CHEMICAL MANUFACTURERS ASSOCIATION

August 10, 1994

Dear Vinyl Chloride Health Committee Members:

The following items are enclosed:

1) September 9, 1994 Conference Call Agenda;

2) October 6 and 7 Committee Meeting Agenda. **EPA has agreed to meet with us to discuss the vinyl chloride risk assessment.** In response to the Panel's July 5 letter, EPA expressed interest in working with industry to develop a scientifically-sound vinyl chloride risk assessment. EPA's response is enclosed. As a follow-up to the Agency's letter, I was able to schedule a meeting with Agency staff on October 6 at 2:00 p.m. James Cogliano plans to invite the Agency's scientific staff involved in the vinyl chloride risk assessment. He also plans to invite other staff members who have general interest in physiologically-based pharmacokinetic risk assessment modeling. Richard Reitz will attend the EPA meeting to make a presentation on the Panel's behalf. I also will invite James Swenberg to the meeting. Most of you have indicated an interest in attending this meeting with EPA. Please note that there will be a pre-meeting at CMA on October 6 at 10:00 a.m. to coordinate our presentations (Richard Reitz, James Swenberg, and company representatives). The meeting with EPA will be followed by a Committee meeting on October 7 at 8:30 a.m. James Swenberg of the University of North Carolina at Chapel Hill will present his research program on vinyl chloride to the Committee; and,

3) August 2, 1994 Record of Conference Call.

Today, I talked to Frank Kover, Branch Chief for the Existing Chemical Testing Branch at EPA, to arrange a meeting with the Agency staff to discuss the reproductive and teratogenic effects data needs of the ATSDR. Mr. Kover was receptive to hosting a meeting between company representatives and EPA staff to discuss this issue. Brian Reidel of EPA is the Project Manager for vinyl chloride TSCA Section 4 activities. Mr. Reidel is on vacation this week, so I will contact him next week to schedule a meeting with EPA. I will try to schedule this meeting for the morning of October 6 or October 7 so that Panel members do not have to travel to Washington, D.C. twice in a short time period.

I am looking forward to speaking with you on September 9. If you have any questions, please call me at (202) 887-1192.

Sincerely,

Hasmukh C. Shah, Ph.D.
Manager, Vinyl Chloride Panel

Enclosures

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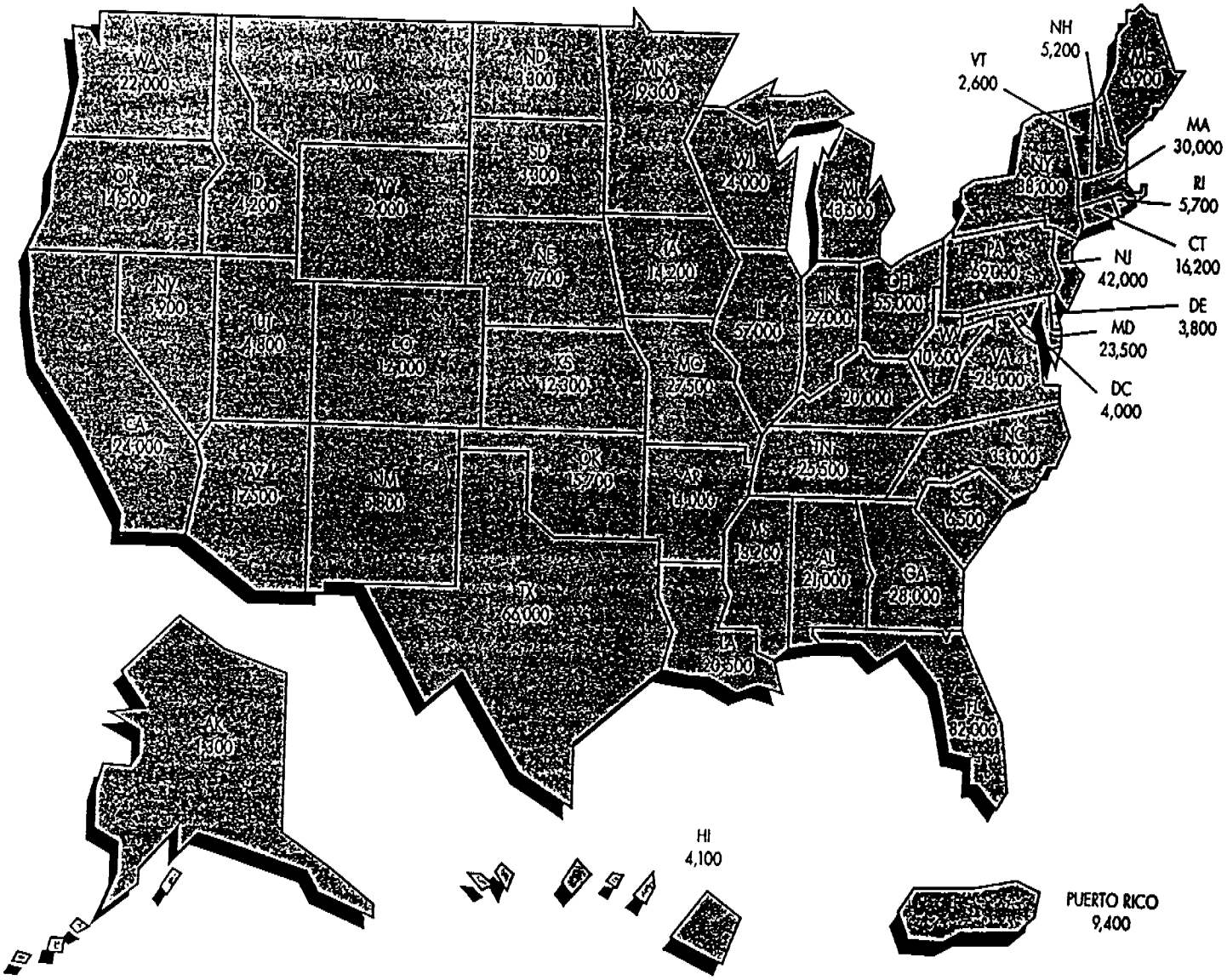
CANCER FACTS & FIGURES–1994



AMERICAN CANCER SOCIETY®

Estimated number of new cancer cases in 1994 by state, total 1,208,000 (excluding Puerto Rico)*

*Excluding basal and squamous cell skin cancer and carcinoma in situ

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Tables are indicated in bold print.

Sources of Statistics

Incidence. Since there is no nationwide cancer registry, there is no way of knowing exactly how many new cases of cancer are diagnosed each year. The American Cancer Society (ACS) estimates cancer incidence for the upcoming year using the best available data sources at the time.

Estimates of cancer incidence in *Facts and Figures* editions prior to 1974 were based on rates from two state cancer registries, the Connecticut Tumor Registry and the New York State Tumor Registry. The issues from 1974 to 1978 used information from the National Cancer Institute's Third National Cancer Survey (1969-1971) of nine major areas of the United States. In 1973, the NCI began the Surveillance, Epidemiology and End Results (SEER) program to collect ongoing data on cancer incidence and patient survival. The SEER program includes data from nine population-based cancer registries, covering about 10% of the US population. Beginning with the 1979 edition of *Facts and Figures*, estimates of cancer incidence have been based on incidence rates obtained through the SEER program, applied to the US Census estimates of the population for the current year. Estimates of new cancer cases include invasive cancers only, excluding in situ tumors except for cancers of the urinary bladder. Basal and squamous cell skin cancers are also excluded.

It is not appropriate or accurate to evaluate cancer incidence and mortality trends using only ACS estimates of cases and deaths, since these numbers are projected before the year begins, using data that are several years old. The numbers are presented to give the best available measure of the scope of the disease in the US at the time of publication. Comparable incidence rates are available for 1973 through 1990 from the National Cancer Institute's SEER program to evaluate cancer trends.

The estimates of total US cancer cases diagnosed in 1994 are based on age-specific incidence rates from the SEER program for 1988-1990 applied to the 1994 Census population projections. Some adjustment is made for sites with recently increasing or decreasing rates. Estimated new cases by state are calculated according to the distribution of estimated 1994 cancer deaths by state for each primary cancer site.

Mortality. Mortality statistics are derived from underlying cause of death data reported by the Division of Vital Statistics, National Center for Health Statistics, Department of Health and Human Services. The 1994 estimates of cancer deaths are based on cancer mortality data from 1984 through 1990.

Beginning with the 1981 edition of *Facts and Figures*, age-adjusted mortality rates per 100,000 are standardized to the 1970 census population distribution. Age-adjustment or age-standardization is a method used to make valid statistical comparisons among rates by assuming the same age distribution occurs among the different groups being compared.

Death rates by state: Since 1990, actual age-adjusted mortality rates, based on reported deaths in a recent 5-year period, have been presented. State mortality rate estimates from earlier *Facts and Figures* are not comparable.

Cancer Around the World: International mortality rates were calculated from data made available by the World Health Organization, and are adjusted to the old world population standard.

Probability of Developing Cancer. The probabilities of developing cancer are based on incidence rates for first primary cancers for that site, as reported to the NCI SEER program for 1988 through 1990. SEER area mortality rates for 1988-1990 were used to calculate survival into each age interval. Detailed methodology is available from the Applied Research Branch, National Cancer Institute.

Survival. Cancer survival statistics are usually reported as 5-year relative survival rates. In this edition, we present survival statistics for cases diagnosed in the period 1983-1989, as reported from the SEER program and followed through 1990. The relative survival rate is the ratio of the observed survival rate for the patient group to the expected survival rate for persons in the general population similar to the patient group with respect to age, sex, race and calendar year of observation. Because there is a certain lag time required in measuring survival, these rates may not reflect the most recent treatment advances.

SEER Report. The NCI SEER program is the source of specific data components for *Cancer Facts & Figures 1994*, including incidence rates and survival rates. These and other data are available in the SEER Cancer Statistics Review: 1973-1990, National Cancer Institute. NIH Pub. No. 93-2789, 1993.

changes; and excessive, rapid weight loss.

Some of the main childhood cancers are:

Leukemia, below.

Osteogenic sarcoma and Ewing's sarcoma are bone cancers. These may cause no pain at first, and swelling in the area of the tumor is often the first sign.

Neuroblastoma can appear anywhere but usually in the abdomen, where a swelling occurs.

Rhabdomyosarcoma, the most common soft tissue sarcoma, can occur in the head and neck area, genito-urinary area, trunk, and extremities.

Brain cancers in early stages may cause headaches, blurred or double vision, dizziness, difficulty in walking or handling objects, and nausea.

Lymphomas and Hodgkin's disease are cancers that involve the lymph nodes, but also may invade bone marrow and other organs. They may cause swelling of lymph nodes in the neck, armpit, or groin. Other symptoms may include general weakness and fever.

Retinoblastoma, an eye cancer, usually occurs in children under age four. When detected early, cure is possible with appropriate treatment.

Wilms' tumor, a kidney cancer, may be recognized by a swelling or lump in the abdomen.

Treatment: Childhood cancers can be treated by a combination of therapies. Treatment is coordinated by a team of experts including oncologic physicians, pediatric nurses, social workers, psychologists, and others who assist children and their families.

Survival: Five-year survival rates vary considerably, depending on the site: all sites, 68%; bone cancer, 58%; neuroblastoma, 57%; brain and central nervous system, 60%; Wilms' tumor (kidney), 88%; Hodgkin's disease, 88%; and acute lymphocytic leukemia, 72%.

Leukemia

Incidence: An estimated 28,600 new cases in 1994, approximately evenly divided into acute leukemia and chronic leukemia. Although often thought of as primarily a childhood disease, leukemia will strike many more adults (26,000 this year) than children (2,600 this year). Acute lymphocytic leukemia accounts for approximately 2,000 of the cases of leukemia among children. In adults, the most common types are acute granulocytic (approximately 7,000 cases) and chronic lymphocytic (approximately 8,500 cases).

Mortality: An estimated 19,100 deaths in 1994.

Signs and Symptoms: Fatigue, paleness, weight loss, repeated infections, bruising easily, and nosebleeds or other hemorrhages. In children, these signs can appear suddenly. Chronic leukemia can progress slowly and with few symptoms.

Risk Factors: Leukemia strikes both sexes and all ages. Causes of most cases are unknown. Persons with Down syndrome and certain other genetic abnormalities have higher than normal incidence of leukemia. It has also been linked to excessive exposure to ionizing radiation and to certain chemicals such as benzene, a commercially used toxic liquid that is also present in lead-free gasoline. Certain forms of leukemia and lymphoma are caused by a retrovirus, HTLV-I (human T-cell leukemia/lymphoma virus-I).

Early Detection: Because symptoms often resemble those of other, less serious conditions, leukemia can be difficult to diagnose early. When a physician does suspect leukemia, diagnosis can be made using blood tests and biopsy of the bone marrow.

Treatment: Chemotherapy is the most effective method of treating leukemia. Various anticancer drugs are used, either in combinations or as single agents. Transfusions of blood components and antibiotics are used as supportive treatments. To illuminate hidden cells, therapy of the central nervous system has become standard treatment, especially in acute lymphocytic leukemia. Under appropriate conditions, bone marrow transplantation may be useful in the treatment of certain leukemias.

Survival: The 5-year survival rate for patients with leukemia is 38%, due partly to very poor survival of patients with some types of leukemia such as acute granulocytic. Over the last 30 years, however, there has been a dramatic improvement in survival of patients with acute lymphocytic leukemia; from a 5-year survival rate of 4% for people diagnosed in the early 1960s to 28% in the early 1970s to 52% in the mid-1980s. In children, the improvement has been from 4% to 72%.

Lymphoma

Incidence: An estimated 52,900 new cases in 1994, including 7,900 cases of Hodgkin's disease and 45,000 non-Hodgkin's lymphoma. Since the early 1970s, incidence rates for non-Hodgkin's lymphoma have increased over 65%. Incidence of Hodgkin's disease has declined over the same time period, especially among the elderly.

Mortality: An estimated 22,750 deaths in 1994 (non-Hodgkin's lymphoma, 21,200; Hodgkin's disease, 1,550).

Signs and Symptoms: Hodgkin's disease: enlarged lymph nodes, itching, fever, night sweats, and weight loss. Fever can come and go in periods of several days or weeks. Non-Hodgkin's lymphoma: enlarged lymph nodes, anemia, weight loss, and fever.

Risk Factors: Risk factors are largely unknown but in part involve reduced immune function and exposure to certain infectious agents. Persons with organ transplants are at higher risk due to altered immune function. Human immunodeficiency virus (HIV) and human T-cell leukemia/lymphoma virus-I (HTLV-I) are associated with increased risk of non-Hodgkin's lymphoma. Burkitt's lymphoma in

Africa is partly caused by the Epstein-Barr herpes virus. Other possible risk factors include exposures to herbicides, industrial solvents, and vinyl chloride.

Treatment: Hodgkin's disease: chemotherapy and radiotherapy are useful for most patients. Non-Hodgkin's lymphoma: early stage, localized lymph node disease can be treated with radiotherapy. Patients with later stage disease often benefit from the addition of chemotherapy. New programs using highly specific monoclonal antibodies directed at lymphoma cells, and improved techniques in bone marrow preservation, are under investigation in selected patients who relapse after standard treatment.

Survival: Survival rates vary widely by cell type and stage of disease. The overall 5-year survival rate for Hodgkin's disease is 78%. The overall 5-year survival for non-Hodgkin's lymphoma has steadily improved, and in the past 30 years has increased from 31% to 52%.

Skin Cancer

Incidence: Over 700,000 cases a year of highly curable basal cell or squamous cell cancers. They are more common among individuals with lightly pigmented skin. The most serious skin cancer is melanoma, which will be diagnosed in about 32,000 persons in 1994. Since 1973, the incidence rate of melanoma has increased about 4% per year. Incidence rates are over ten times higher among whites than blacks. An additional 10,000 invasive nonmelanoma skin cancers will occur in 1994, mostly sarcomas, including Kaposi's sarcoma.

Mortality: An estimated 9,200 deaths this year, 6,900 from malignant melanoma and 2,300 due to other skin cancers.

Signs and Symptoms: Any unusual skin condition, especially a change in the size or color of a mole or other darkly pigmented growth or spot. Scaliness, oozing, bleeding, or change in the appearance of a bump or nodule, the spread of pigmentation beyond its border, a change in sensation, itchiness, tenderness, or pain.

Risk Factors: Excessive exposure to ultraviolet radiation; fair complexion; occupational exposure to coal tar, pitch, creosote, arsenic compounds, or radium.

Prevention: The sun's ultraviolet rays are strongest between 10 a.m. and 3 p.m. Exposure at these times should be avoided, and protective clothing should be worn. Sunscreens should be used. These come in various strengths, ranging from those facilitating gradual tanning to those that allow practically no tanning. Because of the possible link between severe sunburns in childhood and greatly increased risk of melanoma in later life, children, in particular, should be protected from the sun.

Early Detection: Early detection is critical. Recognition of changes in skin growths or the appearance of new growths is the best way to find early skin cancer. Adults should practice skin self-examination once a month, and suspicious lesions should be evaluated promptly by a physician. Basal and squamous cell skin cancers often take the form of a pale, waxlike, pearly nodule, or a red, scaly, sharply outlined patch. A sudden or progressive change in a mole's appearance should be checked by a physician. Melanomas often start as small, mole-like growths that increase in size, change color, become ulcerated, and bleed easily from a slight injury. A simple **ABCD** rule outlines the warning signals of melanoma: **A** is for asymmetry. One half of the mole does not match the other half. **B** is for border irregularity. The edges are ragged, notched, or blurred. **C** is for color. The pigmentation is not uniform. **D** is for diameter greater than 6 millimeters. Any sudden or progressive increase in size should be of special concern.

Treatment: There are four methods of treatment: surgery (used in 90% of cases), radiation therapy, electrodessication (tissue destruction by heat), or cryosurgery (tissue destruction by freezing) for early skin cancer. For malignant melanoma, the primary growth must be adequately excised, and it may be necessary to remove nearby lymph nodes. Removal and microscopic examination of all suspicious moles is essential. Advanced cases of melanoma are treated according to the characteristics of the case.

Survival: For basal cell or squamous cell cancers, cure is highly likely if detected and treated early. Malignant melanoma can spread to other parts of the body quickly; however, when detected in its earliest stages, and with proper treatment, it is highly curable.

The overall 5-year survival rate for patients with malignant melanoma is 84%. The 5-year survival rate for localized malignant melanoma is 92%; survival rates for regional and distant disease are 55% and 14%, respectively. About 82% of melanomas are diagnosed in a local stage.

Ovary Cancer

Incidence: An estimated 24,000 new cases in the United States in 1994. It accounts for 4% of all cancers among women.

Mortality: An estimated 13,600 deaths in 1994. Although ovarian cancer ranks second in incidence among gynecological cancers, it causes more deaths than any other cancer of the female reproductive system.

Signs and Symptoms: Ovarian cancer is often "silent," showing no obvious signs or symptoms until late in its development. The most common sign is enlargement of the abdomen, which is caused by the accumulation of fluid. Rarely will there be abnormal vaginal bleeding. In women over 40, vague digestive disturbances (stomach discomfort, gas, distention) that persist and cannot be explained by any other cause may indicate the need for a thorough evaluation for ovarian cancer.