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ABSTRACT

The purpose of this curriculum guide is to provide the teacher with essential cancer information and suggested learning experiences for fourth-, fifth-, and sixth-grade students. The suggested activities are intended as a beginning point from which the pupils can begin to acquire the intellectual skills needed for making appropriate health decisions, which can result in a decrease in the incidence of skin, lung, breast, and cervical cancer, as well as other forms of the disease. Upon completion of the activities in this guide, each student should be able to: (1) conclude that cancer is an abnormal disturbance of tissue growth and function; (2) describe how cancerous growths can occur; (3) describe how an organism's protective mechanism against invading bodies and irritants may function abnormally due to repeated stress; (4) list factors promoting, the cancer-growth process; (5) list the common sites of cancer in the human body; (6) describe how early detection and treatment are important for cancer control and cure; (7) list the ways that cancer can be cured; (8) show how there are continued efforts to control and eradicate cancer; and (9) describe how each person must assume a personal responsibility in efforts to prevent and control cancer. The body of the text is divided into three columns per page dealing with concepts, activities, and supplementary information. A glossary of terms is included, and thirteen appendixes of charts, graphs, and drawings expand on information in the text. (MB)

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INTRODUCTION

Most forms of cancer can be prevented by simply avoiding certain kinds of behavior which contribute to their development. For example, skin cancer, the most common form, is chiefly the result of over exposure to the sun's rays over a period of years.

The purpose of this curriculum guide is to provide the teacher with essential cancer information, and suggested learning experiences for students. The suggested activities are intended as a beginning point from which the pupils can begin to acquire the intellectual skills needed for making appropriate health decisions. These decisions can result in a significant decrease in the incidence of skin, lung, breast, and cervical cancer, as well as other forms.

OBJECTIVES

Since most cancers can be prevented or cured if detected and treated in their early stages, and since necessary precautions depend upon the responsible behavior of each individual, the chief aim of this guide is to provide cancer information and learning experiences that will result in each student being able to:

1. Conclude that cancer is a form of disturbance in the biological phenomenon regulating tissue growth and function.

2. Describe how cancerous growths can occur in all living things.

3. Describe how living things have a built-in protective mechanism against invading organisms and irritants which may respond abnormally due to repeated stress.

4. List the factors which contribute to the development and progress of the cancer-growth process.

5. Name the common sites of cancer in the human body.

6. Describe how early detection and treatment is important in the control and cure of cancer.

7. List the ways that cancer can be cured.

8. Show how there are continued efforts to control and eradicate cancer.

9. Describe how each person must assume a personal responsibility in efforts to prevent and control cancer.

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
I. Normal Cell Growth The cell is the basic unit of life.	Observe a slice of cork. Note the tiny compartments. - What are these compartments? - What is cork? - Can it be related to human tissue? Have students state what the term "cell" means to them. Write a sentence using the term. Does the word "cell" have several meanings? Explain.	The cell is the basic unit of life in plants and animals. The basic structure of all cells consists of a nucleus which directs the cell's activities and a cell membrane, which regulates the passage of substances into and out of the cell. In addition, plant cells possess a cell wall. Animal cells do not. An organism begins with a single egg cell which by growth and replication produces an adult consisting of millions of cells. The millions of cells descended from the original fertilized egg are not all the same. They look different and perform decidedly different functions. The process by which these cells become specialized is cellular differentiation. Proper growth to adulthood depends on the careful regulation of the numbers and size of each type of cell. The differences among cells can be brought out by discussing the varying appearance, activity and functions of nerve, bone, skin, and blood cells. (See Appendix I and II.)
Each cell performs a specific function in concert with other cells for the benefit of the total organism.	Look at cells through a microscope. Cut an onion in half. Peel off an inside layer. On the outside of this layer you will find a transparent skin. Place a piece of this skin in a drop of water on a glass slide. Place on the slide one drop of iodine. Flatten the tissue out and cover with a glass. Through a low-power lens the cells will be seen fitting together like bricks in a wall. Each "brick" is one cell. Through a high power lens, a dark spot, the nucleus, can be seen.	If a cell doubles its size, the size of the nucleus, cytoplasmic constituents, cell wall, etc., all increase in proportion to one another. As a boy grows into a man, his organs increase harmoniously. Thus, the length of his arm bears a fixed relation to his height, and within rather

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
	What do you think would happen if the nucleus were removed? (The cell would die.)	close limits this same relation holds in all other boys. There are regulatory mechanisms in cells and organisms that govern such relationships. The same is true for girls.
	Make a list of several kinds of cells found in the human body. Examples: Bone Blood Skin	All cells have cell membranes. All animal cells consist of a single membrane. Plant cells have a cell wall and a cell membrane. (See Appendix I.)
	What part do cells play to help the person live? Example: Skin cells help to protect the body.	Cell behavior in a healthy organism can be compared to a well-regulated society in which each member performs a function directed to further the well-being of the entire society. Each individual performs a service in exchange for which it receives from the whole society nourishment and support.
Each cell has the potential to become a complete organism, but is usually assigned one specific task in the body when in the company of other cells.	<u>Look at human cells through a microscope</u>. Have students gently scrape the inside of their cheeks or lips with a toothpick. Then with a knife scrape some of the white material on the toothpick into a drop of water on a glass slide. Spread the material out in the water, add a drop of iodine, and cover with a glass.	
All the parts of an organism increase in a carefully regulated manner.	Examine the cells under low and high power lenses, noting differences and similarities between the two types of cells (human and onion).	Some forms of life consist of a single cell, such as the ameoba. Other forms of life consist of many millions of cells. These life-forms perform many complex activities beyond the abilities of single cell

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
	Draw a picture of the two kinds of cells and label the parts of each. Compare cell structures from a plant and that of animals. Note the differences and similarities.	organisms. This is possible because the individual cells perform specialized functions. As life rises higher and higher on the evolutionary ladder the division of labor among the cells becomes finer and finer. But specialization is achieved only with the sacrifice of versatility. Cells associate into tissues, and tissues form organs. Each cell becomes more and more specialized.
Cells reproduce by cell division (mitosis).	Have pupils draw the general sequences of cell division. Obtain from the biology teacher models or diagrams of mitosis. Demonstrate the stages of cell division. How is cell division related to cancer? Show pictures of the various types of cells in the body and discuss how their structure contributes to their function. Have each pupil measure his height and weight. Do this each month during the school year. Construct a graph of height and weight, have pupils explain what has happened.	Cells reproduce by division into new cells by a process called mitosis. Division accounts for the growth of an embryo to adulthood. Thereafter, new cells continue to replace worn-out cells. When cells are destroyed, as by injury, adjacent cells of the same structure and function grow rapidly to replace them. We are more or less the persons we were yesterday because a kind of cellular discipline has been maintained, although it is by no means a rigid discipline. Every organism must keep its biological books balanced throughout its lifetime. Every second some 50 million cells of the human body die and are replaced by 50 million infant cells. It speaks well for the body's control mechanism that things run smoothly more often than not.

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
	Show a drawing demonstrating the process of mitosis. (See Appendix III.)	Although each of us is different, we are in many ways all the same. This is because the growth and differentiation of cells is carefully regulated by processes within the cell and body (hormones). (See Training Manual for a discussion of "Hormones".)
	Construct a make-believe person using styrofoam blocks held together with toothpicks, or use a bulletin board display built with discrete units of colored paper. The units can be compared to cells.	Growth occurs by two means - cell division and cell enlargement. During phases of most rapid growth for any organ, cells are dividing. This type of rapid growth is characteristic of fetal life and infancy. Cell division for most organs is complete by 6 or 8 months of age. (The brain, for example, has completed cell division by about 6 months.) Then cell enlargement and normal replacement processes take over.
	Discuss the size of real cells. They are too small to see without a microscope. It is only when many cells are together that they can make a person, a flower, etc. Show how the make-believe person can be made to grow bigger by adding more cells and by replacing cells with larger ones.	
	Discuss the rapid growth of cells which occurs when a child is growing.	
	Discuss how some kinds of cells keep reproducing at the rate necessary for growth even when growth in height has stopped, e.g., hair, fingernails, etc.	Among the specialized cells are some which act as protectors of the body. They form the body's immune system. Phagocytes and macrophages, for instance, destroy foreign organisms or particles by engulfing and consuming them. Other cells, in response to infection, produce chemicals called antibodies which attack invaders.
The body's natural defense system against disease protects it from most invaders.	Discuss the actions of the body's immune system in protecting it against infection.	
	View: "The Cell: Structural Unit of Life". Coronet Films.	
	Describe to the class white blood cells engulfing foreign bodies. Have class construct posters showing white blood cells in action.	

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
II. Abnormal Cell Growth		
Abnormal cell growth can appear in all living things.	Have pupils collect samples or illustrations showing uncontrolled growth on plants (such growths are called "galls"). If possible study these growths under a microscope and compare with sections from normal areas of the same plant. Students may make drawings of the two types of cells.	From time to time, a breakdown in the regulation of cell growth can occur. Abnormal cells unlike normal cells in behavior and appearance may be produced in a process called dedifferentiation. These cells most closely resemble the original, undifferentiated embryonic cells.
Abnormal cell growth can be found in any part of the body.		
Usually the body's defenses control and limit abnormal cell growth.	Show ACS film, "From One Cell". #2348	Generally, these cells form as a mass or tumor. Such growths may be benign or malignant. The cells of a benign growth usually resemble the tissue of origin, and grow at a slower rate than malignant cells. The benign tumor expands but does not infiltrate, or invade surrounding areas and does not spread to distant parts of the body. Benign tumors may be dangerous if located in or near vital organs such as the brain or if blocking a major blood vessel.
Some abnormal cell growth takes the appearance of a lump, called a tumor.	The differences between benign and malignant growths can be shown by: ACS Overhead Transparencies, "The Cell: Structure and Function", pkg. of 15, #2332.	
Tumors that spread in the body are called cancerous tumors.	(The fact that abnormal cells are dedifferentiated is quite a complex thought for this level, but for the teacher's background, necessary. Dedifferentiated cells lose their specificity and function. They no longer work towards the benefit of the organism.)	Malignant, or cancer, cells are highly undifferentiated, may grow at a rapid rate, invade surrounding tissues and organs, and spread through the blood stream or lymph system to distant parts of the body in a process called metastasis. Cancerous tumors may regress spontaneously as the body's immune system reasserts control over cell growth. This occurrence is very rare. (See Appendix IV.)
Benign tumors do not invade or spread to other parts of the body.		
Only a trained person, i.e., a doctor can tell if a tumor is benign or malignant.		
Metastasis is the process of tumor cells spreading throughout the body by way of the vascular system and/or lymphatic system.		

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
III. Nature of Cancer	Charts showing the circulatory and/or lymph systems may be used to show how cancer may spread to distant parts of the body.	Cancer is a group of over 100 diseases sharing the characteristics of rapid growth, invasiveness and metastasis.
Cancer is a group of diseases characterized by potentially unlimited cell growth.	Construct a cancer dictionary. Drawings or illustrations may be used.	Point out that cancer can occur in any living cell. Recall the diferences among cells studied earlier and point out that cancers occurring in different kinds of cells have different characteristics.
Cancer cells spread through processes of (1) local invasion and (2) metastasis.		
Cancer is not a communicable disease as generally applied to bacterial diseases. (See Training Manual - "Is Cancer Contagious?" and "The Nature of Cancer".)	Make mobiles to hang from the ceiling using a glossary of cancer words. Include the following: o treatable o detectable o preventable o tumor o malignant o 7 warning signals	"Cancer" comes from the Latin word meaning "crab". The manner in which cancerous tumors invade adjoining tissues led early physicians to make such a comparison, its invasion resembling the legs of a crab. (See Appendix V.)
	Have pupils define these terms in relation to themselves.	Cancer is not communicable or infectious. Medical personnel caring for patients with cancer do not take precautions to protect themselves as they do with infectious diseases. Women with cancer may have babies without fear of transmitting the disease to their offspring.
	Discuss the meaning of disease.	
	Have pupils make a list of some of the common communicable diseases. State the causes of each.	Because cancer is not caused by "germs" it is not communicable as a cold is by sneezing.
Cancer may be either solid or liquid (soft).	Make a list of noncommunicable diseases and their causes: - why are some diseases communicable and others not? - which diseases develop immunity against future attacks?	Cancer tumors take two general forms: disseminated tumors and solid tumors. Examples of disseminated tumors are leukemias (cancer of the blood-forming tissues) and lymphomas (cancer of the lymph system). Solid tumors are masses of cancer cells. Carcinomas occur in

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
	- does the body develop resistance to cancer? Discuss.	epithelial tissue such as skin, the lining of the gut and respiratory system and the lining of ducts such as are found in the breast and liver. Sarcomas occur in connective tissue such as bone or muscle.
IV. Occurrence Cancer can occur in all living things. Cancer is a disease as old as life itself. In people, the occurrence of cancer varies for many reasons.		Since cancer can occur in any living cell it can occur in all living things. It has been found in vertebrates, invertebrates, plants, unicellular organisms, deep sea organisms, and ancient forms of life. Evidence of cancer has been found in the fossil remains of dinosaurs which lived 50,000,000 years ago. Egyptian mummies 5,000 years old show evidence of cancer.
Many factors have been identified as being associated with the incidence of cancer.	Discuss with the class factors related to the increased concern with cancer today. Discuss the general reasons why cancer incidence varies with such factors as environment, social customs, age, sex. Prepare wall charts showing incidence of cancer by age and sex. Have a poster contest with pupils illustrating the relationship between cancer and one of the following factors: - age - sex - race	The risk of cancer may be affected by one or a combination of the following factors: age, sex, race, residence, occupation, health habits, family health history, social habits and customs, and economic status. Age - Cancer occurs at all levels but it is at its highest level in middle and old age. Sex - Women account for more cancer cases than men. Race - Until recently, age-adjusted cancer rates for U.S. whites have been higher than those for blacks, but the incidence for black males

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
	- place of residence - occupation - personal health habits - family - socio-economic levels	has been rising more rapidly than have rates for white males. The rates for black females have remained constant while rates for white females have fallen slightly. Consequently, today the rates for blacks are higher than those for whites.
	Pupils may want to develop a mobile showing the factors related to the incidence of cancer.	Residence - Certain cancers are more common in the urban environment than in rural areas.
	Make a list of occupations that are more likely to contribute to cancer development. - What kinds of cancer are more prevalent with each occupation listed? - What can a person do to protect him/her self from occupational hazards?	Occupation - It is well known that certain jobs have been related to higher rate of incidence of certain cancers, e.g., asbestoes and uranium miners have high lung cancer rates, while agriculture workers have a comparatively lower rate (except for skin cancer which is high). Health Habits - Those people who do not smoke, have annual physicals, and protect themselves from the sun have lower rates
	Discuss the possible role of heredity. (See Training Manual - "Does Cancer Run in Families?") - Do cancers seem to "run in families"? Explain. - Is cancer inherited?	Family History - Certain individuals have a slightly higher risk of developing certain cancers if a family member has had that cancer. However, it is not known to what extent genetics affects this statistic. Social Economic Status - The statistics indicate that persons in lower socioeconomic groups have above average incidence and mortality rates from all sites combined. This may be related to occupational exposures and poorer overall health care.

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
V. Probable Causes of Cancer	List and discuss some of the known causes of cancer: - Discuss the Percival Pott story.	A carcinogen is a cancer-producing substance. In 1775, Percival Pott, an English physician, linked the incidence of skin cancer in chimney sweeps to their contact with soot. It is now known that the cancer was caused by carcinogenic hydrocarbons, a natural by-product of the combustion of organic materials, present in the soot. Since that time other agents of diverse chemical structures in the environment, and certain electromagnetic radiations have definitely been shown to be responsible for some types of cancer in people.
The process by which cells become abnormal is not fully understood at this time.	Hold a cold white saucer over a candle to collect soot. Then hold the plate over the more intense heat of a bunsen burner. Students will observe that the more complete combustion at higher temperatures causes less soot to be produced.	
Cancer-producing substances (carcinogens) associated with the onset of abnormal cell growth are physical, chemical, parasitic, and viral in nature. (See Training Manual for listing of possible "Carcinogens in People.")		Employees in chromate plants, uranium ore mines, nickel refineries, coke oven operations, radium painters and asbestos workers all have increased risks of certain types of cancer.
Many cancer-producing agents are found in the human environment, either naturally or in the form of pollution.	- Discuss various environmental pollutants that may cause cancer. Discuss steps that can be taken to eliminate such pollution. Have students make a list of conveniences which pollute the air and for each identify a nonpolluting alternative. What steps can students take to lessen pollution? What are some examples of natural pollution? Pollution created by people? Have students draw pictures of things that pollute.	Carcinogens may enter the general environment in the forms of air and water pollution. Examples are: Hydrocarbons in auto exhaust, emission of various chemical agents into the air and water from industrial operations. An example of a physical carcinogen is radiation. Individuals may be exposed to radiation in many ways. Prolonged repeated exposure to the sun can cause skin cancer especially in light-haired, fair-skinned people. In the U.S., such exposure is usually related to occupation, e.g., farmer, sailor, and laborer. Early use of

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
	Some students may want to take photos of things that pollute the air or water. Examples include local industry, automobiles, people, smoking. Make a bulletin board display of "my community".	X-ray therapy for various conditions resulted in over-exposure which caused cancer. Persons exposed to radiation from atomic bombs have a much higher incidence of cancer.
Personal habits, such as smoking or excessive sunbathing increase one's exposure to some carcinogens.	Show film, "Take Joy" - ACS (2) cigarette smoking - collect cigarette tars with a miniature smoking machine (ACS #2732) (refer to Strand II).	Certain parasites are known to cause cancer. Schistosomes, or flukes, are a cause of carcinoma of the liver and bladder. Egyptians have suffered a high incicence of bladder cancer for many thousands of years attributable to flukes found in Nile water. The flukes enter the skin of farmers who stand in irrigation water.
Tobacco tars (like chimney soot) contain chemicals which cause cancer.	Have students collect cigarette ads from magazines and newspapers. Discuss: What are these ads really saying? Why are there so many different brands?	
Cigarette smoking causes cancer of the lungs, mouth, larynx, and bladder.	Have pupils list the reasons why some people smoke and reasons why others do not.	Cigarette smokers inhale hydrocarbons similar to those which caused cancer in Dr. Potts' chimney sweeps. Ninety-five percent of all persons afflicted with lung cancer are smokers.
Cigarette smoking is the <u>most</u> serious form of pollution to the smoker.	Show ACS film, "Smoking: Past and Present", (#2365). Show ACS film, "Huffless, Puffless Dragon", (#2381). Disucss smoking as pollution.	
	Invite a speaker from the ACS or Lung Association to speak on effects of smoking.	Smokers also suffer much higher rates of cancer of the mouth, nasopharynx, esophagus, larynx, and urinary bladder. Cigarette tars cause cancer when applied to the skin of laboratory animals. (See Tobacco Strand for more information).
There may be an association between viruses and certain types of cancer. (See Training Manual for discussion of "Viruses".)	Show ACS sound filmstrip, "Cigarette Smoking: Take It Or Leave It", (6th grade). 2315.01 - <u>Cigarette Smoking</u>: "Take It Or Leave It", Teachers Guide 2315.02 - <u>Cigarette Smoking</u>, etc. Filmstrip Kit w/Casette 2315.03 - <u>Cigarette Smoking</u>, etc. Filmstrip Kit w/Record 2315.04 - Cigarette Smoking, Set of Transparencies.	Viruses are a group of minute infectious agents, characterized by a lack of independent metabolism and by the ability to replicate only within living host cells.

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
	What is a virus? Make a list of diseases known to be caused by viruses.	Viruses have been proven to cause some cancers in laboratory animals. This connection has not yet been demonstrated in human cancers, but it is thought that eventually it will be.
Diet has been implicated in the incidence of some cancers. Some preservatives, contaminants, and certain chemicals naturally present in some foods may cause cancer. Deficiencies in vitamins may be a factor in some cancers showing the importance of a complete, well-balanced diet. (See Training Manual for a discussion of diet, under "The Nature of Cancer".)	Have students bring food wrappers to class to find out what ingredients have been added for color, flavor or preservation. Are any of these harmful in the amounts present in the food? How are additives controlled? Discuss personal health habits as they relate to cancer prevention, understanding that a daily balanced diet helps one keep well.	Diet has been implicated in some cancers. The carcinogen may occur naturally or may be an additive introduced in processing. Aflatoxin, a liver carcinogen produced by a mold, has been identified as a contaminant of grain in parts of Africa. Sodium nitrite, used in minute amounts to prevent spoilage in processed foods, is known to cause cancer in laboratory animals. No connection to human cancer has yet been demonstrated. Heavy consumption of pickled foods may be a cause of gastric cancer among the Japanese. A decline in the incidence of stomach cancer in the U.S. has followed a decline in the consumption of smoked meats.
Excessive sunbathing increases the risk of skin cancer.		A layer of ozone 25 miles up in the stratosphere shields us from much cancer-causing ultraviolet radiation.
Excessive use of alcohol increases the risk of some cancers.		As more is discovered about external carcinogens, efforts to protect people from them will increase.

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
VI. Major Sites of Cancer		
Cancer occurs more frequently in some areas of the body than in others.		
The most common sites of cancer are: skin, lung, digestive system (colon, rectum, pancreas, stomach, small intestine, esophagus) breast, reproductive system, (cervix, uterus, ovaries, testes), and blood (leukemia) (See Appendix for statistics on cancer sites.)	On a wall chart of the human body locate the major sites of cancer. (Appendis XII). How do these relate to the seven major danger signals? Have students identify reasons why cancer is most common in these sites. What can each person do to prevent each of these forms of cancer? What can each person do to increase the chances of complete recovery if cancer should occur?	Skin cancer is the most common form of cancer. Lung cancer kills more men than any other form and is 3rd among females. Cancer of the colon and rectum is common in both sexes. Breast cancer is the leading killer among cancers of women. Cancers of cervix is a common cancer of women and cancer of the prostate a leader among elderly males. (See Appendix XI.) Leukemia is the leading cause of death by disease in children. This form of cancer causes the blood-forming organs of the body to produce immature and non-functional blood cells.
VII. Importance of Learning About Cancer		
One in four people will develop cancer at some time in their life. Fear may prevent successful treatment of diseases. Many once-dreaded diseases are no longer objects of fear because of advances in research treatment and public knowledge.	Discuss the advantage of knowledge concerning a disease and the danger of ignorance. Discuss reasons for fearing cancer. Have students make a three-column table with these headings: characteristics of cancer; cause of cancer; prevention of cancer.	The high rate of cancer incidence is only superseded by the rate of heart disease in the United States. Examples of early diseases no longer a major worry in modern civilization are: pneumonia - treated with antibiotics polio - immunization diabetes - controlled with insulin tuberculosis - chemotherapy

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
		Cancer will eventually join this group. However, many important breakthroughs will have to be made before all forms of cancer are eradicated.
Increased public knowledge assists in all areas of prevention and control of cancer.	Discuss how control of cancer is a personal responsibility as well as the community's.	The preventive action which each individual can take revolves around the following:
Today many cancers found early are curable.	Ask an ACS volunteer from your local unit to discuss how everyone can help to control cancer. Organize a poster contest. Posters designed to inform other students of safeguards against cancer may be placed around the school. Have students write letters to local ACS chapter requesting information on specific cancers.	1. Learn about the nature of cancer and its cause and avoid those factors which cause it. For example, protect self from too much sun, control the diet, and don't smoke. 2. Have a periodic physical exam, and for women, a yearly Pap test and a monthly self examination of the breast.
Many people suffer from ignorance or unwarranted fear of cancer which interferes with prompt and successful treatment. (See Training Manual for a discussion on "Cancer's Impact on the Patient and Family".)	Plan a field trip to the Lung Association and the local county Chapter of the ACS. Determine the chief functions of these agencies and the services they provide to the individual and community. Why are some people fearful of developing cancer? What is the best thing one can do if he/she suspects cancer? Why?	People still fear cancer more than any other disease. There are certain reasons for this attitude. 1. Fear that cancer is inevitably fatal. 2. Fear of long and expensive treatments. 3. Fear of surgery and other therapies. 4. Fear that he or she will not be accepted in society following treatment.

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
		5. Fear that their own doctor may give up hope.
	Roswell Park Memorial Institute, New York State Department of Health Cancer Research, Treatment and Education Center has an audio-tape library, called CAN-DIAL, which can be played over the phone to your students. The toll-free number is 1-800-462-1884. You may wish to use this resource in a class project. (See Appendix XVII.)	A basic knowledge of cancer can remove this natural fear through education.
There are many false notions regarding the cause of cancer.	Make a list of misconceptions regarding what causes cancer.	Old wives' tales have associated cancer with various bizzare "causes". It has been suggested that aluminum cookware, tomatoes, tight-fitting clothing, smallpox vaccinations and flouridation of water cause cancer. There is no evidence to support such assertions.
	Do we know specifically what causes all forms of cancer? Any forms?	"Single trauma" cancers, that is those resulting from cuts, bumps, or blows, if they occur at all are very rare. Sometimes an injury draws attention to pre-existing cancer.
VIII. <u>Early Detection of Cancer</u> The earlier cancer is detected, the more successful are efforts to treat the disease.	A cured cancer patient is one of the most effective ways of presenting this topic to students. Perhaps someone known to colleagues or a member of the local laryngectomee club will participate. The local county of the ACS will help.	Some of the techniques for early detection are the x-ray, Pap test, breast examination, and procto.
Primary prevention of cancer is the most effective way in which to reduce its incidence.		Each person can do much to assist the doctor by knowing the 7 danger signals and seeing a doctor as soon as a danger signal is detected. (See Appendix XIII.)
Each person can do much to improve primary prevention of cancer.	Have the students draw stick figures of people who are doing things that will prevent them from developing cancer.	Primary prevention is eliminating the cause of disease or the immunization of the body against disease. Example: stop smoking.

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
Many cancers detected and treated early can be cured. (See Training Manual - "The Prevention of Cancer".)	Label each figure or describe what the person is doing. Have pupils write an essay on "What my parents can do to prevent cancer" or "What I can do to prevent cancer" or "What people can do to help the doctor detect cancer early".	Early detection of cancer is a form of prevention called secondary prevention. Two components are necessary in a program of preventive medicine: (1) Public education and (2) Available health services
	Why do people frequently do things that are harmful?	Patients with localized tumors (cancer limited to site of origin) have more favorable survival rates. The prospects of survival are closely related to the extent of tumor spread.
Tumors or cancers that do not spread tend to have a high incidence of cure.	Acquire a copy of the ACS's flip chart of rabbits depicting peer pressure. Contact: ACS, New York State Division, Inc., 6725 Lyons St., P. O. Box 7, East Syracuse, New York 13057. Another flip chart dealing with smoking called "Celly" can be obtained by writing the Canadian Cancer Society, Ontario Division, Inc., 185 Bloor Street Toronto, Ontario, M4W 3G5, Canada.	Early detection, while the cancer is localized, offers the best opportunity for control. Of every six people who get cancer today, two will be saved, and four will die. Of the four who die, one of those could have been saved if the person had visited a doctor for early treatment.
Many methods of detection and diagnosis of cancer have been developed.	Have students develop a table: The first column headed, "The Seven Danger Signals" and the second column "Ways Cancer is Detected".	600,000 to 700,000 new cancer cases will be diagnosed each year in the U.S. Better surgical practices have made the diagnosis of the disease much more accurate. This has increased the speed in which patients are treated. Nuclear medicine has new scanning methods with which cancers may be detected earlier.

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
		Breast examinations and Pap tests have increased early detection rates for these two common cancers (breast, cervical) in women. Chemicals associated with tumor growth such as "CEA", are found in higher amounts in the blood of patients with certain forms of cancers. (See Training Manual for a discussion of "Blood Tests for Cancer".)
Early symptoms of cancer may be: Change in bowel or bladder habits. A sore that does not heal. Unusual bleeding or discharge. Thickening or lump in breast or elsewhere. Indigestion or difficulty in swallowing. Obvious change in wart or mole. Nagging cough or hoarseness.	Ask students to discuss with their parents the annual physical examination. Follow up on the responses the next day. Discuss the symptoms of abnormal cell growth or cancer. The students should be aware of what changes are normal and which changes are abnormal. Point out that only a doctor can tell if a growth is cancerous by microscopic examination of a sample of cells.	
IX. Methods of Treating Cancer There are four basic methods of treating cancer. They are: surgery, radiation therapy, chemotherapy, and immunotherapy	Discuss the philosophy of cancer treatment - kill or remove cancer cells by surgery, radiotherapy, chemotherapy, immunotherapy or a combination of therapies.	Many misconceptions concerning cancer may come in the area of treatment. Stress the importance of a reputable physician and hospital setting in the treatment of any major illness. (See Training Manual - "Cancer Treatment".)

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
	Make a poster illustrating the four major methods of treating cancer. Photos may be obtained from magazines, pamphlets, etc. What other diseases are treated by each of these methods? How effective is each method? See Training Manual for further discussion of "Radiation Therapy". See ACS Pamphlets "Leukemia", #2629, and "Hodgkin's Disease", #2092.	Surgery is of great value in the successful treatments of cancers which are localized, and even for those which have not spread so far as to rule out excision. Radiation therapy, or the use of different types of radiation particles or beams to "bombard" cancer cells is used in both localized cancer therapy and disseminated cancer therapy. Chemotherapy has been used to treat disseminated cancers such as leukemia and Hodgkin's Disease. Solid tumor chemotherapy is an exciting area of contemporary research with certain advances being made, e.g., lung cancer, and breast cancer.
Making use of the body's immune power is one of the latest forms of treating cancer.	What is immunity? Make a list of common diseases that one can become immune to. What ways can immunity be developed?	Immunotherapy is the newest of all cancer therapy practices and is still in its early stages of usefulness. Researchers at RPMI have proven that the body can be sensitized and produce antibodies which can attack cancer cells. This has been effective on forms of skin cancer. (See Training Manual - "Cancer Immunotherapy".)
Methods for treating cancer may be used singly or in combination depending on the circumstances of the particular case.		Combination therapy has been shown to be more effective than single mode therapy in many cases. A good example would be the surgical removal of a tumor followed up by the use of chemotherapy to kill any remaining cancer cells. More than one drug may be used. Three, four or more drugs may be used during the treatment of certain leukemias or Hodgkin's Disease. Changes in hormone levels by surgery or drugs produce remissions in certain cancers.

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
X. Personal Responsibility in Preventing and Controlling Cancer	Discuss the meaning of responsibility and how it is the students' responsibility to take care of their body systems with the help of a doctor.	One out of two cancer patients could be saved with present treatment methods through an increased awareness of cancer and prompt action when symptoms are observed.
Individuals must assume a personal responsibility in the efforts to detect and prevent cancer.	Make a list of areas in which pupils show responsible actions in school, home, community, play.	Inform others about the safeguards listed in the concepts so they may protect themselves.
Education about cancer leading to good personal health habits is today our best method of controlling cancer.		
Individuals should support community efforts aimed at controlling air and water pollution which may cause cancer.	Have each student establish his or her own health "code of conduct". Emphasize their responsibility, their parents' responsibility, and the community's.	The formation of health attitudes and practices begin very early in students. This is easily seen in how rapidly students pick up poor health habits, such as smoking.
	Have students write an essay regarding "What I have done this week to promote my health" or "What I have done to promote the health of others".	Two common forms of cancer in women, breast cancer and cervical cancer, are easily detected. The best forms of prevention are annual examinations by the doctor and regular breast self-examinations. Women should examine their own breasts each month for lumps. (Secondary school activity.)
Every individual should practice these safeguards to good health:	Discuss the 4 safeguards listed in the concepts. (7 safeguards for secondary students.)	Prevention of cancer seems to be more effective in females than in males because they are more prone to seek professional advice early and to obey instructions. The greatest step in the prevention of cancer would be removal of the psychological block against consulting physicians.
Protect yourself from excessive exposure to the sun.	Appoint a class committee to obtain materials and create bulletin board displays on cancer control.	
See your dentist regularly for an oral examination.		

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
Don't smoke. Have a physical examination every year.	Appoint student committees to develop mock TV ads dealing with the prevention and detection of one of the major cancers. Make a crossword puzzle, word find, or hidden puzzle of cancer words and terms. Have the pupils list the sites of most cancers and state what they can do individually to prevent each one and to increase the chances of cure should cancer develop. (See Appendix XIII.) Use the following materials as appropriate: 1. ACS Pamphlet "Cancer of the Lung", (#2628). 2. ACS Pamphlet "Cancer of the Skin", (#2049). 3. ACS Pamphlet "Cancer of the Breast", (#2003). 4. ACS Pamphlet "Cancer of the Mouth", (#2630). 5. ACS Pamphlet "Cancer of the Uterus", (#2006). 6. ACS Pamphlet "Cancer of the Colon and Rectum", (#2004).	Lung: Don't smoke cigarettes. This is the best way to prevent most lung cancer. Skin: Avoid over-exposure to the sun. A broad-brimmed hat, a beach umbrella, a protective sun screen (not oils or lotions) should be used for those at risk. Breast: A monthly breast exam, and an annual exam by your physician should be common practice. Mouth: Your physician or dentist can easily detect mouth cancers and pre-cancerous conditions. Uterus: A Pap Test, once per year can detect cervical cancer long before it spreads and causes symptoms of cancer. Colon-Rectum: After 40, a procto exam should be part of the annual physical. Body: An annual health checkup is our best protection. In cancer education, the importance of annual examinations will become more apparent as more and more detection tools are found and can be used in mass screening programs.

CONCEPTS	ACTIVITIES	SUPPLEMENTARY INFORMATION
XI. Future of Cancer Control	Make a scrapbook, collection or bulletin board on recent cancer research activity.	Research in cancer has focused in specific areas, e.g., virus, hormones, treatment, causes of cancer, drug formulation, epidemiology, education and rehabilitation.
Research in cancer treatment has increased survival rates from 1 in 5 in 1930 to 1 in 3 now.	View "Health Heroes", Metropolitan Life Insurance. Have students go to library and report on cancer heroes or significant developments: Mme. Curie, Surgeon-General's Report, Roentgen, Fleming, Roswell Park Memorial Institute, Dr. Papanicolaou.	
Present research in laboratories around the world is aimed at the control and eventual cure of all forms of cancer. (See Training Manual for a discussion of "General Cancer Research".)	Make a list of community agencies who help in cancer control: American Cancer Society Health Departments Hospitals, etc. Why is cancer education an important part in the future control of cancer? Have students write a letter to an imaginary friend responding to fears expressed about possible cancer symptoms. Give advice. Have children make a list of ways young people can contribute to control of cancer.	The National Government, State Agencies, and voluntary agencies such as the ACS, have been formed to fight this disease until it is eradicated. NYS has two outstanding centers of cancer research - Roswell Park Memorial Institute in Buffalo and Memorial Sloan-Kettering in New York City. Roswell Park Memorial Institute is the New York State Department of Health's Cancer Research Treatment and Education facility. The teacher may use the Institute as a resource in preparation of this unit. The Public Education Office can be reached by calling the Institute at (716) 845-2300.

GLOSSARY

abnormal - not as it should be, wandering from usual course.

antibody - a specific substance formed by the body as a reaction against a foreign agent (antigen) such as bacteria, virus, etc. It helps protect the body against this agent.

antigen - any foreign substance which when introduced into the body, leads to the formation of antibodies specific for that antigen.

benign - not likely to cause death, not cancerous.

cancer - a large group of diseases in which certain of the body's cells grow wildly and may spread throughout the body if not treated.

carcinogen - a cancer causing substance.

cell - the basic unit of life, usually very small. All plants and animals are made up of one or more cells.

cell membrane - the envelope enclosing the cytoplasm.

chemistry - a science in which substances are examined to find out what they are made of, how they act under various conditions and how they are combined or separated to form other substances.

chemotherapy - the treatment of disease by chemicals which act as drugs in the body.

contagious - used to describe those diseases which are spread by direct contact with the infected person or "germs".

cytoplasm - the material of which a cell is composed exclusive of the nucleus.

detection - discovery; finding out if a disease exists in the body, cancer in this case.

environment - all the conditions that surround a person, animal or plant and affect growth, actions and character.

hormone - a chemical substance formed in the body and carried in the blood to another part of the body where it exerts a specific effect.

immunotherapy - the treatment of cancer by stimulating the body's own defenses against cancerous cells.

leukemia - a group of cancerous diseases of the blood-forming tissues, in which an oversupply of nonfunctional white blood cells (leukocytes) are produced.

leukocytes - small white cells in blood that kill germs; white corpuscles.

lymphatic system - a system of vessels which carry lymph, a colorless liquid which bathes the cells, fights infection and carries away waste.

malignant - causing or likely to cause death, cancerous.

metabolism - the process in all plants and animals by which food is changed into energy, new cells, waste, etc.

metastasis - the spread of disease from the original location in the body to other parts of the body. In cancer the new growths are like the original tumor.

microscopic - so tiny that it cannot be seen without a microscope.

mitosis - the process of cellular division.

natural defense - inborn protection; protective system against disease that is native to a being.

nucleus - the small mass at the center of a cell. It is needed for the plant or animal to grow and reproduce.

organ - a part or structure of an animal or plant performing special functions.

organism - any living thing.

phagocyte - a scavenger cell which swallows foreign matter invading the body. Part of the body's defenses.

pollution - the process of making dirty or impure, as in air or water pollution.

radiation therapy - the treatment of cancer with radiation.

safeguard - to protect; to keep safe.

site - location or place (in body).

surgery - treatment of a disease by physically removing or repairing tissue.

tissue - a group of similar specialized cells united in the performance of a specific function.

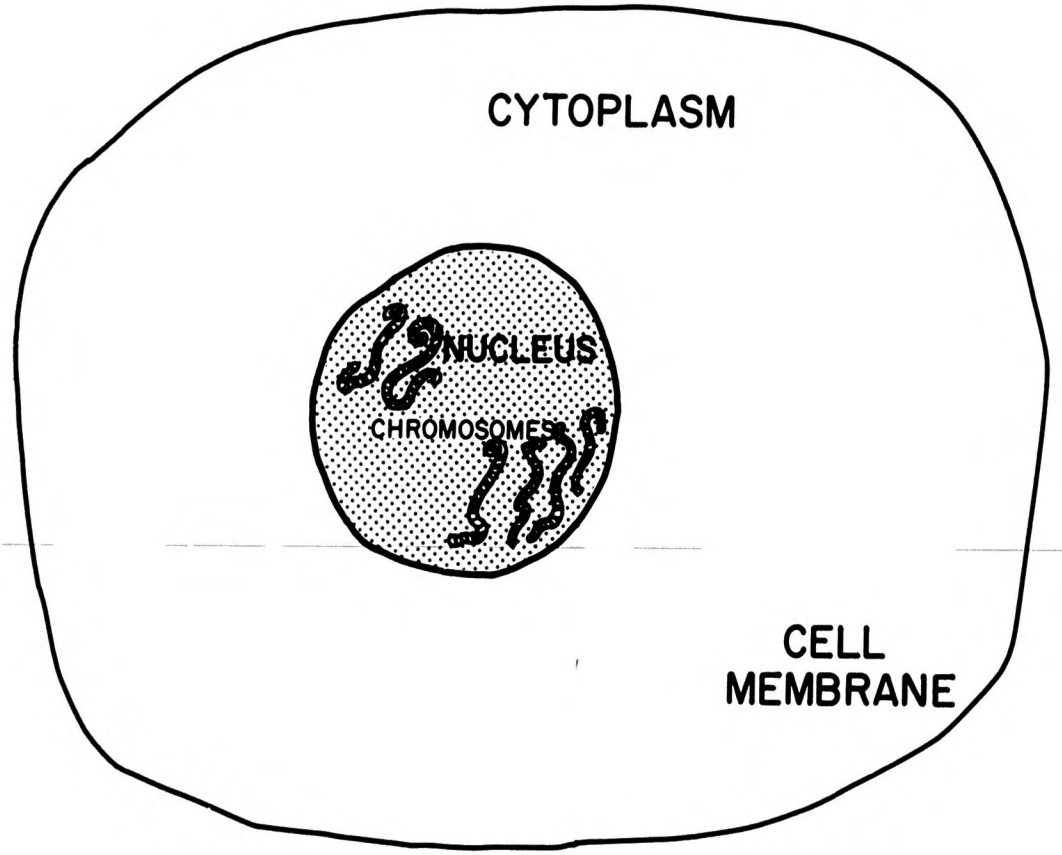
treatment - the use of medicine or surgery to heal or cure.

tumor - a growth in any part of the body caused by disease; a swelling.

virus - a minute infectious agent capable of reproducing only within a living cell.

APPENDIX 1

DIAGRAM OF A TYPICAL CELL



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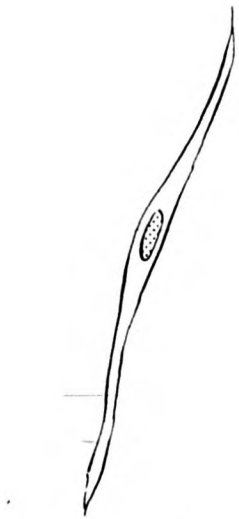
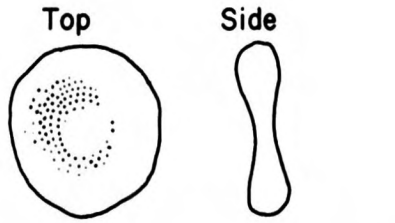
APPENDIX 2

SOME EXAMPLES OF HUMAN CELLS

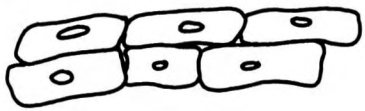
Nerve Cell



Muscle Cell



Two views of Red Blood Cell



Epithelial Cells

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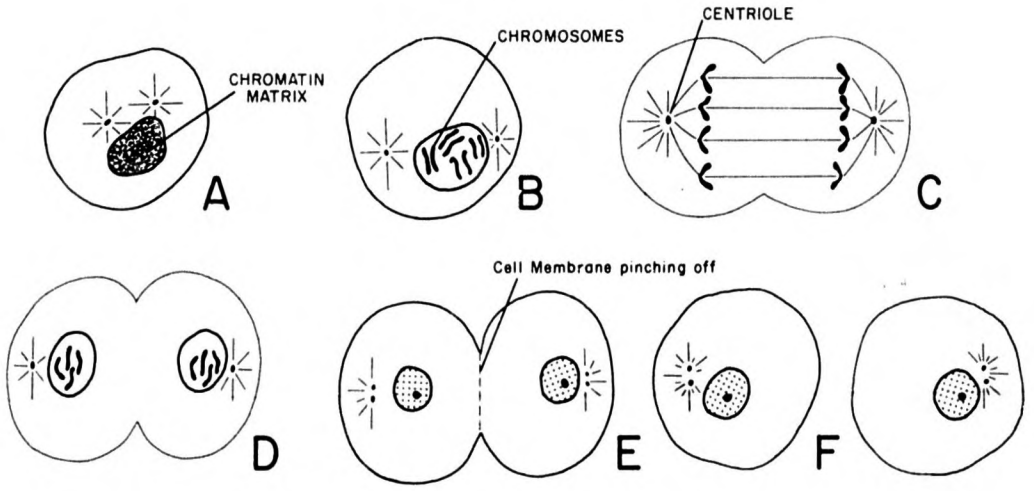
APPENDIX 3

CELL DIVISION - MITOSIS

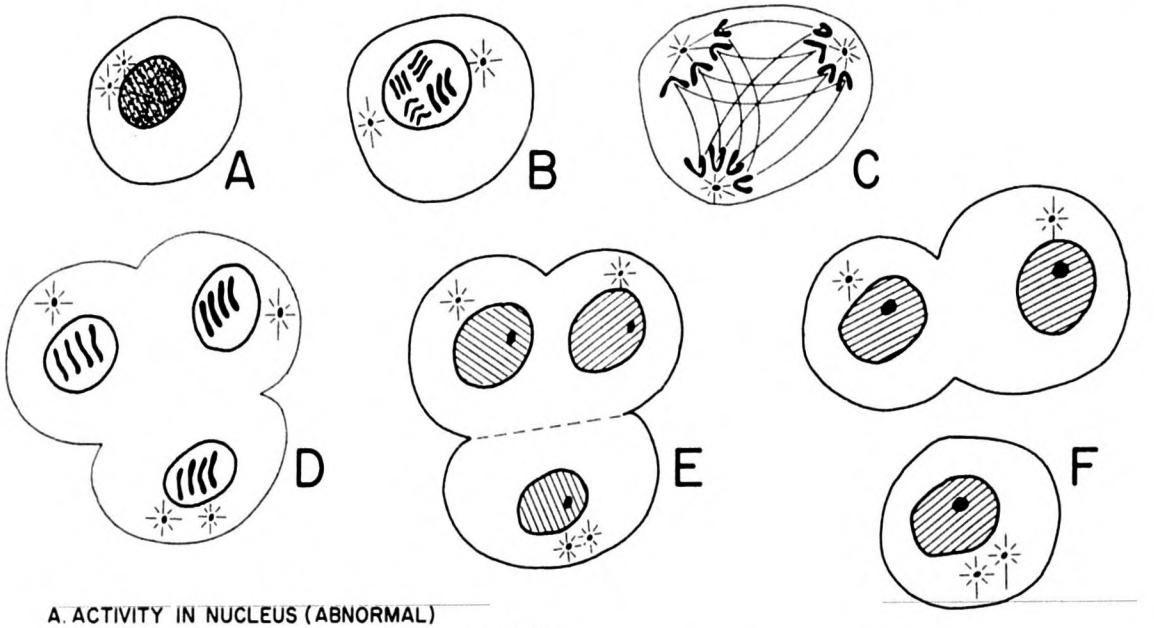


A. NUCLEAR ACTIVITY (CHROMATIN MATRIX)
B. CHROMOSOME AGGREGATION AND REPLICATION
C. CHROMOSOME SEPARATION
D. NUCLEAR FORMATION
E. CELL MEMBRANE ESTABLISHED
F. CELL SEPARATION

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

APPENDIX 4

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)

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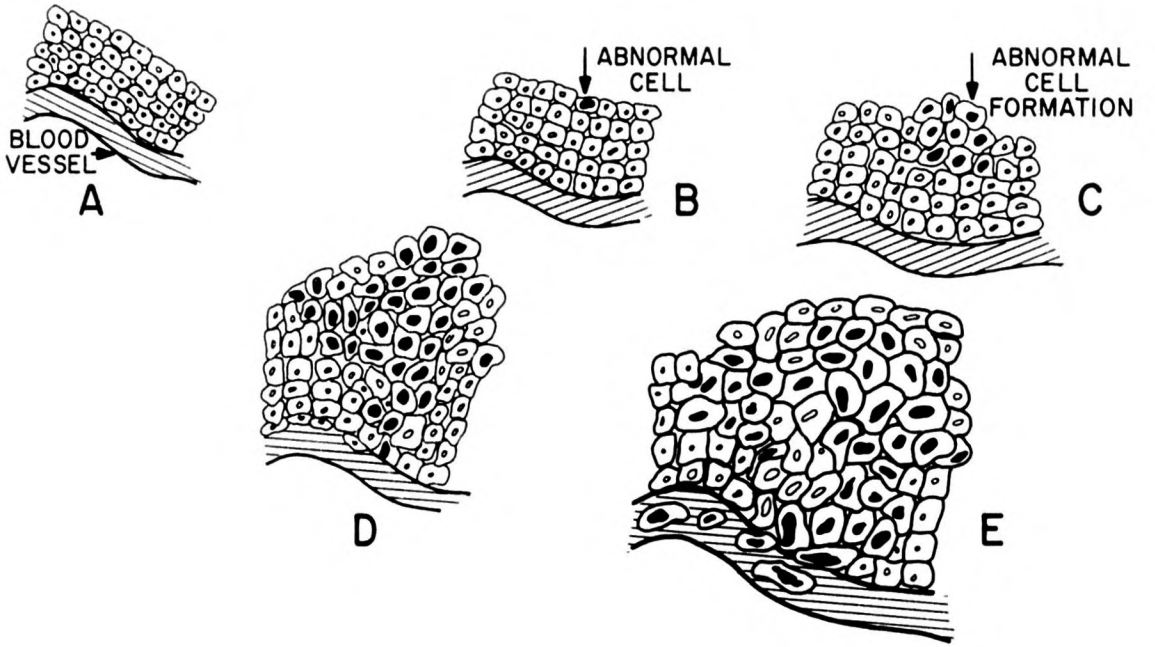
APPENDIX 5

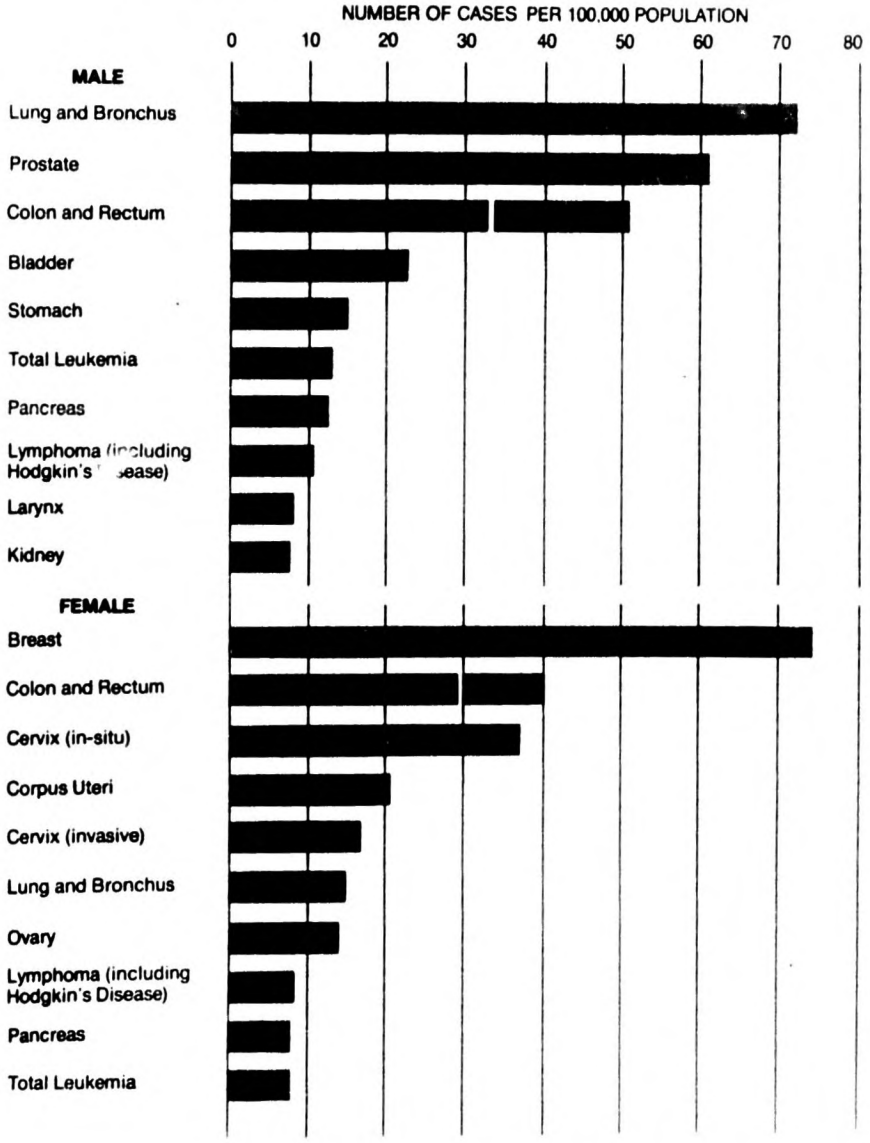
TUMOR GROWTH AND SPREAD



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)

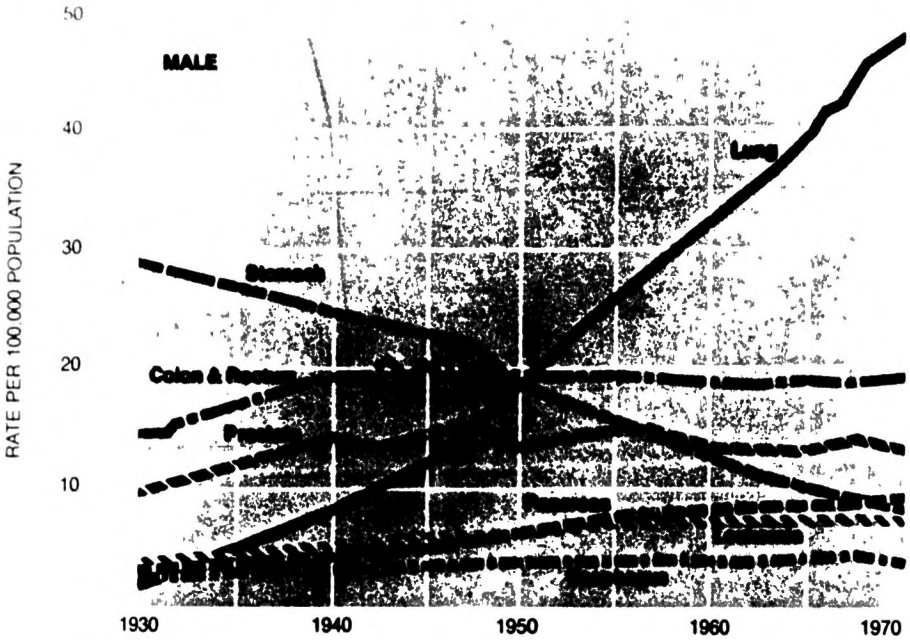
Elena Greco

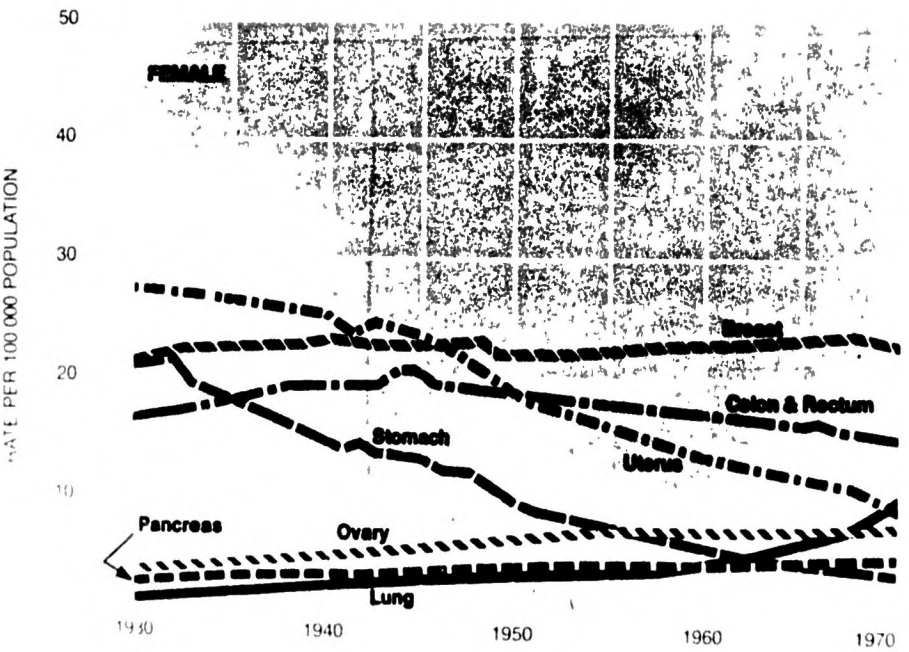
CANCER INCIDENCE BY SITE AND SEX: United States, 1969-1971
(age-adjusted to 1970 U. S. population).



APPENDIX 6

TIME TRENDS IN CANCER MORTALITY RATES, BY SITE AND SEX:
United States, 1930-1970 (age-adjusted to U. S. 1940 population).

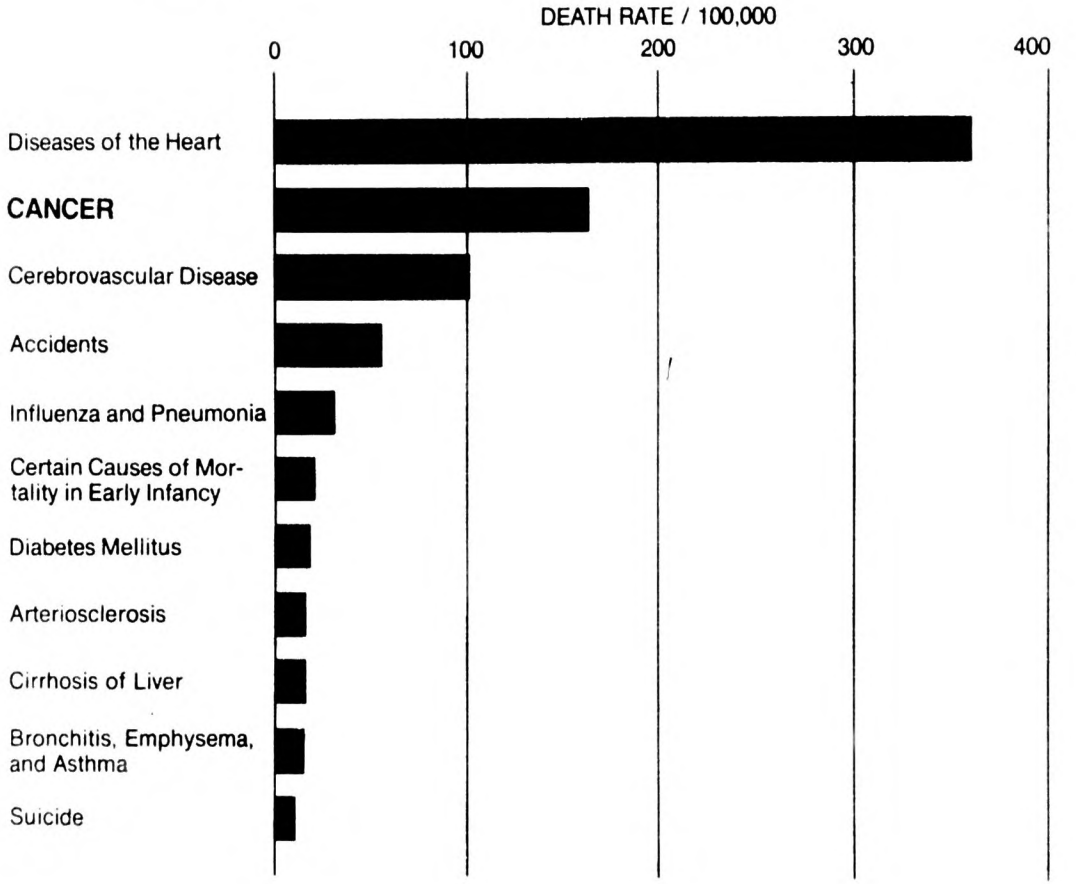




APPENDIX 7

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

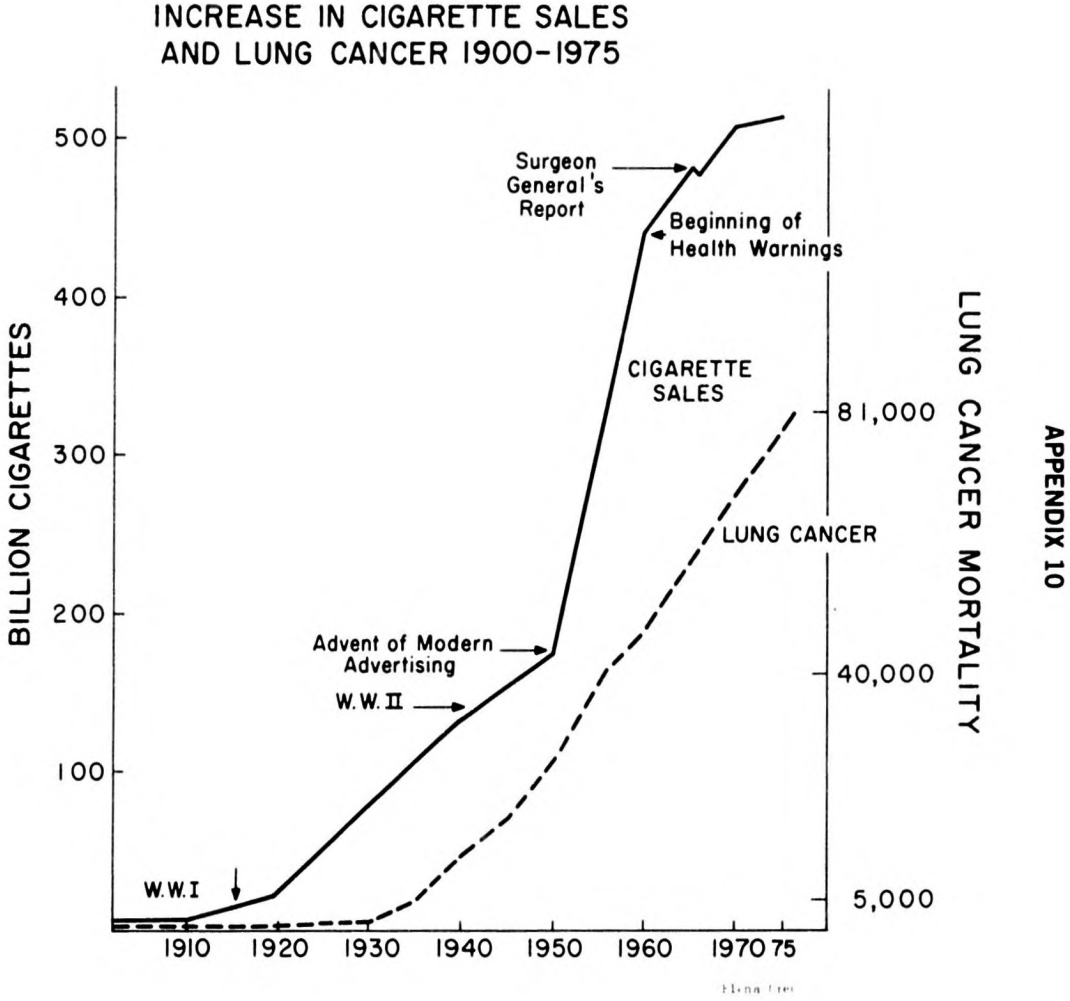
Applying Cancer Statistics Locally

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.

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

APPENDIX 10


INCREASE IN CIGARETTE SALES
AND LUNG CANCER 1900-1975
BILLION CIGARETTES
500
400
300
200
100
LUNG CANCER MORTALITY
81,000
40,000
5,000
Surgeon General's Report
Beginning of Health Warnings
CIGARETTE SALES
LUNG CANCER
Advent of Modern Advertising
W.W. II
W.W.I
1910
1920
1930
1940
1950
1960
1970 75

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

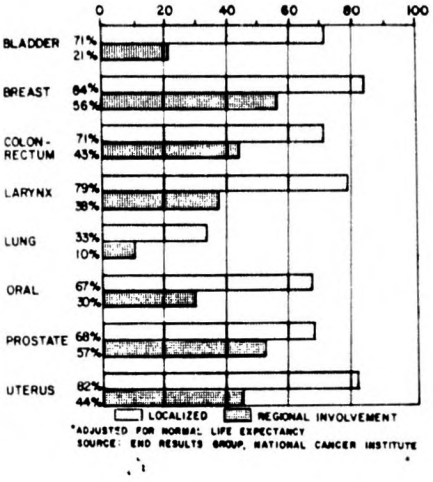
*Figures rounded to the nearest 1000.

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

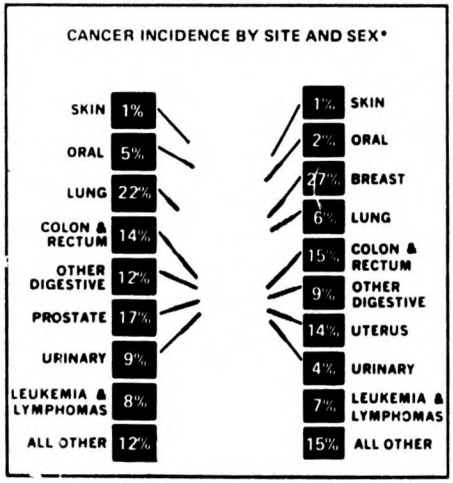
***Estimates vary widely, from 300,000-600,000 or more, for superficial skin cancer.

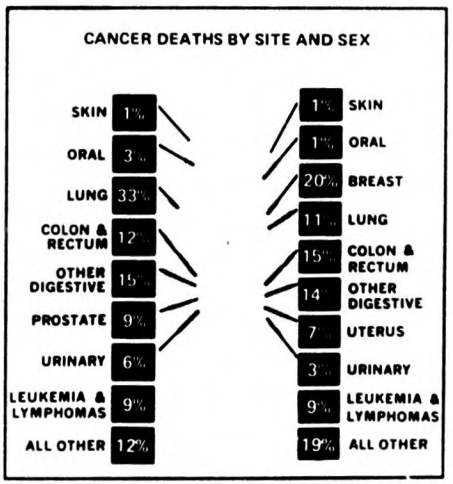
INCIDENCE RATES ARE BASED ON RATES FROM N.C.I. THIRD NATIONAL CANCER SURVEY

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

APPENDIX 12

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.

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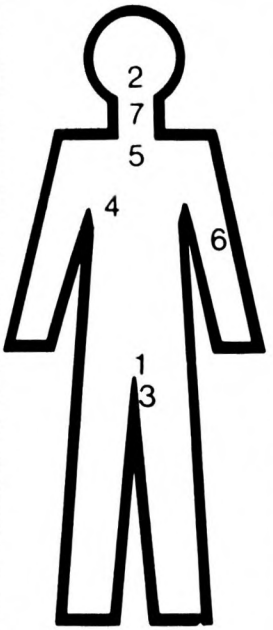
APPENDIX 13

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

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