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ABSTRACT

This curriculum guide provides the teacher with a variety of suggestions intended to assist students in the seventh-, eighth-, and ninth-grades to develop proper attitudes regarding cancer and its prevention. In addition, learning experiences are suggested with the intent to teach students about the importance of early detection and treatment of cancer. Finally, teachers are provided with basic cancer information that will enable them to deal appropriately with student questions. Upon completion of the unit, the student will be able to (1) show how cancer is an aberrant process in cell growth for tissue development and replacement, (2) describe how cancer is a group of diseases representing an exaggerated response of the body's protective mechanism against internal and external irritants, (3) discuss why the cause of cancer is non-specific and can be attributed to identifiable combinations of genetic and environmental factors, (4) identify habits and hazards considered as causative or contributory factors in cancer development, (5) identify the common sites of cancer in human beings, (6) list services available for early detection of cancer growth, (7) describe what the individual can do for the early detection, prevention, and control of cancer, (8) give examples of cancer research efforts, and (9) develop a plan of personal action for cancer prevention and control. The text of the guide is divided into three columns per page, dealing with concepts, activities, and supplementary information for the teacher. A glossary of terms is included and seventeen appendixes of charts, graphs, and drawings expand on information contained in the text. (MB)

HEALTH EDUCATION:

CANCER PREVENTION AND CONTROL

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INTRODUCTION

The incidence of cancer can be greatly reduced. This is essentially true of most of our nation's major health problems. These reductions can be affected through an enlightened populace. An indepth discussion of the prevention of cancer, its causes, the importance of early diagnosis and treatment can provide individuals with the information necessary for them to take appropriate personal actions. For example, one can learn: to eliminate behavior which contributes to cancer development, e.g., cigarette smoking and over-exposure to the sun; the truth about the causes and consequence of cancer, thus eliminating misconceptions; the importance of early detections and where to go for competent treatment. Not only would the incidence of cancer be reduced significantly, but thousands of deaths would be prevented.

This curriculum guide provides the teacher with a variety of suggestions intended to assist students to develop proper attitudes regarding cancer and its prevention. In addition, learning experiences are suggested with the intent to teach students about the importance of early detection and treatment of cancer. Finally, teachers are provided with basic cancer information that will enable them to deal appropriately with student questions.

OBJECTIVES

At the completion of the unit in health education dealing with cancer prevention and control, the student will be able to:

1. Show how cancer is an aberrant process in the biological phenomen of cell growth for tissue development and replacement.

2. Describe how cancer is a group of diseases essentially representing an exaggerated response of the body's protective mechanism against internal and external irritants.

3. Discuss why the cause of cancer is nonspecific; that cause can be attributed to identifiable combinations of factors, such as genetic and environmental.

4. Identify personal habits and occupational hazards which are considered as causative or contributory factors in the development of cancer.

5. Identify the common sites of cancer in children, in males, and in females, and associate these with the possible and traceable causes.

6. List the community services available to the public for early detection of the commonly occurring forms of cancer.

7. Describe what the individual can do for the early detection, prevention, and control of commonly occurring forms of cancer.

8. Cite examples of research efforts in the treatment, control, and cure of cancer.

9. Develop a plan of personal action as an individual contribution to the efforts aimed at cancer prevention and control.

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
I. Cancer Occurrence		
Cancer is a major health problem in our country.	Show and discuss the rise in cancer incidence since 1900 compared to changes in incidence of other major diseases.	Cancer mortality has increased 7 times since 1900. (See Appendix XIV.) The chance of an individual developing cancer has increased five times.
Many people believe cancer is a consequence of modern living.	Collect newspaper reports of famous people who have died from or been treated for cancer. (ACS "1976 Cancer Facts and Figures", #5008). Encourage students to speculate on the reasons for this increase. - What evidence is there to support this contention? - What changes in living have taken place that may contribute to a higher incidence of cancer? - What kinds of cancer are essentially related to living patterns? - What effect has increased life expectancy had on the increased incidence of cancer?	The following reasons for this increase have been suggested although not proven: Increased pollution Food additives Atomic tests Chemical growth stimulators Changes in diet Rapid pace of life Water fluoridation In the United States, millions of people drink naturally or artificially fluoridated water. Epidemiological studies have shown that the incidence of cancer is no higher among these people than among those with fluoride-free water supplies. Exhaustive tests with laboratory animals under controlled conditions have also demonstrated the safety of water fluoridation. Fluorine compounds are also derived from the soil and from food. These compounds are not carcinogenic.
The increase in incidence is only apparent for the following reasons: 1) Increase in population 2) Increase in average lifespan 3) Increase in cigarette smoking 4) Better diagnosis	Use graphs to demonstrate: 1) Increase in population. 2) Decline of deaths from infectious disease and increase in chronic disease. 3) Increase in lung cancer following increase in cigarette sales. (See "1976 Cancer Facts and Figures," American Cancer Society, #5008).	The U.S. population has tripled since 1900. However, this does not account for all of the increase in cancer incidence. Increased availability of medical care and improvements in diagnosis and record keeping mean that many more cases of cancer are being diagnosed for what they really are. The feeling that cancer was a disease to be ashamed of stifled

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
re people are becoming aware the nature of cancer cause it is more openly dis-ssed.	- What effect does broad discussions of cancer have on its control? - Give some reasons why cancer is considered a disease of old age even though young people also develop it.	public discussion of the disease. Today, it is discussed more openly and we are more aware of it. Cancer is primarily a disease of old age. (84% after age 55) The conquest of infectious diseases has enabled many people to live to an age when they are likely to die of chronic diseases such as cancer and heart disease. The process of change from normal to abnormal can be very slow. In fact as stated earlier, a high percentage of cancers do not appear until late middle age or old age.
st cases of cancer occur ter age 55, but it can strike any age.	- Does cancer usually develop quickly as do some of the infectious diseases? Explain.	
		Cancers related to smoking kill approximately 100,000 people a year. Cigarettes did not become commercially popular until around 1920. (See Appendix X.)
lle some consequences of dern life may increase the cidence of some cancer, vilization has helped reduce e incidence of other forms cancer.	Discuss some factors of modern life which may have increased incidence of cancer according to the following: 1) Mass production and marketing of cigarettes. 2) Air and water pollution by cancer-causing chemicals from factories, cars and homes.	Other advances may increase the cancer rate. For instance: 1) Supersonic flight may destroy the protective ozone layer, exposing people to greater risk of skin cancer caused by the sun. 2) Use of atomic energy may increase exposure to radiation from nuclear plants and nuclear waste. This would increase cancer risk.
	Debate the issue: The technology which has made life more comfortable by alleviating some health problems has created new and more serious health concerns.	There are many complex problems which need to be solved, especially in regards to determining whether the benefits to society of technology outweigh the possible harmful effects.

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
		Society must make an informed decision regarding its health risks.
The decline in stomach cancer is possibly related to improvement in methods of preserving food.	Discuss some factors in modern life which have decreased the incidence of cancer. - Why has stomach cancer declined in the U.S. since 1930? - Why does stomach cancer remain relatively high in Japan? - What is the relationship of mold in corn to liver cancer in the inhabitants of Africa? - Discuss the high incidence of urinary bladder cancer in Egyptian farmers.	The incidence of stomach cancer has declined steadily since 1930. It is suspected by researchers that the heavy consumption of smoked and pickled foods was related and that as modern preservation techniques (refrigeration, chemical preservatives) were introduced, cancer-causing substances were removed from the diet. In Iceland and Japan, where smoked and pickled foods remain popular, stomach cancer incidence remains high.
The incidence of liver cancer is far rarer in countries with modern methods of food storage and preservation. (See Training Manual for discussion on "The Nature of Cancer".)	Why is liver cancer not a serious health problem in the United States? How can it be prevented? What part of the world has a high incidence of liver cancer? Why?	Aflatoxin, a chemical product of the mold aspergillus flavus, causes cancer in laboratory animals. In the U.S. and Europe, the occurrence of such mold in the diet is rare. In Africa, corn supplies are sometimes contaminated by this mold and scientists suspect it may be the cause of the high liver cancer incidence in that area. Scientific investigation has given Egyptians information they need to avoid a naturally occurring cause of cancer. Egyptian agricultural workers who stood in Nile river waters while working were exposed to flukes (Schistisoma) which burrow through the skin and eventually settle in the urinary bladder. This

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
		irritation has been linked to a high incidence of bladder cancer which has been common in Egypt since the Pharaohs.
Many medical advances in the past became useful only when the general public became informed and made use of them, e.g., small pox and polio vaccines, chest x-rays for tuberculosis.	Discuss the decrease in diseases such as small pox and polio. Have students explain what has brought about this decrease. What is the relation, if any, to technological medical advances for detecting and treating these cancers? How can an informed public contribute to a decrease in cancer? What actions can each person take to reverse the incidence of cancer?	The same scientific advances which have made diphtheria, small pox and polio rare today are now being applied to cancer. While cancer in young people is relatively rare, it is important to understand the disease so one may protect himself and his family against cancer. Cancer is the leading disease cause of death of children ages 1-15.
II. Cancer - The Disease		
Cancer is a large group of diseases characterized by abnormal cell growth.	What is normal cell growth and differentiation? How is it related to abnormal cell growth? What makes a cell become abnormal?	See Appendix I. - Diagram of a Typical Cel
	Use ACS teaching kit, "The Nature of Cancer," Junior High School, #2059.01, Lesson I, Activity A.	"The Nature of Cancer" is an excellent teaching aid using overhead transparencies and a lesson plan, available from the local county unit of ACS.
There are many different kinds of cells in the human body and each performs a specific function for the benefit of the organism.	List the various kinds of cells in the body and state their purpose. - Is it true that cancer can occur in all of these cells? - What kinds of cells are more susceptible to developing cancer? Discuss differentiation - how a "general" cell becomes "special" and performs a special function.	The body is made up of trillions of cells. Cells are made differently because they have different functions and structure - bone cells, muscle cells, brain cells, fat cells, etc. (See Appendix II.) Cell differentiation is the process by which cells from the union of an egg and a sperm assume varying structure and functions in the body.

CONCEPTS	ACTIVITES	SUPPLEMENTARY INFORMATION
		Although cells may look different and perform different tasks, they are basically alike.
Each of the four basic structures of each cell perform a specific function for the life of the cell.	Diagram a typical cell and discuss the function of nucleus, cytoplasm, chromosomes, and plasma membrane. - Which of these structures control the growth and reproduction of the cell? - Is there a relationship between this structure and normal and abnormal cell division?	The nucleus contains hereditary material and controls most of the life activities of the cell. Chromosomes carry the hereditary message which determine the cells structure and function. Cytoplasm is a storehouse of chemical substances used by the cell for its life activities. The plasma membrane controls the passage of materials into and out of the cell.
	Discuss the process of normal cell division - mitosis.	In normal cell division the nuclear material, including the chromosomes, is divided into two sets. The cytoplasm pinches off t[illegible]m two new daughter cells. (See Appendix III.)
Cancer cells do not contribute to the function of the tissues to which they belong.	Compare to the uncontrolled abnormal division which is a typical of cancer. Show ACS film, "From One Cell", #2348. Show filmstrip, "What Science Knows About Cancer" - National Institutes of Health.	In abnormal division the nuclear material and cell may divide into 3 or more daughter cells. Cancer cells tend to become less specialized through a process of dedifferentiation. The cell no longer performs the assigned task, and no longer is working for the benefit of the body. In other words, a dedifferentiated cell is one where there is a loss in structure and function.
III. Causes of Cancer		
The cause is nonspecific, since no one single factor is a cause of all or most cancers. (See Training Manual for a listing of "Carcinogens in Man".)	"The Nature of Cancer", Junior High School, #2059.01, Lesson 1, Activity B, ACS.	

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
Several "causes" of cancer have been identified.	Discuss the studies associated with the identification of cancer-causing factors.	Factors that may contribute to the development of cancer are: Chemicals, such as from cigarette smoke; Radiation - natural (sun) and artificial (x-rays); Viruses Hereditary Susceptibility
	Experimental confirmation of chemical carcinogenesis was by Yamagiwa and Ichikawa. Describe their experiment. - What did this 1915 experiment show? - How is this related to human cancer? - Define a carcinogen. - Give at least two common examples.	18th and 19th century scientists had long suspected that chemicals might cause cancer. In 1915, two Japanese researchers, Yamagiwa and Ichikawa, induced cancer in rabbits by applying coal tar extracts to their ears.
Cigarette smoke contains chemicals known to cause cancer.	Use a smoking machine from ACS Smoking Simulator, #2732, to demonstrate tar in cigarettes or set up a simple experiment in destructive distillation to collect cigarette tars. Point out that these tars collect in the lungs, mouth and throat.	Other scientists have isolated specific substances in tar as the specific cancer-causing or carcinogenic agents. These substances are hydrocarbons (products of the incomplete combustion of organic materials). Hydrocarbons are found in auto exhaust, home and factory emissions, and cigarette smoke.
Radiation has been identified as the cause of some cancers.	Read and discuss: 1) News accounts of the results of radiological accidents. 2) Accounts of the results of bombing Hiroshima and Nagasaki. Invite a speaker from a local hospital or health department to discuss medical uses of radiation and steps taken to protect the public from over exposure	Radiation from the sun is the main cause of skin cancer. Solar radiation may cause skin cancer in anyone, but light-skinned Scandanavians do not have high incidence of skin cancer in their cloudy native lands. However, when they move to sunnier, geographic locations the incidence of skin cancer increases. Persons of Irish and English descent living in Australia have a high

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
	to radiation from x-rays and radioactive materials. Make a bulletin board display of pictures of radiation equipment.	risk of skin cancer while dark-skinned natives do not.
Even though viruses have been found to cause cancer in laboratory animals, there is no evidence that cancer is contagious. (See Training Manual for a discussion on "Is Cancer Contagious?")	Discuss the nature of the virus. - Which forms of cancer do scientists believe may be caused by a virus? - Do scientists understand how viruses may cause cancer?	Viruses are minute organisms which act as parasites in living cells and can reproduce only in cells. Cells so infected are called host cells. Viruses cause such diseases as influenza and polio and have been shown to cause cancer in animals. It is suspected they are a cause of at least some human cancers, e.g., leukemia. They probably cause cancer by altering the chromosomal chemistry and changing the genetic message. Viruses can be seen only with an electron microscope. (See Training Manual - "The Virus and Cancer".)
There is some evidence in people showing increased susceptibility to cancer through heredity. This has already been established in animal models.	Have students construct comparison graphs -- bar, line or picto-graphs. Make a list of diseases that are known to be inherited. - Do cancers "run in families?" - What is the explanation given by scientists? (See Training Manual - "Does Cancer Run in Families?")	Familial aggregations of cancer have long attracted attention. Nearly everyone knows at least one person who has had several close relatives with cancer. However, cancer is a common disease and some such "clustering" of cases would be expected on the basis of chance alone. In studying this problem, the appropriate question is whether such clustering exceeds that to be expected on the basis of a random distribution of cases throughout the population, and if this is so, what is the magnitude of the excess risk among relatives of cancer patients?

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
		Virtually every form of cancer which has been studied in the laboratory has shown an increased frequency in some species and strain of animals. It would be surprising if the same were not true for cancer in people. The results of animal work on strain differences in the risk of cancer suggest that human studies should consider familial patterns of risk for specific forms of cancer as well as all forms combined.
There is evidence that certain specific cancers may be related to familial factors.	Explain why life-style and hereditary susceptibility or resistance can contribute to different cancers. 1) Smoking and lung cancer. 2) Fair-skinned sailors and skin cancer.	The limited data available suggest some increased familial risk of developing cancer of the following sites: female breast, stomach, large intestine, endometrium, prostate, lungs, and possibly ovary. However, it is not known whether the observed familial aggregation of these tumors is due to genetic characteristics or to environmental factors, such as diet or occupation, which may be similar from one generation to the next.
Hereditary susceptibility appears to be associated with the incidence of cancer.	Explain, both from a life-style viewpoint and genetic viewpoint, why brothers and sisters, especially identical twins, may have a higher incidence of certain kinds of cancer.	Tumors seem to occur more frequently than expected in offspring of parents with tumors, i.e., hereditary susceptibility appears to play a role. When an identical twin has childhood leukemia, the probability that the other twin will develop the disease within 1-2 years of the date of diagnosis of the first twin is about 1 in 5, a magnitude of risks far exceeding the prevaling level in the general population.

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
IV. Environmental Causes of Cancer		
The risk of cancer can be increased by: 1. cigarette smoking 2. occupational hazards	Discuss cigarette smoking as an example of how various factors may combine to increase the risk of cancer.	In general the more a person smokes, the more carcinogenic tars he is exposed to and the greater the risk of lung cancer. However, this risk is affected by the amount of AHH (aryl hydrocarbon hydroxalase) in all cells, which facilitates the metabolism of hydrocarbons.
Cigarette smoking causes lung cancer and is related to cancer of the mouth, larynx and bladder.	"The Nature of Cancer", Junior High School, Lesson II for the relationship of smoking to cancer, ACS, 2059.01.	
The more one smokes, the greater the risk.	Appoint students to read and report on epidemiological studies of smoking and lung cancer, noting methods employed. Same for oral, larynx and bladder cancer. Discuss: Why do people smoke? Make a list of benefits and one of hazards related to smoking. Include both personal and social aspects.	The level of AHH is determined genetically (although all individuals have at least some). Thus heredity may play a role in lung cancer. In addition, some scientists believe the chemicals may activate a virus latent in the cell. Thus, three variables would combine to produce lung cancer. (See Training Manual for discussion of "Blood Tests for Cancer".)
	Show ACS film, "The Embattled Cell", #2397	
There are certain occupations which expose an individual to carcinogens.	Have the class speculate on the relationship between occupation and incidence of cancer in the following occupations: 1) Asbestos workers	People who work in certain occupations have a higher risk of developing cancer than those who are not. The following are typical examples: 1) Inhalation of asbestos fibers causes cancer in the lung and peritoneum. Workers employed in the application of asbestos have high risk of lung cancer. Such workers who smoke have an even higher risk.
	2) Radiologists and x-ray technicians.	2) Repeated exposure to low energy radiation, i.e., x-ray, causes skin cancer and leukemia. Today,

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
		protective measures are routinely used to prevent such occurrences. Patients occasionally exposed to radiation do not suffer such high risks.
People working in occupations that have a higher incidence of certain types of cancer than the general population should take extra precautions to protect themselves.	3) Workers employed in the production of polyvinyl chloride plastic.	3) The inhalation of vinyl chloride in the air of factories engaged in polyvinyl chloride production can cause liver cancer. (The use of vinyl chloride gas as a propellant in aerosol products has been banned, as has food packaging made of polyvinyl chloride.)
	4) Coke oven workers.	4) Tarry fumes of coke contain hydrocarbons similar to those found in cigarette smoke. People who work on coke ovens have a risk of developing lung cancer.
	5) Copper, radium and uranium miners.	5) The inhalation of radioactive particles and certain heavy metal dusts causes respiratory cancers.
	6) Aniline dye workers.	6) Certain chemicals (e.g., naphthylamine) once present in dyes were highly carcinogenic, causing bladder cancer. Manufacturing processes have been changed to protect workers.
	7) Chimney sweeps.	7) In the late 18th century, Dr. Percival Pott showed that chimney sweeps, exposed to large amounts of soot, were more likely to develop cancer.

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
	Discuss preventive actions which are taken to protect such workers. Visit a local industrial or processing establishment and see various aid and devices used to reduce environmental hazards. How do they work? Are some more effective than others? Write the Occupational Safety and Health Administration, Washington, D. C. 20210 for further information on industrial exposure to carcinogens.	
Industrial pollution may affect the general population as well as workers, and efforts are being made to control this pollution.	Discuss how carcinogens can enter the environment from industry. What are the most common kinds? What industries are more apt to pollute? Have students report on carcinogens in the air and water. How do they get into the air? the water? Invite a speaker from the county health department or pollution control agency or industry to discuss pollution controls. What steps are being taken to reduce pollution? How effective are they? Write a letter to the editor concerning the pollution problem.	Exposure to carcinogens which enter the environment from industry is far lower than that of those persons occupationally exposed. However, air and water pollution may be a problem, especially for people in proximity to such industrial plants.

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
Environmental pollution may increase the dangers of developing cancer in some people.	Have a committee of 3 or 4 students make a survey of the community to determine kinds and sources of pollution. Students may collect newspaper and magazine clippings on the pollution problem. What role do local and State political bodies play in pollution control? Contact the Assembly-person to determine his/her awareness and attitude. Write the Environmental Protection Agency for information on environmental carcinogens.	Examples: 1) Air pollution from vinyl chloride, soot and tars. 2) Water pollution from manufacturing wastes.
V. <u>The Major Sites of Cancer - Prevention and Detection of Cancer</u>		
There are over 100 kinds of cancer which can occur anywhere in the body.	Use a diagram or wall chart of the body to point out the most common sites of cancer. (See Appendix XI.)	Just as there are many different kinds of cells, there are different kinds of cancer.
There are three chief types of cancer; those of the epithelial tissues, those of the connective tissues, and those of the lymph and blood-forming organs. (See Training Manual for discussion of "Cancer Sites".)	Reference ACS, 1976 Cancer Facts and Figures, #5008, and ACS Teaching Kit, "Nature of Cancer", Junior High School, #2054.01.	Cancer falls into 3 main categories: <u>Carcinoma</u> - cancer of the epithelial cells, such as skin, lining of the gastrointestinal tract, lining of the respiratory tract, or lining of ducts (as in the breast). <u>Sarcoma</u> - cancer of connective tissue such as bones, muscles, or nerves. "<u>Diffuse</u>" or "<u>Liquid</u>" <u>Tumors</u> - cancer of the lymph and blood-forming organs such as the leukemias (acute & chronic myeloids and lymphatic leukemias).

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
It has been found that cancer occurs more frequently in some parts of the body than in other parts.	Information about cancer is available from Can-Dial, a toll-free telephone access system. Students may call 1-800-462-1884 to hear a tape on cancer. Can-Dial is a service of RPMI in Buffalo, N.Y. (See Appendix XVII for list of tapes.) Have a small group of students research the reasons why some forms of cancer are more prevalent than others.	Carcinomas account for the majority of cancers. About 50 times as many carcinomas as sarcomas appear.
	Discuss who is most susceptible to skin cancer.	People with occupations which cause them to be exposed to excessive sunlight, such as farmers and sailors, are most susceptible to skin cancer.
Skin cancer, the most common form, may be prevented by avoiding excessive exposure to the sun. Skin cancer is detected by changes in the color or size of a wart or mole and "cuts" which do not heal.	Discuss means of diminishing exposure to suns rays: 1) Take your sunshine in small doses. 2) Wear a broad-brimmed hat, long-sleeved shirt. 3) Use a beach umbrella 4) Use screening lotions and creams. Show ACS film, "Sense in the Sun", reference ACS, "1976 Cancer Facts and Figures", #5008, "Cancer of the Skin", #2049.	Although the sun is most dangerous to fair-haired, light-skinned individuals, anyone can develop skin cancer. Sun screens are available in pharmacies. They should not be confused with commercial suntan lotions. Skin cancer may appear as a dry, scaly patch, or pimple which persists, or an inflammed area with a crusting center, or as a pale, waxy, pearly nodule which may eventually ulcerate. Only a doctor can tell for sure if symptoms mean cancer.
Skin cancer is the most curable of all types of cancer.	Discuss the following: 1) Is skin cancer easily detected? How? 2) What is the mortality rate? What should it be? Why is it higher than it should be? 3) How is it treated?	Skin cancer, the most common cancer, is the most curable of all cancers. Present methods of treatment are surgery or radiation therapy. New non-surgical methods have been developed which are simple and painless.

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
Most lung cancer will be prevented through: 1) Not Smoking 2) Protecting individuals occupationally exposed to pollutions.	Discuss the causes of lung cancer: Smoking Occupational Exposure	At least 75% of lung cancer is caused by cigarette smoking. Almost all the rest is caused by inhaling certain dusts and chemicals.
	Prepare a survey of cigarette ads from magazines and newspapers. What are these ads saying? Does the image conform with reality?	Smoking is a personal decision. People choose to smoke or not to smoke. If an individual wishes to avoid lung cancer, he should not smoke.
	With students, cite and discuss reasons people smoke.	There is no such thing as a "safe" cigarette.
By the time most lung cancers are detected they have progressed too far to effect a cure.	Discuss: Many people recognize the dangers of smoking and switch to "low tar" brands. Many manufacturers attempt to fulfill this desire by producing filter cigarettes. Various filter cigarettes may be tested using a smoking machine or by blowing smoke through a tissue. It will be seen that much tar gets through the various filters. (Use ACS "Smoking Simulator" #2732).	Lung cancer is one of the most dangerous cancers. Only 8% survive more than 5 years. If every adult had a chest x-ray with his regular physical exam, more lung cancer would be found early and treatment would be more successful.
No cigarette is safe.	How safe are filters on cigarettes? Is there a significant difference between brands? Are some cigarettes safer than others? Is there a safe tar level in cigarette smoke? Explain. How important is a periodic chest x-ray, especially for smokers? Use ACS "The Nature of Cancer", Lesson 2 - Lung Cancer, and ACS Pamphlet "Answers to the Most Often Questions About Cigarette Smoking and Lung Cancer", #2023. (See Training Manual for discussion of "Marijuana and Lung Cancer".)	No filter has been developed which makes a cigarette safe. In general, the less tars a cigarette produces, the less dangerous it is. However, even small amounts of tar can be dangerous. Marijuana, like tobacco, produces carcinogenic tars. Despite reports that THD (tetrahydrocannabinol) is a tumor inhibitor, there is no reason to believe smoking marijuana prevents lung cancer. It most probably contributes to it.

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
After skin cancer, breast cancer is the most common site in women. It is highly curable if detected early. (See Training Manual for lesson plan for teaching BSE.)	Discuss the incidence of breast cancer. - What is the most effective method for detecting breast cancer early? - What is the value of a yearly check-up for detecting breast cancer?	1 in 13 women will develop breast cancer. It can strike a woman of any age but is more frequently found in the over 35 age group. There are 88,000 new cases each year and 33,000 deaths. Detected early, breast cancer is highly curable. Every woman can assure early detection by regularly examining her own breasts and reporting abnormalities to a doctor.
Regular self-examination of breasts is important in early detection of breast cancer.	Discuss the symptoms of breast cancer. - What should a woman do who has detected a lump in the breast? - Is breast cancer curable? ACS "1976 Cancer Facts and Figures, #5008, and "Cancer of the Breast", #2003. Invite a physician to class to discuss and demonstrate self-examination of the breast. Trained health educators are qualified to teach BSE also. (See Appendix XVI.)	The most common symptom of cancer is a lump in the breast. Most lumps are benign (harmless) but only a doctor can tell for sure. About 8 of 10 lumps found by women are benign. All lumps should be reported immediately to the doctor. Mammography is a form of x-ray used to detect breast cancer. Breast cancer is treated by removal of the cancerous breast and adjacent lymph nodes through which cancer may be spread. At times pectoral muscles in the chest may also be removed. Treatment in individual cases is determined by the individual physician's best judgment.
The Pap Test is a means of early detection of cancer of the cervix.	Discuss: The location of the cervix. - What is the Pap Test? - What does the Pat Test show? - Who should get a Pap Test? - How effective is it? - How often should a woman get a Pap Test? (See ACS Phamphlet "Answering Your Questions About Cancer, "2025, and "Cancer of the Uterus", #2006.)	The cervix, located inside the body, in the neck of the uterus or womb. There will be approximately 11,000 deaths from uterine cancer this year. Women most at risk are those who begin sexual

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
		relations at an early age and have several different partners during their life, however, it can appear in any woman.
		The Pap Test is a simple, painless test done by a doctor which can detect cancer long before symptoms appear.
	- Why is the incidence of cervical cancer relatively high? - How complex is the procedure developed by Dr. Papanicolaou? - Is it safe?	Most deaths from cervical cancer are unnecessary since it can be detected early enough and successfully treated. The Pap Test, developed by Dr. George N. Papanicolaou, is a simple test wherein a doctor or a specially trained nurse gently scrapes the cervix to obtain a sample of tissue. This process takes only a minute and the woman usually feels nothing. When the body cells obtained in this manner are viewed microscopically, a pathologist can identify cancerous or precancerous states. This test should be done once a year.
Cancer of the colon and rectum is highly curable when detected early. The best methods of detection of cancer of the colon and rectum is an annual physical checkup. (See Training Manual for a discussion of "Cancer of the Colon and Rectum", and ACS "Cancer of the Colon and Rectum", #2004.)	Discuss: The location and function of the colon and rectum. Why is the death rate so high for cancer of the colon and rectum? What simple procedure could help to reduce this rate?	There are approximately 100,000 cases of colon and rectum cancer every year and 49,000 deaths. It is uncommon in people under 40 and incidence increases with age. The best safeguard is an annual physical checkup including a proctoscopic examination (visual examination of the lower colon and rectum through a lighted tube), especially after age 40.

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
Leukemia is the most common cancer in children and teenagers. Leukemia also occurs in adults.	Discuss incidence of leukemia - specifically, what is leukemia? - how is it detected? treated? - can it be prevented? - can it be cured or arrested?	Leukemia is a cancer of the blood-forming tissues, resulting in over-production of immature white cells. Although the most common cancer in children, it actually strikes more adults. There will be 21,000 new cases and 15,000 deaths this year. Presently leukemia cannot be prevented.
Research efforts are approaching new controls for leukemia.	Invite a speaker from a research facility to discuss current treatment of leukemia patients.	
	Have students prepare articles for the school newspaper on aspects of cancer detection and prevention relating to teenagers.	Many scientists believe leukemia is caused by a virus and are hopeful of developing a cure and even a preventive vaccine. Meanwhile, treatment with drugs (chemotherapy) has dramatically raised the longterm survival rate. (See Training Manual for discussion of "Cat Leukemia Virus".)
(See Training Manual - "Cancer of Thyroid, Pancreas, and Wilms' Tumor", and ACS Pamphlet "Leukemia", #2629).	Students may write individual reports on the incidence, cause and treatment of one of the major cancers.	
VI. Cancer Research		
Cancer research is divided into 3 main areas: 1) Fundamental research into the nature of the cell and cellular change. 2) New and better methods of treatment.	Students can research and report on major figures in cancer research. Discuss: Since cancer is a cellular phenomenon, an understanding of the cell is essential to an understanding of the disease. Much of this understanding is applicable to other diseases.	New York State has two leading cancer research facilities -- Roswell Park Memorial Institute in Buffalo and Memorial Sloan-Kettering in New York City.
3) Improved methods of detection so that more cancers may be detected early when they are most curable. (See Training Manual for discussion of "Cancer Research".)	Discuss: Methods and types of cancer treatment. Destruction and removal of all cancerous cells by: 1) surgery 2) radiation 3) chemotherapy 4) immunotherapy	There are four chief methods used in the treatment of cancer. They are as follows: Surgery is the physical removal of a tumor and tissue which may contain cancer cells.

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
There are several methods of treating cancer; some are more effective for certain kinds of cancer than others. (See Training Manual for a discussion of "Chemotherapy" and "Cancer Immunotherapy".)	Describe how each treatment method works. - How does surgical removal of cancer differ from radiotherapy? - What do all methods of treatment strive to do to the cancer cells? (See Training Manual - "Cancer Treatment".)	Radiotherapy is the destruction of cancer cells with radiation. Some kinds of cancer are more susceptible to radiotherapy than others. Radiation sometimes has adverse side effects, such as nausea.
		Chemotherapy is the use of drugs which interfere with the growth and mitosis of cancer cells. Such drugs also have an effect on healthy cells. Presently, chemotherapy extends life, but only cures a few forms of cancer.
	Reference: ACS Pamphlet "The Hopeful Side of Cancer", #2012.	Immunotherapy is the stimulation of the body's defense system to destroy cancer cells.
	Invite a laryngectomee to speak to the group concerning cancer therapy and rehabilitation and smoking and health. The local unit of the ACS will assist in this effort.	There is evidence that everyone has certain numbers of abnormal cells within their bodies, which are continually controlled by the natural immune system.
	Student reports on tools of research, e.g., electron microscope, linear accelerator, tissue culture, laboratory animals.	The worth of immunotherapy has been proven in the treatment of certain skin cancers. This form of treatment is still in its early stages of development.
		The treatment of any serious disease is best handled by those reputable specialists associated with reputable hospitals and institutes. Unwarranted fear may lead people to seek assistance from quacks or "miracle workers". This is a mistake.
		Cancer is usually diagnosed by biopsy, the removal of suspect cells with a knife or needle. A pathologist viewing

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
		these cells through a microscope can determine if cancer is actually present. See "Unproven Methods of Cancer Management" (ACS) for information on unproven cancer "cures". (Code #3014) (See Training Manual for list of "Unproven Methods".)
VII. Individual Responsibility in Cancer Control		
As members of a community, each of us has a responsibility to maintain our own health and to promote the general well-being of other members.	Discuss the importance of good health habits in controlling cancer: 1) Regular checkups even though you feel well. 2) Learning to watch your body for changes which may be symptoms of cancer. 3) Preventing cancer by: a) not smoking b) avoiding excessive sunlight. 4) Supporting efforts to reduce environmental pollution and occupational exposure to pollution. 5) Becoming acquainted with and informing others about safeguards against cancer. Show ACS film, "Signals", #2376 Appoint a student committee to develop a cancer information center, using resources such as ACS, Clearinghouse for Smoking and Health, etc.	The teacher may want to review the previous discussions regarding each of these areas related to prevention.

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
	Have each student develop a plan of personal action as an individual contribution to cancer control.	See Safeguards Diagram in Appendix XIII. 7 Safeguards: Don't smoke. Avoid excessive sun. Regular procto for those over 40. Regular physical exam. Regular dental exam. For Women: Monthly breast self-examination. Annual Pap Test (See ACS Pamphlets: 1) "Safegurads Against Cancer", #2060 2) "Safeguards Against Cancer", #2066 3) "Safeguards Against Cancer", #2073 (Spanish)
	Appoint a panel which will lead discussion of personal barriers to cancer control. What can be done to eliminate them? Appoint a second panel which will lead discussion of social barriers to cancer control. What can be done to eliminate them?	

GLOSSARY

aflatoxin - a poison produced by the mold, aspergillus flavus, sometimes found in rotten corn and in spoiled ground nut seedlings. Carcinogenic activity proven. Responsible for death of farm animals consuming it. Cause of liver cancer in African natives using spoiled corn meal.

AHH - aryl hydrocarbon hydroxalase - a chemical, that if present in sufficient quantity in an individual may increase risk to lung cancer if she/he smokes.

alveoli - air sacs of the lungs.

benign - not cancerous.

biopsy - the removal and examination, usually microscopic of tissue or other materials from the living body for purposes of diagnosis.

bronchi - the two main branches of the trachea (windpipe).

cancer - a malignant tumor; a disease that involves uncontrolled reproduction of abnormal cells. If unchecked, the course of the disease is fatal.

carcinogen - a cancer-causing agent or substance.

cell - the smallest unit of living matter; a mass of protoplasm containing a nucleus, surrounded by a semi-permeable membrane.

cell differentiation - the process by which a cell develops uniqueness. It becomes specialized for use in a particular part of body or plant. (skin cell, bone cell, blood cell).

chemotherapy - treatment with chemicals or drugs, without producing serious side effects on the patient.

chromosomes - rod-shaped bodies in the nuclei of cells which contain hereditary material (genes).

chronic disease - one that continues over a long period of time.

cilia - hair-like projections from certain cells to protect them from injury. (example - trachea).

cytoplasm - the contents of the cell exclusive of the nucleus.

goblet cells - cells that secrete mucus in the air passages.

hydrocarbon - an organic compound that contains carbon and hydrogen only. Three types - alicyclic, aliphatic and aromatic - according to arrangement of atoms and chemical properties of compounds.

immunotherapy - treatment by the production of immunity. (anti-bodies)

infectious disease - one caused by parasites such as bacteria, protozoa, fungi, or viruses.

larynx - the voice box.

malignant - cancerous, life threatening.

mammography - diagnostic x-ray examination of the breasts.

mitosis - cell division resulting in formation of two new nuclei each having same number of chromosomes as the parent nucleus.

nucleus - the central portion of the cell containing the heredity material (chromosomes). Coordinates cell activities.

ozone layer - a gas found in an atmospheric layer at heights of approximately 20 to 30 miles characterized by high ozone content.

plasma membrane - the membrane surrounding a cell; the superficial layer of the protoplasm of a cell.

protoplasm - material of which cells are formed. Consists of water, protein, fats, carbohydrates and traces of other matter.

radiation - the giving off of radiant energy in the form of waves or particles, used in cancer therapy.

surgery - the removal of tissue or an organ.

tissue - a group of similar cells performing a particular function.

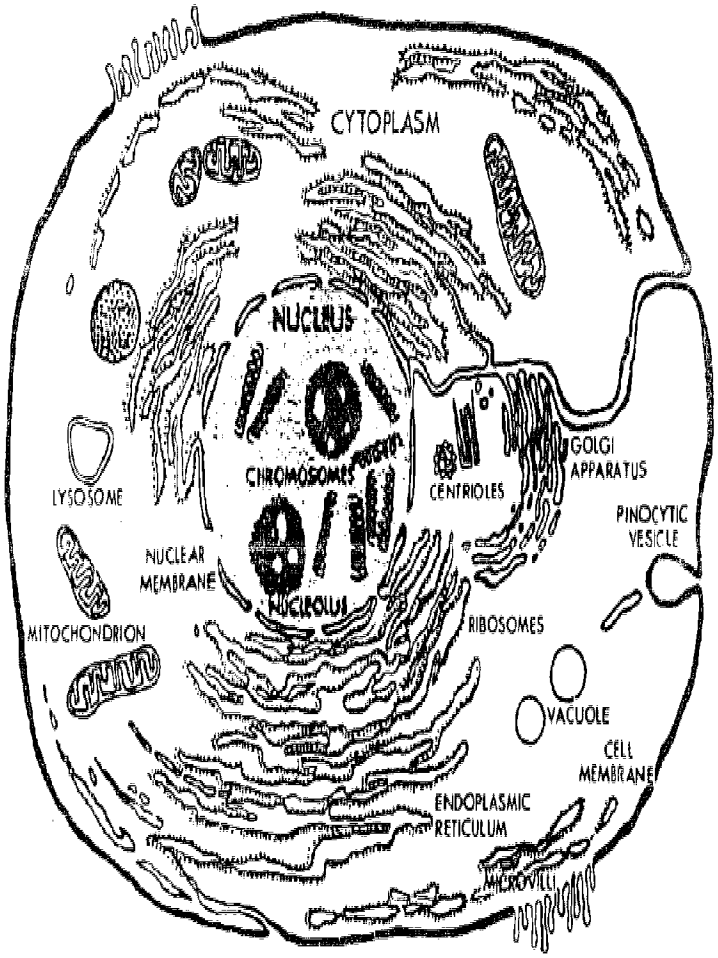
trachea - the windpipe.

tumor - an abnormal mass of tissue which has no physiologic use.

virus - a submicroscopic infectious agent. Viruses reproduce only in living cells and lack independent life processes.

APPENDIX 1

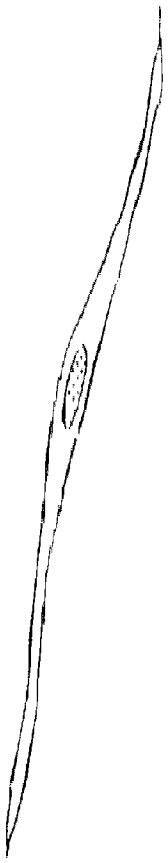
DIAGRAM OF A TYPICAL CELL



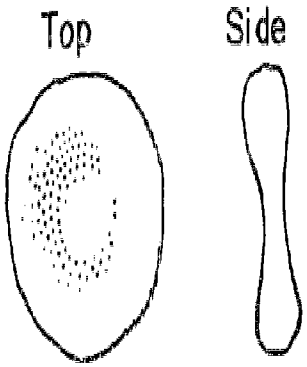
American Cancer Society "Nature of Cancer" Junior High Teaching Kit #2054.01

SOME EXAMPLES OF HUMAN CELLS

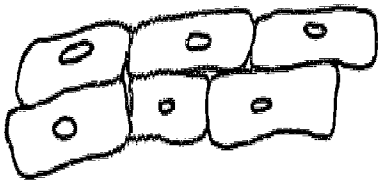
Nerve Cell



Muscle Cell



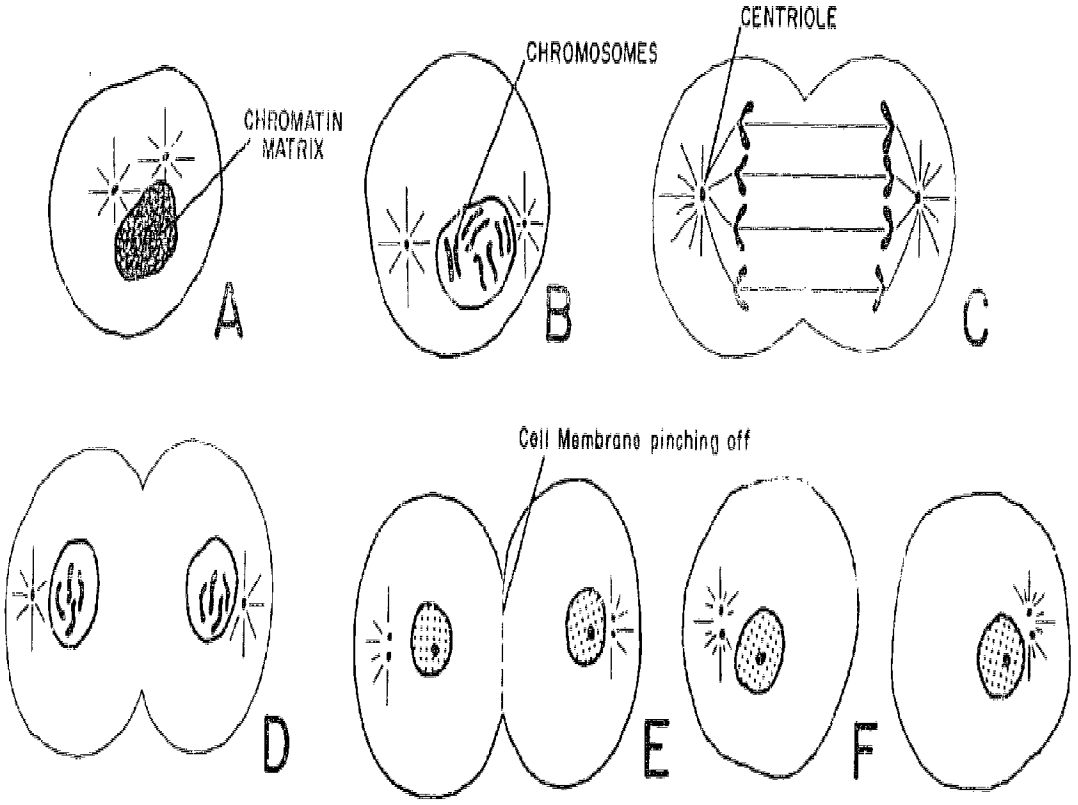
Two views of Red Blood Cell



Epithelial Cells

Elena Greco

CELL DIVISION - MITOSIS



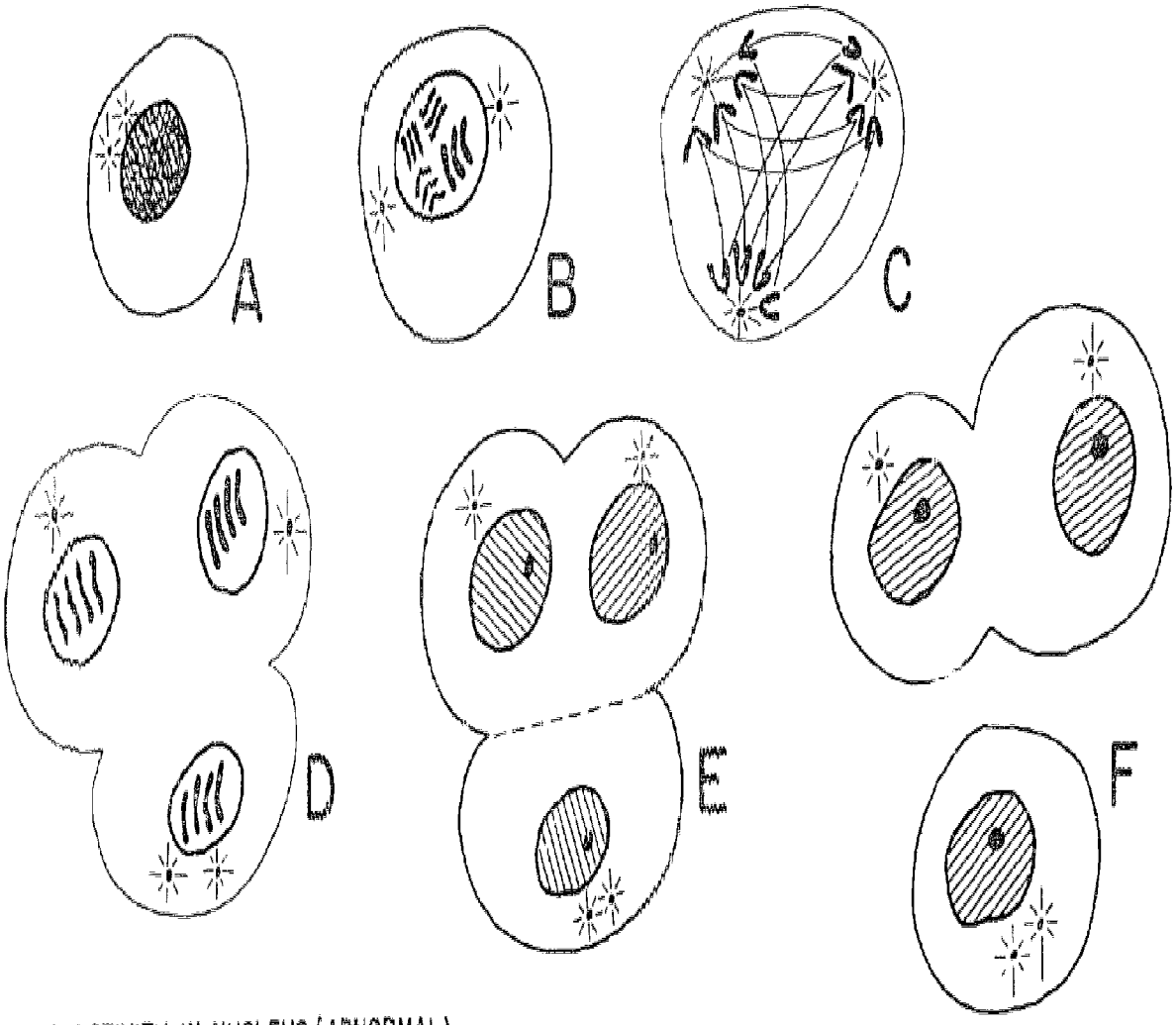
A. NUCLEAR ACTIVITY (CHROMATIN MATRIX)
B. CHROMOSOME AGGREGATION AND REPLICATION
C. CHROMOSOME SEPARATION
D. NUCLEAR FORMATION
E. CELL MEMBRANE ESTABLISHED
F. CELL SEPARATION

THIS DIVISION IS NORMAL BECAUSE:

1) CHROMOSOMES REPLICATE AND MIGRATE TO OPPOSITE ENDS OF THE CELL
2) TWO NUCLEI ARE FORMED
3) THE NUCLEI ARE SMALL AND STAIN LIGHTLY
4) TWO SIMILAR CELLS ARE PRODUCED

Elena Greco

AN EXAMPLE OF ABNORMAL CELL DIVISION



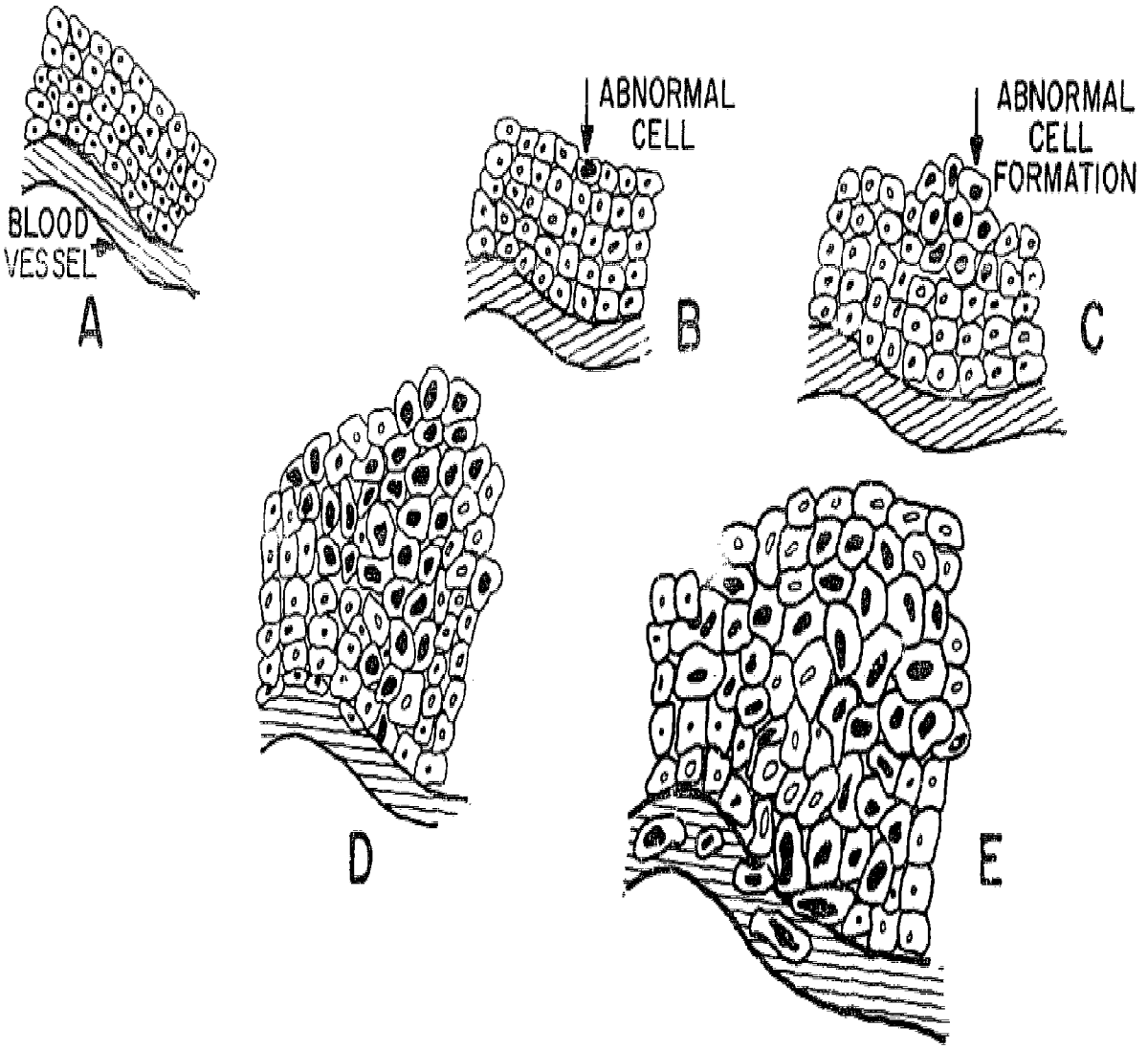
A. ACTIVITY IN NUCLEUS (ABNORMAL)
B. CHROMOSOME AGGREGATION AND REPLICATION
C. ABNORMAL SEPARATION INTO THREE AREAS (TRIPOLAR MITOSIS)
D. THREE NUCLEI FORM
E. ABNORMAL NUCLEAR SEPARATION
F. SEPARATION INTO ABNORMAL CELLS

THIS DIVISION IS ABNORMAL BECAUSE:

1) THREE REPLICATIONS OF CHROMOSOMES INSTEAD OF TWO (B)
2) THREE NUCLEI ARE FORMED (INSTEAD OF TWO NORMAL NUCLEI)
3) THE NUCLEI ARE GENERALLY LARGER AND STAIN DARKER
4) ABNORMAL CELLS ARE PRODUCED (F)

Elena Greco

TUMOR GROWTH AND SPREAD



A. NORMAL TISSUE

B. ABNORMAL CELL APPEARS

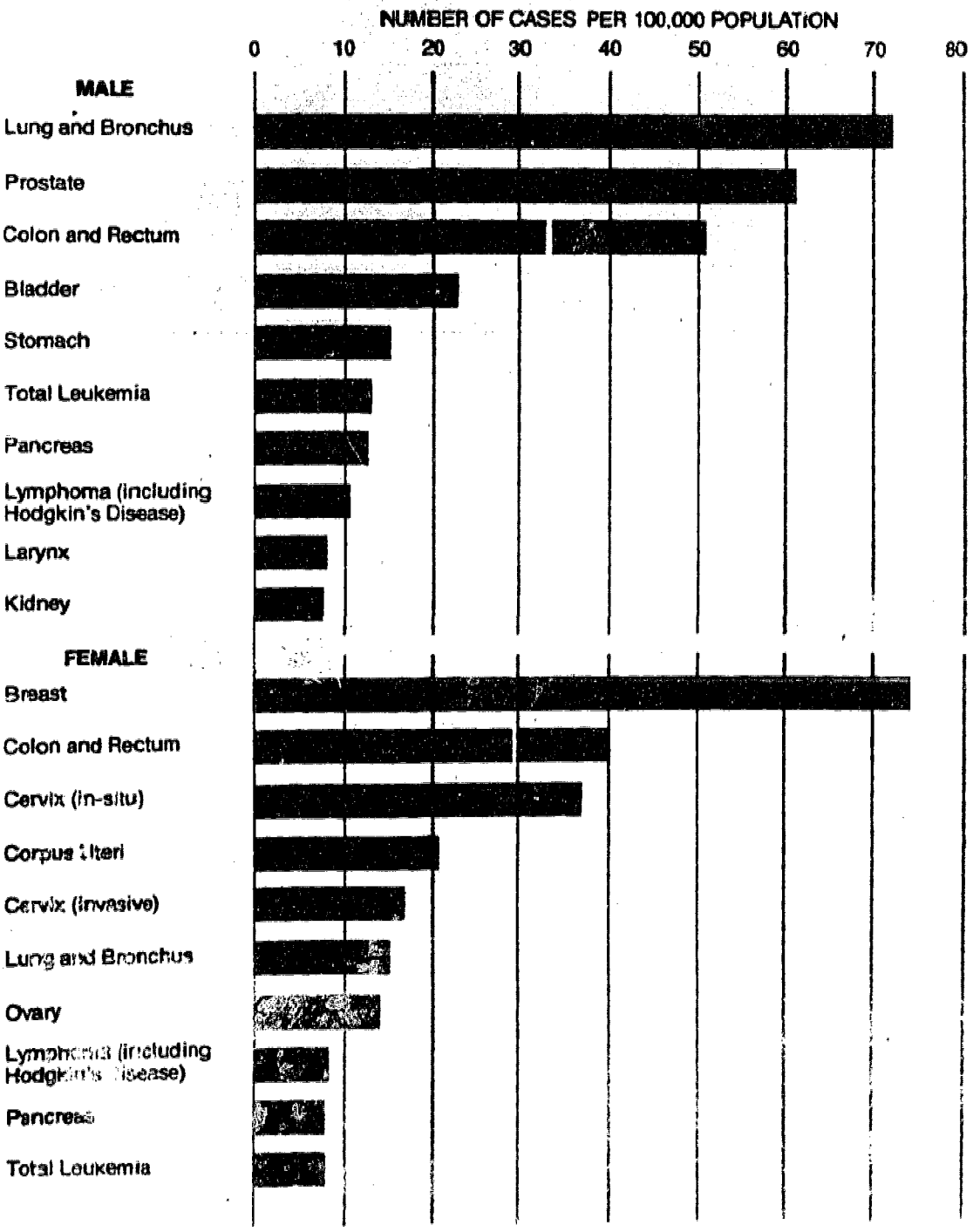
C. GROWTH OF ABNORMAL TISSUE

D. CONTINUED GROWTH OF TUMOR, INVADING ADJACENT AREAS

E. METASTASIS THROUGH NEARBY BLOOD VESSEL (CAPILLARY)

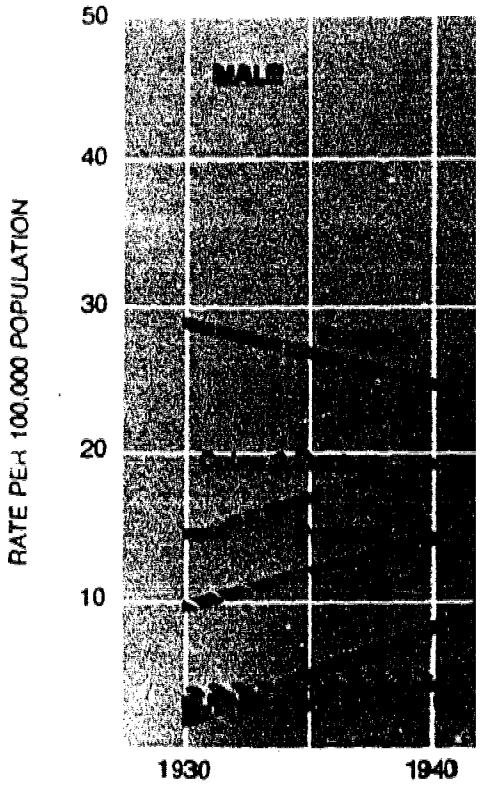
Elena Greco

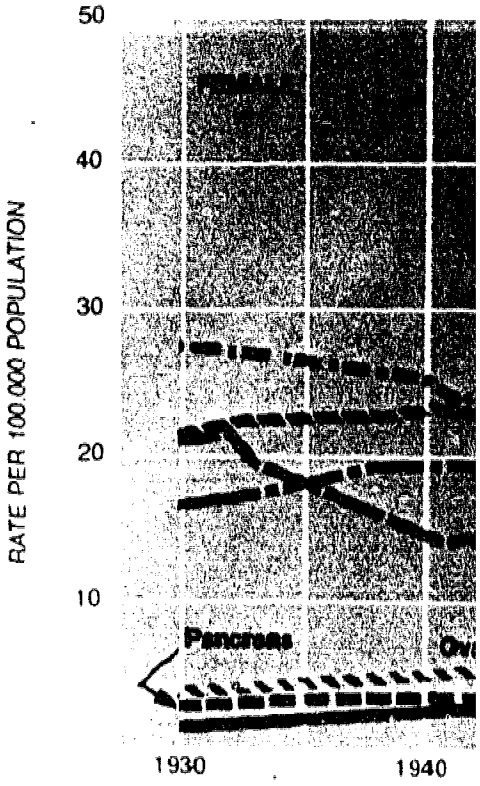
CANCER INCIDENCE BY SITE AND SEX: United States, 1969-1971
(age-adjusted to 1970 U.S. population).



APPENDIX 6

TIME TRENDS IN CANC
United States, 1930-197(

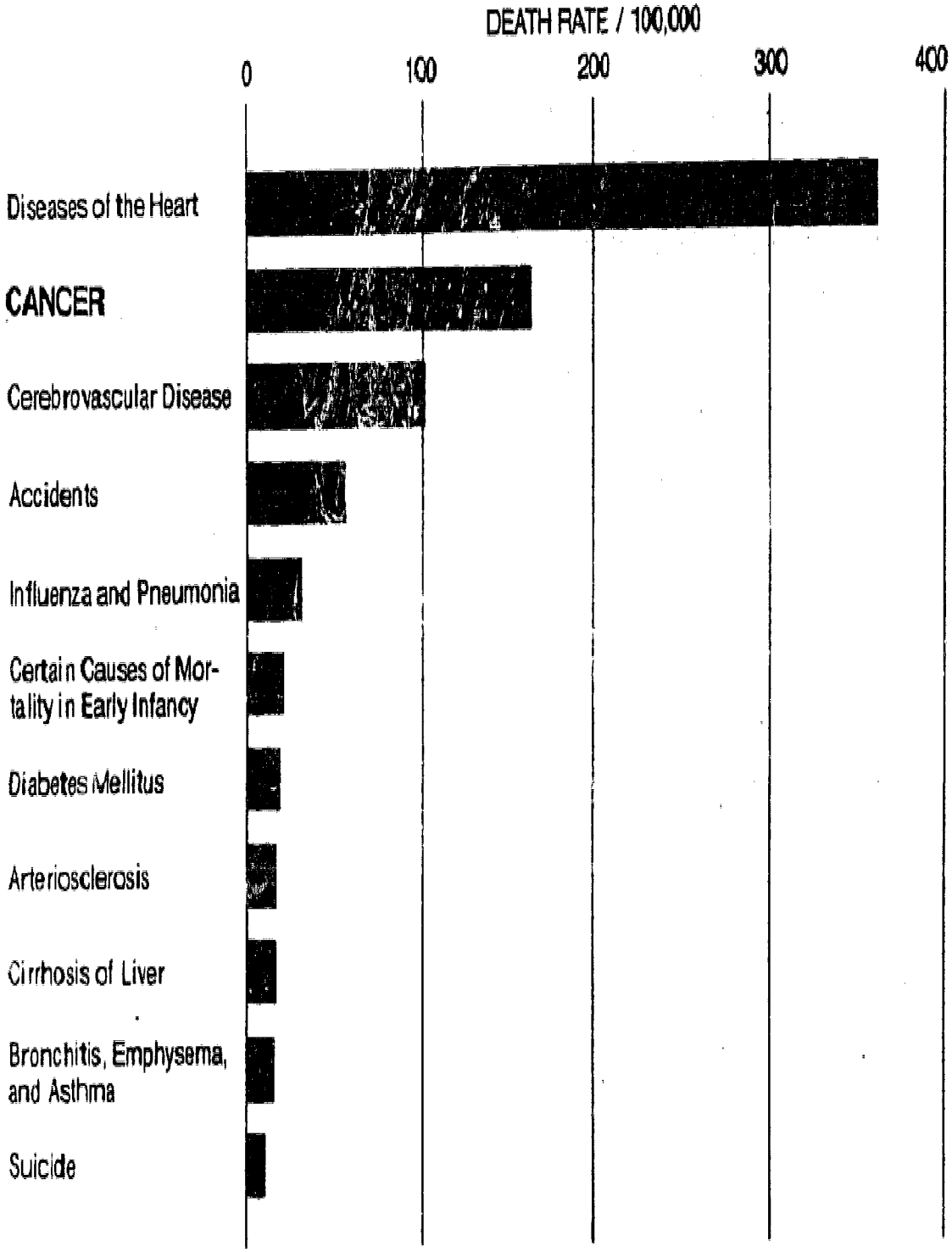




APPENDIX 7

APPENDIX 8

DEATH RATES FOR THE 11 LEADING CAUSES OF DEATH:
United States, 1970



APPENDIX 9

Mortality for Leading Causes of Death: United States, 1971

Rank	Cause of Death	Number of Deaths	Death Rate Per 100,000 Population	Percent of Total Deaths
All Causes		**1,927,542**	**932.2**	**100.0**
1	Diseases of Heart	743,138	359.5	38.6
2	Cancer	337,398	163.2	17.5
3	Stroke	209,092	101.1	10.8
4	Accidents	113,439	54.9	5.9
5	Influenza & Pneumonia	57,194	27.7	3.0
6	Certain Diseases of Infancy	38,494	18.6	2.0
7	Diabetes Mellitus	38,256	18.5	2.0
8	Cirrhosis of Liver	31,808	15.4	1.7
9	Arteriosclerosis	31,521	15.2	1.6
10	Suicide	24,092	11.7	1.2
11	Emphysema	22,539	10.9	1.2
12	Homicide	18,787	9.1	1.0
13	Congenital Anomalies	15,957	7.7	0.8
14	Nephritis and Nephrosis	8,443	4.1	0.4
15	Hypertension	7,837	3.8	0.4
	Other & Ill-Defined	229,547	110.8	11.9

Source: Vital Statistics of the United States, 1971
Prepared by: Research Department, American Cancer Society, July, 1974

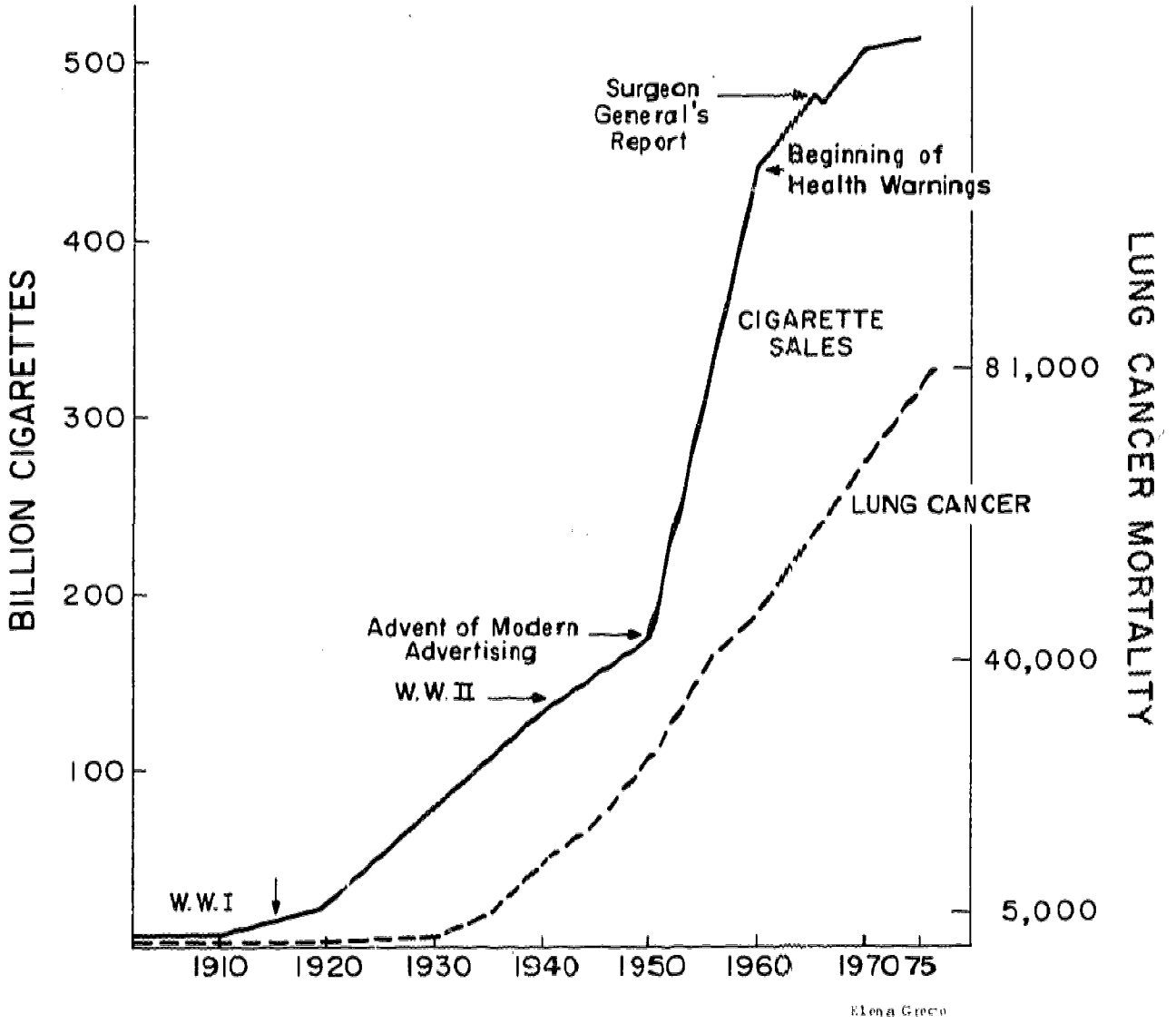
Applying Cancer Statistics Locally

Community Population	Estimated No. Who are Alive Cured of Cancer	Estimated No. Cancer Cases Under Medical Care in 1975	Estimated No. Who Will Die of Cancer in 1975	Estimated No. of New Cases in 1975	Estimated No. Who Will be Saved from Cancer in 1975	Estimated No. Who Will Eventually Develop Cancer	Estimated No. Who Will Die of Cancer if Present Rates Continue
1,000	7	4	1	3	1	250	150
2,000	15	9	3	6	2	500	300
3,000	22	13	4	8	3	750	450
4,000	30	18	6	11	4	1,000	600
5,000	37	21	7	14	5	1,250	750
10,000	74	43	15	28	9	2,500	1,500
25,000	185	107	37	70	23	6,250	3,750
50,000	370	215	75	140	47	12,500	7,500
100,000	740	430	150	280	93	25,000	15,000
200,000	1,480	860	300	560	186	50,000	30,000
500,000	3,700	2,150	750	1,400	465	125,000	75,000

NOTE: The figures can only be the roughest approximation of actual data for your community. It is suggested that every effort be made to obtain actual data from a Registry source.

APPENDIX 10

INCREASE IN CIGARETTE SALES AND LUNG CANCER 1900-1975



ESTIMATED NEW CASES AND DEATHS FOR MAJOR SITES OF CANCER – 1975*

Site	No. of Cases	Deaths
Lung	91,000	81,000
Colon-Rectum	99,000	49,000
Breast	89,000	33,000
Uterus	46,000**	11,000
Oral	23,000	8,000
Skin	9,000***	5,000
Leukemia	21,000	15,000

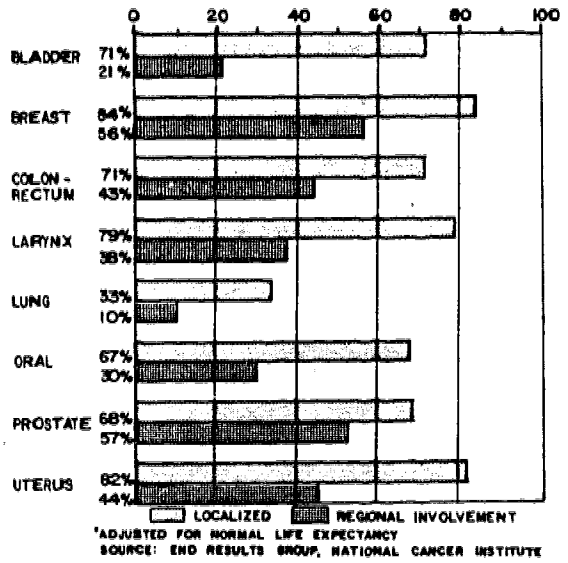
*Figures rounded to the nearest 1000.

**If carcinoma-in-situ included, cases total over 86,000.

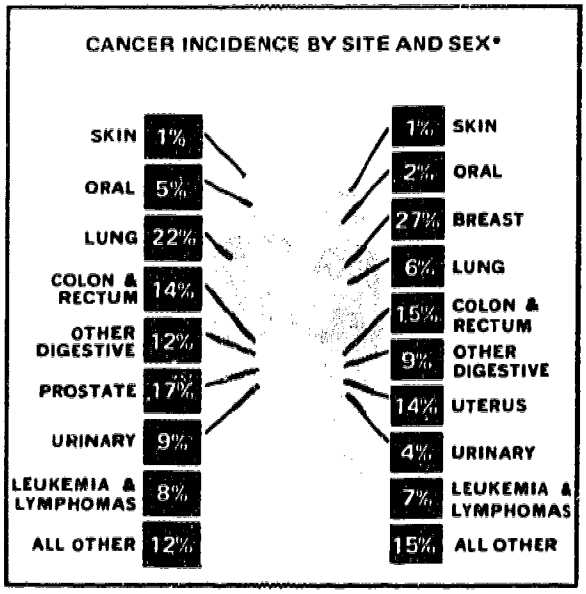
***Estimates vary widely, from 300,000-600,000 or more, for superficial skin cancer.

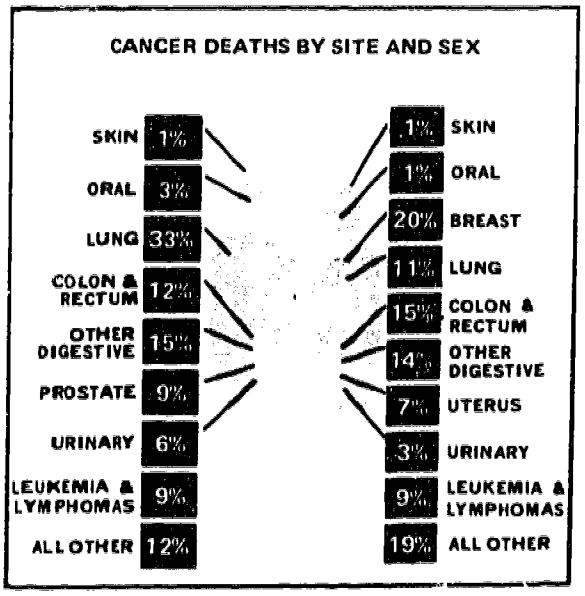
INCIDENCE RATES ARE BASED ON RATES FROM N.C.I. THIRD NATIONAL CANCER SURVEY

FIVE YEAR CANCER SURVIVAL RATES* FOR SELECTED SITES



APPENDIX 11





*Excluding superficial skin cancer and carcinoma-in-situ of uterine cervix.

American Cancer Society "1976 Cancer Facts and Figures" #5008

LEADING CANCER SITES, 1974

SITE	ESTIMATED NEW CASES 1974	ESTIMATED DEATHS 1974	WARNING SIGNAL IF YOU HAVE ONE, SEE YOUR DOCTOR	SAFEGUARDS	COMMENT
BREAST	90,000	33,000	LUMP OR THICKENING IN THE BREAST.	ANNUAL CHECKUP. MONTHLY BREAST SELF EXAM.	THE LEADING CAUSE OF CANCER DEATH IN WOMEN.
COLON AND RECTUM	99,000	48,000	CHANGE IN BOWEL HABITS; BLEEDING.	ANNUAL CHECKUP INCLUDING PROCTOSCOPY, ESPECIALLY FOR THOSE OVER 40.	CONSIDERED A HIGHLY CURABLE DISEASE WHEN DIGITAL AND PROCTOSCOPIC EXAMINATIONS ARE INCLUDED IN ROUTINE CHECKUPS.
LUNG	83,000	75,000	PERSISTENT COUGH, OR LINGERING RESPIRATORY AILMENT.	PREVENTION: HEED FACTS ABOUT SMOKING, ANNUAL CHECKUP. CHEST X-RAY.	THE LEADING CAUSE OF CANCER DEATH AMONG MEN, THIS FORM OF CANCER IS LARGELY PREVENTABLE.
ORAL (INCLUDING PHARYNX)	24,000	8,000	SORE THAT DOES NOT HEAL. DIFFICULTY IN SWALLOWING.	ANNUAL CHECKUP.	MANY MORE LIVES SHOULD BE SAVED BECAUSE THE MOUTH IS EASILY ACCESSIBLE TO VISUAL EXAMINATION BY PHYSICIANS AND DENTISTS.
SKIN	300,000*	5,000	SORE THAT DOES NOT HEAL, OR CHANGE IN WART OR MOLE.	ANNUAL CHECKUP, AVOIDANCE OF OVEREXPOSURE TO SUN.	SKIN CANCER IS READILY DETECTED BY OBSERVATION, AND DIAGNOSED BY SIMPLE BIOPSY.
UTERUS	46,000*	11,000	UNUSUAL BLEEDING OR DISCHARGE.	ANNUAL CHECKUP, INCLUDING PELVIC EXAMINATION WITH PAP TEST.	UTERINE CANCER MORTALITY HAS DECLINED 65% DURING THE LAST 35 YEARS. WITH WIDER APPLICATION OF THE PAP TEST, MANY MORE LIVES CAN BE SAVED, ESPECIALLY FROM CERVICAL CANCER.
KIDNEY AND BLADDER	43,000	16,000	URINARY DIFFICULTY. BLEEDING - IN WHICH CASE CONSULT DOCTOR AT ONCE.	ANNUAL CHECKUP WITH URINALYSIS.	PROTECTIVE MEASURES FOR WORKERS IN HIGH-RISK INDUSTRIES ARE HELPING TO ELIMINATE ONE OF THE IMPORTANT CAUSES OF THESE CANCERS.
LARYNX	10,000	3,000	HOARSENESS - DIFFICULTY IN SWALLOWING.	ANNUAL CHECKUP, INCLUDING MIRROR LARYNGOSCOPY.	READILY CURABLE IF CAUGHT EARLY.
PROSTATE	54,000	18,000	URINARY DIFFICULTY.	ANNUAL CHECKUP, INCLUDING PALPATION.	OCCURS MAINLY IN MEN OVER 60. THE DISEASE CAN BE DETECTED BY PALPATION AND URINALYSIS AT ANNUAL CHECKUP.
STOMACH	23,000	14,000	INDIGESTION.	ANNUAL CHECKUP.	A 40% DECLINE IN MORTALITY IN 20 YEARS, FOR REASONS YET UNKNOWN.
LEUKEMIA	21,000	15,000	LEUKEMIA IS A CANCER OF BLOOD-FORMING TISSUES AND IS CHARACTERIZED BY THE ABNORMAL PRODUCTION OF IMMATURE WHITE BLOOD CELLS. ACUTE LEUKEMIA STRIKES MAINLY CHILDREN AND IS TREATED BY DRUGS WHICH HAVE EXTENDED LIFE FROM A FEW MONTHS TO AS MUCH AS TEN YEARS. CHRONIC LEUKEMIA STRIKES USUALLY AFTER AGE 25 AND PROGRESSES LESS RAPIDLY. IF DRUGS OR VACCINES ARE FOUND WHICH CAN CURE OR PREVENT ANY CANCERS THEY PROBABLY WILL BE SUCCESSFUL FIRST FOR LEUKEMIA AND THE LYMPHOMAS.		
LYMPHOMAS	28,000	20,000	THESE DISEASES ARISE IN THE LYMPH SYSTEM AND INCLUDE HODGKIN'S AND LYMPHOSARCOMA. SOME PATIENTS WITH LYMPHATIC CANCERS CAN LEAD NORMAL LIVES FOR MANY YEARS.		

*Carcinoma-in-situ of the uterine cervix and superficial skin cancers not included in totals.

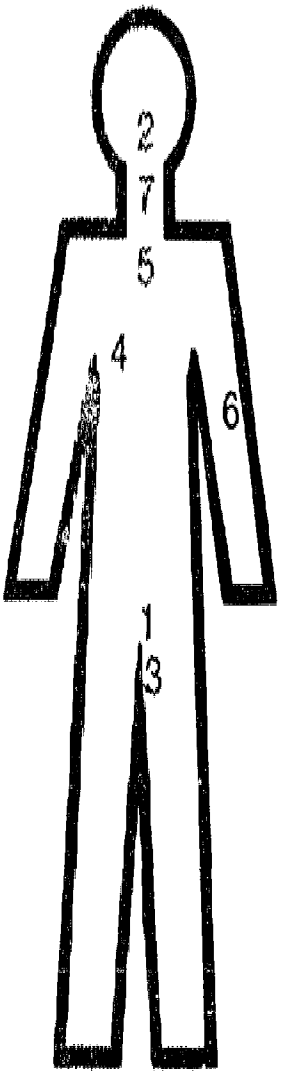
American Cancer Society "Nature of Cancer "Senior High School Teaching Kit, Lesson 7, #2054.02

CANCER PREVENTION AND CONTROL

Cancer's Warning Signals!

1. Change in bowel or bladder habits.
2. A sore that does not heal.
3. Unusual bleeding or discharge.
4. Thickening or lump in breast or elsewhere.
5. Indigestion, or difficulty in swallowing.
6. Obvious change in wart or mole.
7. Nagging cough or hoarseness.

If you have a warning signal, see your doctor.



Protect Yourself With These Safeguards Against CANCER	
BREAST	Monthly Self-Exam
UTERUS	Pap Test Once a Year
LUNG	Don't Smoke Cigarettes
SKIN	Avoid Excess Sun
COLON RECTUM	Procto Annually Especially After 40
MOUTH	Exams Regularly

American Cancer Society "Nature of Cancer" Senior High Teaching Kit, Lesson 8, #2054.02

TRENDS IN AGE-ADJUSTED CANCER DEATH RATES

Per 100,000 Population 1952-54 to Recent

Sex	Site	1952-54	Recent	Percent Changes	Comments
Male	All Sites	136.0	155.1	+ 14	Steady increase mainly due to lung cancer.
Female	All Sites	118.5	109.6	- 8	Slight decrease.
Male	Breast	0.2	0.2	–	Constant rate.
Female	Breast	21.8	22.9	+ 5	Slight fluctuations: Overall no change.
Male	Colon & Rectum	19.3	18.8	- 3	Slight decrease in both sexes.
Female	Colon & Rectum	18.0	15.8	- 12	
Male	Lung	22.7	44.5	+ 96	Steady increase in both sexes due to cigarette smoking.
Female	Lung	4.0	8.1	+ 103	
Male	Oral	4.6	4.9	+ 7	Slight fluctuations: Overall no change in both sexes.
Female	Oral	1.4	1.4	–	
Male	Skin	2.4	2.5	+ 4	Slight fluctuations: Overall no change in both sexes.
Female	Skin	1.5	1.5	–	
Female	Uterus	17.2	10.6	- 38	Steady decrease attributed in part to widening acceptance of regular checkup with "Pap Test".
Male	Esophagus	3.8	4.1	+ 8	Slight fluctuations: Overall no change in both sexes.
Female	Esophagus	1.1	1.1	–	
Male	Stomach	16.9	9.1	- 46	Steady decrease in both sexes: Reasons unknown.
Female	Stomach	8.7	4.5	- 48	
Male	[illegible]ncreas	6.9	8.8	+ 28	Steady increase in both sexes: Reasons unknown.
[illegible]	[illegible]ncreas	4.3	5.2	+ 21	
Male	Prostate	14.0	13.5	- 4	Early increase, later decrease, again increasing.
Female	Ovary	7.2	7.6	+ 6	Steady increase.
Male	Kidney	2.9	3.5	+ 21	Steady slight increase.
Female	Kidney	1.7	1.7	–	Slight fluctuations: Overall no change.
Male	Leukemia	6.8	7.3	+ 7	Early increase, later leveling off.
Female	Leukemia	4.7	4.6	- 2	Slight early increase, later leveling off.

American Cancer Society "Nature of Cancer" Teaching Kit, Lesson 7, #2054.02

APPENDIX 15

CANCER AROUND THE WORLD

Age-Adjusted Death Rates Per 100,000 Population for Selected Cancer Sites for 39 Countries – 1966-67

	All Sites		Oral		Colon & Rectum		Lung		Breast	Uterus	Skin		Stomach		Prostate	Leukemia	
	Male	Female	Male	Female	Male	Female	Male	Female	Female	Female	Male	Female	Male	Female	Male	Male	Female
United States	1[illegible] (17)	[illegible] (19)	4.55 (8)	1.31 (13)	19.79 (12)	16.09 (11)	40.24 (10)	6.75 (12)	21.83 (9)	10[illegible]	2.51 (4)	1.47 (18)	9.5 (38)	4.7 (37)	13.82 (10)	7.49 (4)	4.81 (7)
Australia	143.2 (2[illegible]	[illegible] (29)	3.57 (14)	1.09 (17)	19.18 (14)	17.08 (9)	37.64 (12)	4.77 (24)	19.15 (14)	8.55 (33)	4.42 (1)	2.64 (2)	15.4 (34)	7.7 (35)	13.98 (9)	6.27 (16)	4.45 (16)
Austria	192.7 ([illegible]	[illegible] 4)	3.07 (16)	0.81 (24)	20.58 (7)	14.92 (12)	50.35 (6)	6.09 (14)	17.47 (18)	17.67 (6)	2.92 (11)	1.60 (12)	40.0 (3)	2[illegible] (5)	13.38 (12)	5.66 (21)	4.58 (11)
Belgium	182.9 ([illegible]	[illegible]	2.38 (25)	0.58 (36)	20.99 (5)	16.14 (6)	[illegible] (7)	4.30 (24)	20.97 (12)	12.19 (13)	1.80 (20)	1.10 (29)	25.7 (19)	13.8 (18)	15.36 (6)	6.14 (19)	4.20 (22)
[illegible]	[illegible]	[illegible]	1.99 (29)	0.66 (32)	7.05 (28)	6.32 (29)	[illegible] (36)	6.72 (13)	8.76 (29)	7.25 (31)	1.53 (26)	1.18 (27)	37.6 (4)	22.9 (3)	6.15 (32)	[illegible] (26)	3.75 (29)
[illegible]	146.[illegible] (19)	102.0 (16)	4.11 (10)	1.09 (16)	21.51 (3)	19.02 (4)	34.57 (18)	5.36 (19)	23.47 (4)	10.37 (26)	1.85 (17)	1.30 (29)	16.0 (32)	7.6 (36)	13.16 (14)	6.77 (9)	4.40 (18)
[illegible]	140.8 (18)	137.1 (1)	[illegible]	0.76 (28)	4.03 (35)	2.45 (37)	15.18 (29)	5.59 (17)	9.37 (27)	20.09 (3)	1.00 (32)	0.95 (31)	55.6 (2)	32.7 (2)	9.48 (24)	3.95 (31)	3.08 (31)
[illegible]	172.2 (35)	74.0 (34	[illegible]	2.95 (3)	15.13 (19)	8.61 (25)	10.02 (33)	5.45 (10)	3.72 (39)	15.62 (11)	1.71 (22)	1.15 (27)	18.4 (29)	12.3 (23)	1.07 (39)	2.39 (37)	1.83 (37)
Colombia	[illegible] 2 (36)	99.4 (27	[illegible] (27)	1.75 (6)	3.58 (36)	3.77 (35)	7.26 (35)	3.57 (31)	5.56 (34)	20.11 (2)	1.25 (30)	1.11 (28)	22.9 (15)	20.4 (8)	[illegible] (34)	3.13 (33)	2.28 (35)
Czechoslovakia	197.5 (2)	101.4 (24	[illegible] (18)	0.75 (30)	13.01 (2)	11.11 (20)	59.98 ([illegible]	5.69 (16)	14.94 (22)	[illegible].69 (21)	2.28 (8)	1.76 (8)	[illegible].5 (6)	20.7 (7)	8.85 (26)	6.40 (14)	4.34 (19)
[illegible] ark	158.2 (14)	132.6 (2)	[illegible] (1)	0.89 (22)	22.96 (2)	19.30 (3)	37.34 (15)	7.36 (9)	24.62 (3)	16.66 (9)	1.99 (12)	1.70 (9)	20.6 (26)	10.8 (27)	12.64 (16)	8.13 (2)	4.56 (13)
Dominican Rep.	31.6 (39)	35.6 (39)	1.11 (38)	0.61 (35)	1.78 (38)	1.91 (38)	3.19 (37)	1.84 (38)	2.90 (37)	6.76 (37)	0.51 (36)	0.45 (37)	3.8 (39)	1.5 (39)	3.74 (36)	0.92 (39)	1.06 (39)
England & Wales	182.5 (9)	114.9 (11)	[illegible] (21)	1.41 (11)	21.26 (4)	17.10 (8)	39.65 (2)	10.73 (3)	24.58 (2)	9.60 (28)	1.52 (28)	1.19 (26)	22.7 (25)	10.5 (29)	11.98 (19)	5.49 (22)	3.82 (24)
[illegible]	183.1 (4)	102.8 (22)	2.[illegible] (19)	0.99 (18)	10.76 (24)	9.08 (24)	61.00 (3)	3.91 (30)	14.65 (23)	9.45 (29)	2.13 (10)	1.58 (15)	35.6 (9)	18.5 (12)	11.34 (20)	6.75 (10)	4.88 (6)
[illegible]	174.1 (8)	107.3 (25)	9.96 (2)	0.79 (25)	18.55 (13)	13.78 (14)	27.71 (23)	3.74 (32)	16.98 (19)	10.62 (24)	1.81 (19)	1.33 (19)	19.2 (27)	9.6 (31)	12.05 (7)	6.53 (12)	4.51 (14)
[illegible] many (F.R.)	174.1 (9)	126.5 (5)	1.80 (13)	0.51 (37)	18.99 (10)	14.69 (13)	42.09 (3)	5.10 (22)	18.03 (16)	12.81 (13)	1.90 (13)	1.57 (16)	33.3 (11)	18.5 (11)	13.30 (13)	6.01 (20)	[illegible].44 (15)
Greece	123.9 (29)	73.5 (35)	1.28 (37)	0.55 (38)	4.94 (33)	4.87 (33)	31.32 (20)	6.05 (15)	8.19 (32)	5.92 (38)	0.95 (33)	0.83 (32)	14.7 (35)	8.7 (33)	5.82 (33)	7.33 (6)	4.78 (9)
Hong Kong	170.4 (11)	102.1 (23)	19.77 (1)	7.63 (1)	15.14 (18)	8.61 (25)	34.16 (17)	18.22 (1)	8.42 (31)	12.41 (17)	0.94 (34)	0.46 (36)	15.6 (33)	10.2 (28)	2.35 (37)	3.39 (35)	3.19 (29)
Hungary	166.8 (12)	120.1 (9)	3.81 (12)	0.72 (31)	15.51 (17)	13.52 (15)	37.36 (14)	7.23 (9)	14.57 (24)	18.26 (7)	1.90 (14)	1.59 (13)	40.6 (5)	22.5 (4)	13.16 (15)	6.26 (18)	[illegible].49 (17)
Iceland	137.8 (26)	131.1 (3)	2.41 (23)	2.66 (4)	11.75 (23)	9.91 (23)	15.25 (28)	8.63 (4)	10.14 (17)	19.68 (4)	0.43 (38)	3.09 (1)	30.7 (7)	20.1 (9)	13.47 (4)	8.69 (1)	4.62 (10)
Ireland	142.9 (22)	115.1 (10)	4.39 (9)	1.49 (10)	19.34 (9)	18.47 (5)	33.54 (19)	7.88 (5)	21.03 (11)	8.10 (34)	2.41 (7)	2.33 (5)	23.6 (22)	15.6 (16)	12.10 (18)	5.18 (25)	3.42 (28)
Israel	121.5 (30)	114.5 (12)	1.38 (35)	0.78 (26)	10.60 (25)	10.50 (22)	22.51 (26)	7.62 (7)	21.48 (10)	4.96 (39)	1.46 (29)	1.62 (11)	17.4 (30)	11.2 (26)	7.24 (30)	7.44 (5)	5.76 (1)
Italy	152.0 (16)	99.3 (28)	5.39 (6)	0.94 (2)	14.23 (19)	10.74 (21)	30.23 (21)	4.53 (25)	16.09 (21)	12.54 (16)	1.58 (21)	1.06 (30)	31.3 (14)	16.9 (14)	9.29 (25)	6.55 (11)	4.57 (12)
Japan	141.3 (24)	94.9 (30)	1.38 (36)	0.63 (33)	8.2[illegible] (26)	7.06 (26)	13.9[illegible] (31)	4.86 (22)	3.99 (39)	12.72 (15)	0.79 (34)	0.62 (35)	65.4 (1)	34.3 (1)	1.82 (38)	3.82 (34)	2.96 (34)
Mexico	53.3 (38)	71.9 (37)	1.48 (34)	0.62 (34)	2.76 (37)	3.39 (36)	7.30 (35)	4.07 (29)	4.18 (36)	19.42 (5)	0.54 (35)	0.84 (33)	10.1 (37)	8.8 (32)	4.33 (35)	2.21 (38)	1.90 (36)
Netherlands	175.5 (7)	120.7 (7)	1.52 (33)	0.75 (29)	17.47 (16)	16.60 (10)	53.63 ([illegible]	3.42 (34)	26.45 (1)	10.07 (27)	1.54 (25)	1.27 (24)	26.5 (16)	14.2 (17)	14.69 (8)	7.18 (7)	5.03 (5)
New Zealand	146.2 (20)	109.5 (14)	2.39 (24)	1.15 (16)	20.39 (8)	19.77 (2)	37.72 (11)	5.35 (20)	23.11 (5)	9.44 (30)	3.38 (3)	2.57 (3)	16.4 (31)	7.8 (34)	13.67 (11)	6.27 (17)	5.23 (2)
Northern Ireland	151.3 (16)	107.0 (18)	3.90 (11)	1.97 (5)	20.91 (6)	17.78 (7)	43.29 (8)	7.14 (10)	20.67 (13)	6.96 (36)	1.89 (15)	1.34 (20)	23.2 (23)	12.3 (22)	10.70 (22)	5.28 (24)	3.69 (26)
Norway	124.7 (28)	100.[illegible] (26)	2.21 (25)	1.63 (7)	13.47 (20)	12.02 (18)	14.93 (30)	2.97 (36)	16.78 (20)	9.12 (31)	2.46 (5)	1.63 (10)	25.2 (18)	13.5 (20)	16.06 (3)	7.00 (8)	5.17 (3)
Panama	81.6 (37)	67.5 (38)	3.19 (16)	1.55 (9)	4.48 (34)	4.83 (34)	9.02 (34)	1.56 (39)	8.[illegible] (30)	14.66 (12)	1.81 (18)	0.37 (38)	13.8 (36)	5.6 (38)	10.16 (23)	3.88 (32)	1.57 (38)
Poland	142.2 (23)	103.9 (21)	3.61 (15)	0.98 (19)	7.36 (27)	6.61 (28)	30.16 (22)	7.86 (6)	10.97 (26)	16.02 (10)	1.75 (21)	1.58 (14)	40.9 (4)	19.4 (10)	7.83 (28)	5.15 (26)	3.60 (27)
Portugal	113.6 (32)	84.4 (33)	4.71 (7)	0.96 (20)	11.80 (22)	11.66 (19)	10.91 (33)	2.74 (38)	11.53 (25)	12.73 (14)	1.61 (23)	1.29 (23)	32.2 (13)	17.0 (13)	8.60 (27)	5.33 (23)	4.16 (23)
Rumania	121.1 (31)	87.1 (31)	2.71 (2)	0.78 (27)	5.94 (30)	5.65 (30)	25.86 (24)	5.12 (21)	8.89 (28)	19.40 (6)	1.14 (31)	0.79 (34)	31.7 (12)	16.0 (15)	7.70 (29)	4.44 (29)	3.17 (30)
Scotland	202.8 (1)	124.6 (6)	3.77 (13)	1.58 (8)	24.77 (1)	20.87 (1)	78.14 (1)	11.71 (2)	22.30 (7)	10.44 (25)	1.48 (28)	1.52 (17)	25.9 (17)	12.7 (21)	12.15 (17)	5.00 (27)	4.31 (21)
South Africa	171.0 (10)	113.4 (13)	6.11 (5)	1.16 (14)	1.47 (39)	1.44 (39)	37.63 (13)	6.93 (11)	23.11 (6)	12.18 (19)	3.46 (2)	2.41 (4)	23.8 (21)	11.4 (25)	19.51 (1)	7.87 (3)	4.80 (8)
Sweden	126.1 (27)	104.5 (20)	2.27 (26)	1.33 (12)	16.12 (16)	12.80 (17)	17.35 (27)	4.34 (27)	18.00 (15)	9.05 (32)	1.87 (16)	1.32 (21)	19.8 (28)	10.6 (30)	17.09 (2)	6.46 (13)	5.06 (4)
Switzerland	164.4 (13)	107.6 (17)	6.31 (4)	0.86 (23)	18.91 (11)	13.23 (16)	37.33 (16)	3.22 (34)	22.15 (8)	11.82 (20)	2.45 (6)	1.80 (7)	24.4 (20)	13.6 (19)	15.46 (5)	6.32 (15)	4.34 (20)
Venezuela	105.2 (33)	109.2 (15)	2.97 (19)	3.35 (2)	5.91 (31)	5.49 (31)	1.75 (32)	4.09 (28)	8.02 (34)	27.03 (1)	2.16 (9)	2.07 (6)	34.6 (10)	21.5 (6)	11.01 (21)	3.87 (33)	3.06 (32)
Yugoslavia	102.4 (34)	[illegible] (24)	1.85 (30)	0.48 (39)	5.78 (32)	5.24 (32)	23.23 (25)	4.16 (26)	8.12 (33)	10.71 (23)	1.54 (27)	1.21 (25)	22.3 (24)	11.7 (24)	6.31 (31)	4.37 (30)	3.07 (32)

NOTE: Figures in parentheses are order of rank within site and sex group.

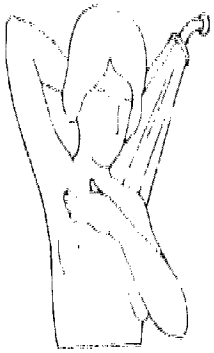
Source: World Health Statistics Annual 1966-67

How to examine your breasts

1

In the shower:

Examine your breast- ing bath or shower; hands glide easier ove. et skin. Fingers flat, move gently over every part of each breast. Use right hand to examine left breast, left hand for right breast. Check for any lump, hard knot or thickening.



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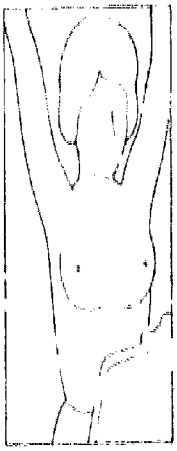
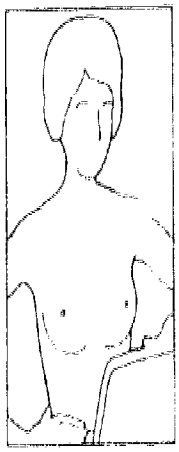


Before a mirror:

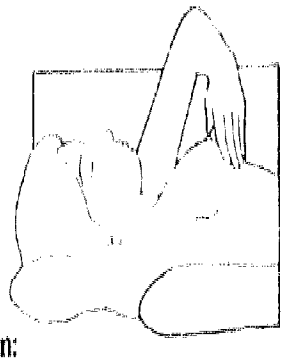
Inspect your breasts with arms at your sides. Next, raise your arms high overhead. Look for any changes in contour of each breast, a swelling, dimpling of skin or changes in the nipple.

Then, rest palms on hips and press down firmly to flex your chest muscles. Left and right breast will not exactly match. few women's breasts do.



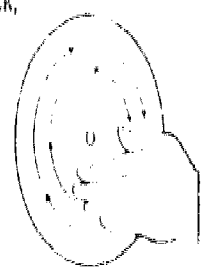
Regular inspection shows what is normal for you and will give you confidence in your examination.

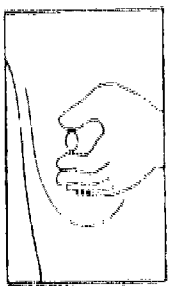
3



Lying down:

To examine your right breast, put a pillow or folded towel under your right shoulder. Place right hand behind your head—this distributes breast tissue more evenly on the chest. With left hand, fingers flat, press gently in small circular motions around an imaginary clock face. Begin at outermost top of your right breast for 12 o'clock, move to 1 o'clock, and so on around the circle back to 12. A ridge of firm tissue in the lower curve of each breast is normal. Then move in an inch, toward the nipple, keep circling to examine *every part of your breast*, including nipple. This requires at least three more circles. Now slowly repeat procedure on your left breast with a pillow under your left shoulder and left hand behind head. Notice how your breast structure feels.





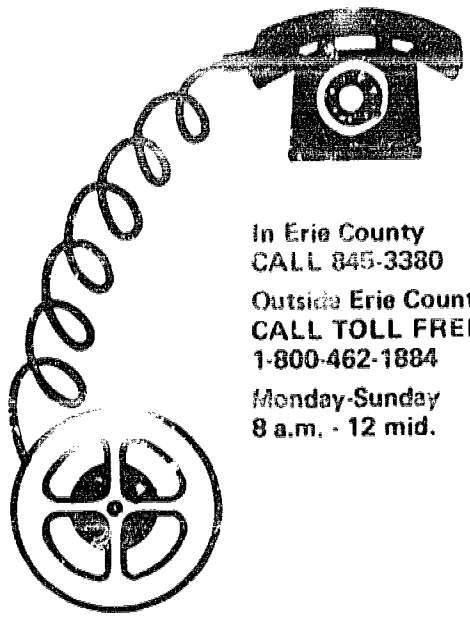
Finally, squeeze the nipple of each breast gently between thumb and index finger. Any discharge, clear or bloody, should be reported to your doctor immediately.

TOLL FREE

CANCER INFORMATION

CAN-DIAL

cancer information
through your telephone



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Outside Erie County
CALL TOLL FREE
1-800-462-1884

Monday-Sunday
8 a.m. - 12 mid.

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5. If You Want To Give Up Cigarettes.
6. Cancer of the Larynx.
7. Cancer of the Uterus.
8. Cancer of the Skin.
9. Cancer of the Colon and Rectum.
10. Leukemia.
11. Cancer of the Mouth.
12. Service and Rehabilitation Information for Cancer Patients and Their Families.
13. Chemotherapy: Drugs vs. Cancer.
14. Cancer of the Bladder.
15. Cancer of the Prostate.
16. Cancer of the Bone.
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30. Cancer Facts for the Teenager and the Young Adult.
31. Breast Cancer Facts.
32. Questions and Answers About Smoking and Health.
33. Cancer of the Thyroid Gland.
34. Speech Therapy After Cancer Treatment
35. Cancer Facts for the Senior Citizen.
36. The Economic Impact of Cancer on the Family.

*Spanish language tapes are available. Numbers 51-88 are the same topics as English tapes 1-28.

When the operator answers, request the number and title of the particular tape you are interested in hearing.

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APPENDIX 17