicaid, Blue Cross and Blue Shield of South Carolina, and many other private insurance carriers. Patients may also pay privately. Hospice care is provided to patients without regard to their ability to pay.

There are 32 hospices serving 46 counties in South Carolina.

Chapter 7. Resources

The DHEC Division of Community Health is grounded in a community-based approach to health promotion and disease prevention, through partnerships with the private sector, research centers, volunteer organizations, and the faith community. Such collaborations are driven by financial constraints, common sense, and the principles of sound community health.

DHEC Resources

DHEC District Health Promotion Teams

Each health district in South Carolina has a health promotion team which is part of DHEC Community Health. The teams' work at the local level includes promoting good nutrition and physical activity, preventing smoking or encouraging smoking cessation, restricting tobacco smoking in public places, and increasing restaurant menus' healthy food choices. DHEC health promotion teams in each district are grounded in a community organization approach to health risk behavior change. The community approach involves a wide range of health professionals and institutions, community groups, and private citizens.

Nutrition and Exercise Programs

DHEC Community Health promotes the National Cancer Institute's Five-A-Day program, a nationwide initiative to encourage Americans to consume at least five servings of fruit and vegetables every day Five-A-Day advertisements are carried in grocery stores throughout South Carolina.

Physical Activity

The Governor's Council on Physical Fitness is a committee appointed by the Governor to promote physical activity. The council currently recommends that everyone get at least 30 minutes of physical activity per day. In addition, the council is working with the Department of Education to train future physical education teachers to teach lifetime physical activities (activities that can be continued on an individual basis).

Another physical fitness initiative is a collaboration with the Department of Parks, Recreation and Tourism to plan good, safe walking trails for the state of South Carolina.

Healthy Communities

The Healthy Communities Initiative at DHEC is a specially focused effort to increase community involvement in local health problems. The Initiative's ultimate goals are to empower people to improve their individual and collective health, and to empower communities to alter the physical and social conditions that directly affect the community's health. To accomplish this, the public health practitioner serves as a facilitator and resource for community groups, rather than a direct provider of services.

American Cancer Society

The American Cancer Society (ACS) serves as a catalyst to bring together agencies and organizations involved in health promotion. In South Carolina, ACS continues to expand its grassroots efforts in research, education, advocacy and service. ACS has educational materials available on all cancers and provides educational programs to the public on breast and cervical cancer, tobacco control, prostate cancer, skin cancers and worksite wellness programs.

For schools, ACS provides programs on topics including tobacco, nutrition and basic cancer information. "Changing the Course" encourages school food services to serve healthy food to children. The program has a complete, graded curriculum for classrooms. ACS also sponsors the Healthy Schools/Healthy South Carolina Network, a coalition of individuals, agencies, and organizations dedicated to advocating for the eight components of a healthy school for all schools in South Carolina.

ACS also maintains a comprehensive listing of state and local rehabilitation resources and financial resources to assist cancer patients and their families.

The Cancer Response System provides information on state and local rehabilitation resources for cancer patients and their families, including Road to Recovery, Reach to Recovery, and cancer support groups.

Collaborations

ASSIST

The American Stop Smoking Intervention Study (ASSIST) is a tobacco use prevention effort conducted in seventeen states and funded by the National Cancer Institute and the American Cancer Society The goal of Project ASSIST is to reduce the burden of smoking related diseases, including lung cancer, heart disease and chronic obstructive lung disease, through policy and advocacy interventions to reduce smoking in the adult population. ASSIST also seeks to reduce the number of young people who initiate smoking by 50%.

Best Chance Network

The Best Chance Network, a collaborative program between DHEC and the American Cancer Society, provides free breast and cervical cancer screening tests to South Carolina women (primarily women 50 and over) who meet income guidelines and do not have insurance to pay for these tests. This program is funded through the Centers for Disease Control.

Southern Appalachia Leadership Initiative on Cancer (SALIC)

SALIC's major goal is to improve cancer prevention and control among rural Appalachian areas in the Carolinas and Georgia. SALIC is conducted by the North Carolina Cooperative Extension Service at NC State University, in association with other Extension Service programs at the University of Georgia and Clemson. Other South Carolina participants include DHEC, the American Cancer Society, the Greenville Hospital System and the USC School of Public Health. SALIC works to reduce barriers to cancer prevention and control, such as lack of available or accessible primary health care, transportation, ability to pay for services, and lack of knowledge and understanding of cancer. The Initiative has formed coalitions on the community levels to enable residents of rural Appalachian communities to act on their own to decrease cancer incidence and mortality.

Community Organizations

US Too

US Too is a national prostate cancer support organization active in South Carolina. They have been active in encouraging men to seek early detection, in lobbying for quality testing and quality treatment, in public education, in providing men with accurate information regarding their treatment options and in serving as patient advocates.

Women's Cancer Coalition

The purpose of the Women's Cancer Coalition (WCC) is to help reduce the severe impact of cancer on all women in our state, from both loss of quality of life and from death. The WCC's main goals are to educate women to be informed users of health care services and to improve the services available to women in cancer prevention and care. These goals aim to: 1) help empower all women to practice preventive self-care, 2) educate them about the importance of early detection, and 3) teach them how to be their own best health advocate. WCC membership includes over 270 medical and health care professionals, cancer survivors and citizen advocates from throughout South Carolina. Some of the initiatives the WCC completed in 1997 are summarized below:

- Developed a brochure targeted to physicians and nurses, reinforcing the screening and educational messages for breast, colorectal, lung, and cervical cancer.

- Developed and distributed a survey to help identify untapped resources for breast and cervical cancer screening in South Carolina.

- Introduced and supported a new cancer resource database under development by the American Cancer Society

- Worked to gather more than 1,400 signatures in support of the SC Genetics Privacy Act, which was passed into law in June, 1998

Mammography Coalition

This coalition, founded in 1995, coordinates education and awareness activities to increase mammography utilization among women 50 and older in South Carolina. Membership includes American Association of Retired Persons (AARP), ACS, Medicare, the Governor's Office on Aging, the SC Office of Insurance Services, and the state employee's wellness group.

Cancer Information Service (CIS)

This service is a network of 22 offices supported by the National Cancer Institute (NCI). They operate a toll-free telephone line staffed by specialists who provide accurate, current information on cancer to patients and their families, health professionals, and the public. Staff speak both English and Spanish.
The Cancer Information Service (CIS) also develops local resource directories of cancer-related services and programs and provides outreach to high-risk and underserved people such as African-Americans, Hispanic people over 65 and people with low-literacy levels. DHEC has collaborated with CIS since 1992. The CIS line provides information al)out the Best Chance Network (BCN), including eligibility criteria and local BCN providers. CIS is the major link between the BCN’s outreach efforts and service delivery, and provides information critical to evaluation of BCN's outreach efforts.

Cancer Information On-Line

The Internet provides a wealth of information to public health and health care professionals, ranging from news updates, journal abstracts and articles, raw data, grant opportunities, to information about current clinical trials in South Carolina. There are literally thousands of web sites related to cancer, with varying degrees of reliability, and the volume of information out there can be overwhelming, The most reliable sources of information are usually sites sponsored by established research institutes (National Cancer Institute, Centers for Disease Control), university-based research hospitals (University of Pennsylvania, Harvard, MUSC), or groups like the American Cancer Society The websites below are a starting point - they are not meant to be endorsements. Most public and university libraries provide access to the Internet and the Resources Chapter of *Informed Decisions*, (American Cancer Society, 1997) provides an excellent introduction to the Internet for beginners - some of these descriptions are taken from that source.

American Cancer Society
(http://www.cancer.org/)
Information about cancer, including statistics, patient and family counseling, medical costs and other subjects. Also provides information about local ACS divisions, publications, and meetings and links to other sites on the Web.

Oncolink (http://www.oncolink.com)
Sponsored by the University of Pennsylvania Cancer Center Resource, this web site offers detailed descriptions of various cancers and medical specialties; news developments; stories by cancer survivors; information about causes and prevention of cancer; current clinical trials; and information about insurance and financial assistance, along with links to a variety of other web sites

National Cancer Institute (http//www.cancer.gov/)
The federal government's on-line cancer resource, offering a wide range of information and news reports. Especially useful is information about using CancerNet with updates on clinical trials, drug testing protocols and research projects, including all NCI trials in South Carolina.

MedWeb:Oncology (http://www.arts.cuhk.edu.hk/Med/Cancer/medweb_o.htm
Very thorough directory of Web links to cancer databases, documents, treatment facilities, journals, and patient's guides.

MUSC (http://act.musc.edu/)
This site provides an up-to-date listing of clinical trials being conducted at the Medical University of South Carolina.

Chapter 8

Objectives

South Carolina Cancer Prevention and Control

Chapter 8. Goals and Objectives

Collaboration and Partnerships

Goal: Assure a well-defined, comprehensive approach to cancer prevention, detection, and care through strategic collaboration with the health care community, research institutions, federal and state government, the private sector, and volunteer and community organizations.

Surveillance

Goal: Establish a comprehensive cancer surveillance system in South Carolina.

Objective 1. To maintain long-range support for the South Carolina Central Cancer Registry (SCCCR).

Strategy 1. Seek continued funding for the registry.

Strategy 2. Maintain adequate staffing for the SCCCR.

Objective 2. To monitor and report on the occurrence and patterns of cancer in South Carolina.

Strategy 1. Measure cancer incidence by cancer type, stage at diagnosis, geographic occurrence, and population group.

Strategy 2. Measure cancer mortality by cancer type, geographic occurrence, and population group.

Strategy 3. Collaborate with DHEC Geographic Information System (GIS) researchers to track cancer occurrence against health care availability and other geographic variables.

Strategy 4. Collaborate with the DHEC Cancer Cluster researchers to monitor the temporal and spatial patterns of cancer within the state.

Strategy 5. Collaborate with existing state, regional, and national health information systems to establish linkages for data integration.

Objective 3. To make cancer registry data available to health care planners, researchers, and health care providers.

Strategy 1. The CCAC Surveillance subcommittee will provide oversight for appropriate utilization of registry data.

Strategy 2. Develop protocols for the release and utilization of confidential data from the SCCCR.

Strategy 3. Promote utilization of SC cancer surveillance data by program planners, health care providers, researchers and data providers.

Objective 4. To collaborate with the American Cancer Society to produce an annual *South Carolina Facts and Figures,* using SCCCR data.

Goal: Comply with national surveillance standards.

Objective 1. To comply with national standards for data completeness and timeliness.

Strategy 1. Collect data from all available sources, including hospitals, laboratories, physician's offices and free-standing treatment centers.

Strategy 2. Establish data exchange agreements with other states to share resident data.

Objective 2. To establish an integrated quality assurance program for cancer surveillance.

Goal: Monitor cancers which are unusually high in South Carolina, or which disproportionately affect certain segments of the population, based on cancer mortality rates.

Objective 1. To establish baseline measurements for esophageal cancer in South Carolina, including incidence, stage at diagnosis, distribution, and mortality rates. (*SC ranks 4th in the US in Esophageal Cancer mortality*.)

Objective 2. To establish baseline measurements for multiple myeloma in South Carolina, including incidence, stage at diagnosis, distribution, and mortality rates. (*SC ranks 2nd in the US in Multiple Myeloma mortality*)

Objective 3. To establish baseline measurements for pancreatic cancer in South Carolina, including incidence, stage at diagnosis, distribution, and mortality rates. (*SC ranks 7th in the US in Pancreatic Cancer mortality.*)

Objective 4. To establish baseline measurements for brain cancer in South Carolina, including incidence, stage at diagnosis, distribution, and mortality rates. (*SC ranks 12th in the US in Brain Cancer mortality.*)

Objective 5. To establish baseline measurements for ovarian cancer in South Carolina, including incidence, stage at diagnosis, distribution, and mortality rates. (*Ovarian Cancer ranks 4th in cancer mortality for white women in SC; 5th for black women.*)

Objective 6. To establish baseline measurements for uterine cancer in South Carolina, including incidence, stage at diagnosis, distribution, and mortality rates. (*Uterine Cancer ranks 7th in cancer mortality for black women in SC.)*

Objective 7. To establish baseline measurements for bladder cancer in South Carolina, including incidence, stage at diagnosis, distribution, and mortality rates. (*Bladder cancer is 4th most common cancer for American men. The priority given this cancer must be reassessed as incidence data for South Carolina becomes available*.)

Objective 8. To establish baseline measurements for stomach cancer in South Carolina, including incidence, stage at diagnosis, distribution, and mortality rates. (*Stomach Cancer ranks 5th in cancer mortality for black men and 8th for black women in SC.*)

Objective 9. To identify counties with the most aberrant cancer rates or population groups with the most disparate frequencies.

Goal: Monitor the impact of the environment on the health of South Carolinians with regard to cancer and provide public education on cancer and the environment in South Carolina.

Objective 1. Establish long-range funding to support epidemiological research and public education on Cancer and the Environment within DHEC.

Objective 2. To collaborate with other groups within DHEC, including the Office of Environmental Quality Control to take a proactive approach to addressing public concerns.

Objective 3. To establish partnerships with university groups, non-profit organizations, and community groups to study the impact of the cancer on the environment in South Carolina.

Community Partners: American Cancer Society, SC Office of Research and Statistics, SC Medical Association, SC Hospital Association, USC School of Public Health, SC Cancer Registrars Association, SC Health Information Management Association, NAACCR, Southeast Cancer Registries Network, SEER.

Cancer Prevention

Goal: Increase the proportion of primary care providers who routinely counsel patients about tobacco use cessation and diet modification.

> *Healthy People 2000 Goal is to increase this proportion to at least 75%.*
> *South Carolina has no current baseline measurement.*

Goal: To decrease the rate of tobacco use among South Carolinians.

> *Healthy People 2000 goal is to reduce cigarette smoking to no more than 15% among people 20 and older.*
>
> *Target 1.* Delineate and disseminate data describing tobacco-related cancers in SC, including incidence, mortality, and geographic distribution.
>
> *Target 2.* Reduce tobacco use among youth by one-third.
>
> *Target 3.* Reduce tobacco use among South Carolina adults to less than 20%.
>
> *Target 4.* Develop and coordinate the resources needed to implement and evaluate these prevention measures.

Objective 1. Produce an annual report on tobacco use and consequences in South Carolina.

Objective 2. Increase the SC state tax on tobacco by at least 100%.

Objective 3. Prohibit the promotion of tobacco products at sporting, music and cultural events in South Carolina.

Objective 4. Increase to 100% the number of SC schools with enforced policy prohibiting tobacco use on school property or at any school-sponsored events. This includes grades K-12, public and private schools.

Objective 5. Increase the percentage of youth who view cigarette smoking as socially, economically, physically, and personally undesirable.

Strategy 1. Strengthen tobacco use prevention curricula in schools.

Strategy 2. Conduct statewide marketing campaigns to discourage youth use of tobacco.

Strategy 3. Help families discourage tobacco use among children.

Objective 6. Increase the enforcement of laws and regulations prohibiting tobacco sales to minors, such that less than 20% of merchants are found to sell illegally to minors.

Strategy 1. Educate merchants about regulations that prohibit tobacco sales to minors.

Strategy 2. Monitor tobacco sales to minors in South Carolina.

Objective 7. Increase the number of youth tobacco users who participate in efficacious tobacco-use cessation programs.

Strategy 1. Ensure that efficacious smoking cessation programs are available and accessible to youth smokers.

Objective 8. Increase the number of smoke-free facilities and environments accessed by the public.

Strategy 1. Repeal pre-emption.

Strategy 2. Strengthen South Carolina's 1990 Clean Indoor Air Act to ensure that non-smokers are not unwillingly exposed to tobacco smoke.

Strategy 3. Collaborate with South Carolina businesses and industry to provide smoke-free environments and efficacious smoking cessation programs for employees.

Objective 9. Increase the number of adult smokers who participate in efficacious smoking cessation programs.

Strategy 1. Develop health care provider's skills to assist their patients to stop smoking.

Strategy 2. Ensure that efficacious smoking cessation programs are available and accessible to smokers.

Objective 10. Increase non-ASSIST state and federal tobacco control funding to at least $1 million per year.

Objective 11. Increase the number of individuals and organizations participating in a statewide tobacco-use prevention coalition.

Community Partners: Project ASSIST, American Cancer Society, American Lung Association, American Heart Association, Primary Care Association, USC School of Public Health, Medical University of South Carolina.

Nutrition

Overall Goal: To promote dietary habits which are known to prevent cancer.

Goal: Increase the complex carbohydrate and fiber-containing foods in the diets of South Carolinians to 5 or more daily servings for vegetables and fruits and 6 or more servings of grains.

Goal: Reduce dietary fat intake to an average of 30 percent of calories among people aged 2 and over.

> *Healthy People 2000 Goal is five a day for fruits and vegetables.*
> *South Carolina baseline: only 23.9% of the population eats five or more servings of fruit and vegetables a day.*

Objective 1. Assess existing educational programs and campaigns available in South Carolina through such programs as DHEC Community Health, Comprehensive School Health, American Cancer Society's Charting the Course, the American Heart Association, SC hospitals, and the SC Nutrition Council to identify gaps in health promotion education for nutrition.

Objective 2. Assess nutrition programs and educational materials developed through federal agencies, other states, and non-profit organizations for use in South Carolina.

Objective 3. Develop educational/marketing materials to help South Carolinians learn to use familiar, inexpensive and readily available foods to improve their diets and meet nutritional recommendations for cancer prevention.

Objective 4. Develop educational/marketing materials to help all South Carolinians understand nutritional recommendations, particularly regarding fat intake.

Objective 5. Increase the proportion of school lunch and breakfast services and child care food services with menus that offer choices for high fiber, low-fat menus. (No baseline data available.)

Objective 6. Increase the proportion of South Carolina schools which provide nutrition education

from preschool through 12th grade as part of school health education. (No baseline data available.)

Objective 7. Increase the proportion of hospital menus which offer identifiable, low-fat, low-calorie, food choices in their menus.
(No baseline data available.)

Objective 8. Increase the proportion of South Carolina restaurants, fast food vendors and institutional food services which offer identifiable, low-fat, low-calorie food choices in their menus.
(No baseline data available.)

Objective 9. Increase the proportion of primary care providers who provide nutritional assessment and counseling and/or referral to qualified nutritionists or dieticians.

Objective 10. Build on the tradition of South Carolina as an agricultural state by promoting fruit and vegetable gardening among South Carolina residents.

Community Partners: American Cancer Society, Healthy Schools, Healthy South Carolina, American Dietary Association, American Heart Association, South Carolina Hospital Association, Primary Care Association, Primary Care Physicians, Alliance for South Carolina's Children, Clemson University Extension, Medical University Programs, Nursing School Programs, SC Nutrition Council, Seeds of Hope.

Skin Cancer Prevention

Goal: To reduce exposure to the sun for people of all ages and increase use of sunscreens and protective clothing.

> *Healthy People 2000 Goal is to increase the proportion of people who follow sun-safe guidelines to at least 60%*
> *South Carolina has no current baseline on sun-safe practices.*

Objective 1. Measure baseline data on behavior of South Carolinians with regard to sun-safe practices.

Objective 2. Perform a resource assessment of existing sun-safe programs and media campaigns in South Carolina.

Objective 3. Identify which groups of adults are at high risk of skin cancer due to occupational activities.

Partnerships

Objective 4. Development strategic partnerships within South Carolina to reduce overexposure to the sun for both children and adults in South Carolina.

Strategy 1. Develop partnerships with existing prevention programs, research centers, hospital cancer centers, and volunteer organizations to cooperate on sun-safe programs.

Strategy 2. Develop partnerships with educational organizations and physician's groups to educate parents and caregivers on the danger of overexposure to the sun for children under 18.

Strategy 3. Develop partnerships with day care associations and schools to increase knowledge and change behavior of teachers in South Carolina.

Strategy 4. Work with day care centers and parks, and city and county recreation districts to decrease sun exposure for children by increasing shade and shelters.

Strategy 5. Collaborate with businesses or organizations whose employees are at greater risk for skin cancer to protect employees from overexposure to the sun.

Public Education

Objective 5. Develop educational materials to educate parents and caregivers about the hazards of overexposure to the sun for young children.

Objective 6. Evaluate educational campaigns available through the federal government, other states and territories, and professional organizations for use in South Carolina and adapt these materials for use in South Carolina.

Objective 7. To assure safety compliance with existing state legislation and regulations regarding tanning machines.

Community Partners: American Cancer Society, American Dermatology Association, Primary Care Association, Day Care Associations, Pediatricians, SC Medical Association, SC Nursing Association, Hollings Cancer Center, Palmetto Alliance, SC Forestry Commission, State Budget and Control Board.

Cancer Detection

Goal: Increase the proportion of primary care providers who routinely counsel patients about cancer screening recommendations.

> *Healthy People 2000 Goal is to increase this proportion to at least 75%*
> *South Carolina has no baseline measurements for this goal.*

Colorectal Cancer Detection

Goal: To increase the use of colorectal cancer screening and follow-up services in South Carolina and ultimately, to reduce the number of lives lost to colorectal cancer.

> *Healthy People 2000 Goal is to increase to at least 50% the proportion of people 50 and older who have received fecal occult blood testing within the preceding 1 to 2 years and to at least 40% those who have received proctosigmoidoscopy.*

Objective 1. To establish baseline measurements for colorectal cancer in SC, including incidence rates, stage at diagnosis, and geographic distribution.

Objective 2. To assess barriers to screening for colorectal cancer, with particular emphasis on high risk groups.

Strategy 1. Measure baseline data on public awareness of early symptoms and screening guidelines for colorectal cancer.

Strategy 2. Measure baseline data on the percentage of primary care providers who routinely counsel their patients regarding colorectal screening.

Strategy 3. Evaluate current insurance coverage for colorectal testing by principal SC providers.

Strategy 4. Measure baseline data on the percentage of South Carolinians who follow ACS recommendations on colorectal screening.

Strategy 5. Evaluate professional education for colorectal cancer screening in South Carolina.

Strategy 6. Evaluate health care capacity in South Carolina for colorectal cancer detection, including the availability of fecal occult blood tests, sigmoidoscopy, and colonoscopy. This assessment should include cost analysis of colorectal screening and geographic distribution of services.

Objective 3. To develop strategies for public and professional education on the importance of early detection of colorectal cancer.

Community Partners: American Cancer Society, SC Medical Association, Primary Care Association, SC Nurses Association, SC Providers, USC School of Public Health, SC Medical Schools and Nursing Programs.

Breast Cancer Detection

Goal: To increase the use of breast cancer screening and follow-up services and ultimately, to reduce the number of women whose lives are lost to breast cancer in South Carolina.

> *Healthy People Goal: Increase to at least 60% the proportion of women 50 who have had a mammogram and clinical breast examination within the past one to two years.*
>
> *Target 1.* To increase the percentage of women aged 50 and over who have had a mammogram and clinical breast examination within the past two years from 68.4% to 75%.
> (BRFSS baseline, 1995)

Objective 1. In collaboration with the federally funded Breast and Cervical Cancer Control Program, develop and disseminate comparable services to all women in South Carolina.

Strategy 1. Seek increased state cancer funds to match the funding level of the SCBCCCP for

screening services.

Strategy 2. Seek regional and local grants from non-government sources to expand screening services.

Public Education

Objective 2. To increase knowledge and health-seeking behavior of women with regard to the importance of breast cancer screening.

Strategy 1. To develop alliances with business and industry for the purpose of disseminating information on breast cancer screening to the general public.

Strategy 2. To expand community outreach activities which raise awareness about breast cancer screening.

Provider Referral

Objective 3. To increase the percentage of health care providers who recommend mammograms to their patients.

Strategy 1. Conduct a baseline survey to determine the percentage of primary care providers who routinely counsel their patients to receive mammograms.

Strategy 2. Conduct a baseline survey to determine the percentage of specialists who counsel older women regarding age-appropriate breast cancer screening guidelines.

Follow-Up Care

Objective 4. To educate all women in South Carolina about their risk of breast cancer and the need to return for appropriate rescreening or diagnostic testing.

Strategy 1. Gather baseline data on follow-up patterns of women with abnormal mammograms and CBEs and propose strategies for increasing timely access to care.

Strategy 2. Promote standardized clinical guidelines for providing follow-up care for each type of mammography result.

Strategy 3. Promote the use of reminder or tracking systems which inform women of the need for follow-up and/or rescreening, using the SC BCCCP program model.

Access To Follow-up Care

Objective 5. To advocate for an adequate resource network to enable all women in need of diagnostic follow-up to receive care in a timely manner.

Professional Education

Objective 6. To educate providers about appropriate methods for conducting clinical breast examinations and self-breast examinations and urge the incorporation of these programs into clinical practice.

Objective 7. To facilitate multidisciplinary coordination of care among providers who provide services to women with abnormal mammograms or clinical breast examinations.

Objective 8. To provide continuing education to radiologists and radiology technicians in mammography.

Community Partners: Best Chance Network, Mammography Coalition, American Cancer Society, Carolina Healthstyles, Medicare PRO, Primary Care Association, SC Medical Association, SC Nursing Association, American College of Gynecologists, SC Teachers Association, YWCA, National Association of Breast Cancer Organizations, Breast Health Centers, Avon, Komen Foundation, Blue Cross/Blue Shield, Companion.

Cervical Cancer Detection

Goal: To increase the use of cervical cancer screening and follow-up services and ultimately, to reduce the number of women whose lives are lost to cervical cancer in South Carolina.

> *Healthy People 2000 Goal: Increase to at least 85% the proportion of women with a uterine cervix who have had a pap smear within the preceding one to three years.*
>
> *Target 1.* To establish baseline measurements for cervical cancer in South Carolina, including incidence, stage at diagnosis, distribution, and mortality rates.
>
> *Target 2.* Increase the percentage of women who have had a pap smear within the past two years from 85.5% to 95%. (BRFSS baseline, 1995)

Public Education

Objective 1. To increase knowledge and health-seeking behavior of all women with regard to cervical cancer screening.

Strategy 1. To develop alliances with business and industry for the purpose of disseminating information on cervical cancer screening.

Strategy 2. To promote community outreach activities that raise awareness about cervical cancer screening.

Strategy 3. To incorporate education on the implications of the HPV virus in cervical cancer prevention into high school curricula.

Strategy 4. Expand cervical cancer education and screening in state health department clinics.

Provider Referral

Objective 2. To ensure that health care providers recommend Pap smears according to guidelines to at least 95% of their eligible female patients.

Strategy 1. Conduct a baseline survey to determine the percentage of primary care providers who routinely counsel their patients on Pap smears.

Strategy 2. Conduct a baseline survey to determine the percentage of specialists who recommend Pap smears to their eligible patients, especially older women.

Follow-Up and Rescreening

Objective 3. To educate all women about their risk of cervical cancer and the need to return for appropriate rescreening or diagnostic tests.

Objective 4. To promote standardized clinical guidelines for providing follow-up care for each level of Pap smear result (using the Bethesda System to define levels of results).

Objective 5. To promote the use of reminder and tracking systems to inform women of their need for follow-up and/or rescreening by educating primary practitioners about the value of such systems.

Objective 6. To advocate for an adequate resource network to enable all women in need of diagnostic follow-up to receive care in a timely manner.

Professional Education

Objective 7. To educate providers about appropriate methods for conducting Pap smears and urge the incorporation of these programs into clinical practice.

Objective 8. To facilitate multidisciplinary coordination of care among providers who provide services to women with abnormal Pap smears.

Objective 9. To provide continuing education to pathologists and cytotechnologists.

Community Partners: Best Chance Network, DHEC Sexually Transmitted Disease Programs, DHEC Family Planning Programs, American Cancer Society, Carolina Healthstyles, Medicare PRO, Primary Care Association, SC Medical Association, SC Nursing Association, American College of Gynecologists, Planned Parenthood, USC School of Public Health.

Prostate Cancer Detection

Goal: To give men in South Carolina the information and support they need to make informed individual decisions for prostate cancer detection.

> *Target 1.* Develop indicators for the surveillance of prostate cancer incidence, morbidity and mortality in South Carolina, with particular emphasis on the high-risk, African-American population.

Objective 1. Public Education. To identify the gaps in community education regarding early detection of prostate cancer, treatment options and supportive care for prostate cancer patients.

Strategy 1. Determine what the public education message regarding prostate cancer should be for 1) the general population and 2) the high-risk, African-American population.

Strategy 2. Evaluate public information campaigns and materials developed in other states and by national organizations.

Strategy 3. Develop public information and health education materials for use in South Carolina, with particular emphasis on the African American community.

Strategy 4. Develop community outreach programs throughout South Carolina.

Objective 2. Professional Education. To identify the gaps in professional education regarding early detection of prostate cancer.

Strategy 1. Assess professional education regarding prostate cancer detection and treatment for medical students and allied professionals.

Strategy 2. Seek linkages with the medical schools and major professional organizations in South Carolina to develop collaborations for professional education.

Goal: To ensure that access to health care is not a barrier for any man seeking prostate cancer detection services.

Objective 1. Detection. Assess barriers to prostate cancer testing in South Carolina, with particular emphasis on the high-risk, African-American population.

Objective 2. Capacity/Health Services. Evaluate access to, availability of, and quality of prostate cancer detection and care in South Carolina.

Goal: Develop a statewide, community-based network to bring people together to address prostate cancer mortality in South Carolina. A central component of this network must be a grassroots, statewide effort to reach men who are poor and underserved, and have traditionally been outside the health care system.

Community Partners: American Cancer Society, DHEC Minority Health, South Carolina Prostate Cancer Project, Council of Black Churches, ACCESS (MUSC), SC Medical Association, Primary Care Association,

South Carolina Urology Association, SC Nurses Association, Palmetto Medical Society, USC Public Health, USC Nursing, US TOO, PAACT, Medicare and other providers.

Genetics

Goal: To continuously monitor the growing field of Genetic Risk Assessment and develop public policies and strategies in response to this rapidly changing field.

Objective 1. To form an ongoing CCAC Task Force to monitor the impact of the growing field of human genetics research on cancer prevention and care.

Objective 2. Work with state-wide experts in Genetic Risk Assessment to monitor future legislation regulating the use of genetic testing, issues in adverse selection and reimbursement issues.

Community Partners: SC Alliance for Cancer Genetics, American Cancer Society, Women's Cancer Coalition, Hereditary Prostate Cancer Study.

Health Care, Cancer Care, and Palliative Care

Goal: To assure that patients enrolled in the South Carolina State-Aid Cancer Program have coordinated, timely, and clinically appropriate care.

Objective 1. To increase state funding and legislative support for the State-Aid Cancer Program.

Objective 2. To conduct an operational analysis of the State-Aid Cancer Program (SACP), to ensure its effectiveness in the changing environment of cancer care delivery.

Strategy 1. To evaluate the geographic availability of State-Aid services.

Strategy 2. To evaluate the use of resources by the State-Aid Cancer Program and quantify the cost of those services.

Goal: To ensure that all South Carolinians have access to quality cancer care.

Objective 1. To ensure that all South Carolinians have access to comprehensive cancer education and detection services.

Objective 2. To increase the number of hospitals in South Carolina with cancer programs accredited by the American College of Surgeons.

Objective 3. To advocate for health care coverage for cancer patients and survivors so that their treatment and continuing care needs are met.

Objective 4. To ensure that neither transportation nor housing is a barrier to cancer care for any South Carolinian.

Objective 5. To monitor the impact of the changing health care delivery system on the ability to provide screening and care to underserved populations in South Carolina.

Objective 6. To monitor the impact of health care legislation on the delivery of cancer care in South Carolina.

Community Partners: SC Medical Association, SC Nursing Association, SC Hospital Association, American Cancer Society, Medically Indigent Assistance Program, SC Primary Care Centers, US Health and Human Services, Medicaid, SC Budget and Control Board, SC Council on Aging, DHEC Rural Health, DHEC Geographic Information Systems, Best Chance Network, US Too.

Goal: To advocate for palliative care for all cancer patients in South Carolina.

Objective 1. To collaborate with South Carolina Cancer Pain Initiative and other groups within the state which advocate for effective and humane management of cancer pain.

Objective 2. To encourage incorporation of cancer pain management issues within curricula for health care professionals-in-training, particularly physicians, nurses and pharmacists.

Objective 3. To promote awareness of cancer pain management issues among practicing health-care professionals, with particular emphasis on community-based, primary care physicians.

Objective 4. To advocate for psychosocial care for all cancer patients and their families in South Carolina.

Objective 5. To support hospice services in South Carolina and assure their statewide availability.

Community Partners: American Cancer Society, South Carolina Cancer Pain Initiative, South Carolina Chapter of the National Coalition for Cancer Survivorship.

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