



COUNTY OF SANTA BARBARA • HEALTH CARE SERVICES
TRI-COUNTIES REGIONAL CANCER REGISTRY

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September 29, 1997

Paul E. Lorenz
 Director,
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 3147 Loma Vista Road
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Dear Mr. Lorenz

Thank you very much for your letter of September 15, offering me the opportunity to participate in the local network to monitor the issue of cancer in the Simi Valley Area. I will be honored to participate.

In response to your request for data on cancer incidence in Simi Valley, I have performed a preliminary analysis on cancer incidence among residents in a five mile radius of Santa Susana Field Laboratory (SSFL) and would like to share the results with you.

One of the ways in which California Cancer Registry responds to concerns about apparent increase of cancer cases in a locality is to perform an observed/expected analysis, i.e. to compare the number of cancer cases registered among the population in the area of interest with the estimates of the expected numbers. The objective of this analysis is to determine if residents of the area under study are at a higher risk of developing cancer. The observed numbers come from the regional registry databases and includes all cases registered for one or more census tracts that cover the area of interest, during a specific time period. The expected numbers are calculated by applying an age, sex, race specific standard incidence rate to the age, sex, and race specific population estimates of the study area. The standard rate used in the Tri-Counties Region is the 1988-92 average annual rate for the region which includes San Luis Obispo, Santa Barbara, and Ventura counties. Average annual rates have less variations and are a much better representative of cancer incidence in an area. Population estimates are derived from the 1990 census for the census tracts covering the study area. By applying the standard rate to the census population, the number of cases expected in 1990 is obtained. Since neither the U.S. Bureau of the Census nor the California Department of Finance estimate population of the census tracts for intercensal years, to arrive at the total expected number the 1990 estimates must be multiplied by the number of years in the study period.

For the present analysis I followed the pattern of the 1992 study by the California Department of Health Services (DHS) "Cancer Incidence Near The Santa Susana Field Laboratory, 1978-1989".

1. The present analysis included all invasive cancers registered with the Tri-Counties Regional Cancer Registry for 1988-1995 calendar years. Data for 1988-1994 are considered complete; data for 1995 were estimated to be 88 percent complete as of September 21, 1997.
2. The study area includes the census tracts within a five mile radius of the SSFL. Although these tracts do not cover all parts of the city of Simi Valley they represent a geographic area identical to the area covered in the previous study by DHS. The following census tracts (74.01, 75.02, 75.03, 79.01, 79.02, 80.01, 80.02, 80.03, 81.01, 81.02, 82.00, 82.02, 83.02, 83.03, 83.04, 84.01, 84.02, 85.01, 85.02) with a population of 90,804 in 1990 census were selected.
3. Cancers were divided into three groups of very radiosensitive (thyroid, bone & joints, all leukemias, excluding chronic lymphocytic leukemia), moderately radiosensitive (breast, lung & bronchus), and possibly radiosensitive (esophagus, stomach, liver, brain & other nervous system, urinary bladder, other urinary system, and multiple myeloma). This classification is also based on the DHS study except for excluding cancers of the salivary gland and parathyroid from the last group.
4. Differences between the observed and expected numbers are statistically evaluated for departure from normal variations at the level of 99% confidence interval. With almost 6000 census tracts in California, even using a 99% confidence interval means that at any given time 30 census tracts could be declared as having a statistically significant increase in a particular type of cancer by chance.
5. A major limitation in this approach is the lack of accurate intercensal population estimates at the level of census tract. There is no adjustment for population increase in this approach, except that it is assumed that population changes around the census year will balance out. This will result in an unspecified underestimation of the expected numbers.

Results of this analysis for the parts of Ventura county that lies within the five miles radius of SSFL are presented in Table 1. This table presents both the observed and expected numbers by gender for the study period. Among the very radiosensitive cancers, the number of registered leukemia in women is significantly lower than expected. This also brings the total number of all very radiosensitive cancers for women to a significantly lower level. Neither the reason nor the significance of this observation is clear at the present time. Among the moderately radiosensitive cancers, the total number of registered cancers of the lung & bronchus is significantly higher than expected. Close to 85% of all lung cancers are due to smoking tobacco. Unfortunately, cancer registry does not collect proper data on smoking. For all other sites, the observed numbers were all within the limits of normal variation expected in a biological phenomenon such as cancer incidence.

My conclusion from this simple preliminary analysis is that residents of the study area seem to have cancer incidence risk which is similar to that of the other residents of the Tri-Counties Region, except for leukemia in women which is significantly lower, and cancer of the lung & bronchus which is higher. Further analysis of the available data on this issue may be helpful in determining the nature of this observation.

Table 1. Results of the Observed/Expected Analysis for the Incidence of Invasive Cancers in Ventura County, 1982-1995 Cases.

	Male		Female		Total	
	OBS	EXP	OBS	EXP	OBS	EXP
Very Radiosensitive	43	36.8	34	57.2	77	94.0
Thyroid	11	10.3	26	35.7	37	45.9
Bone & Joints	5	2.7	2	2.1	7	4.8
Leukemia (Excl. CLL)	27	23.9	6	19.4	33	43.2
Moderately Radiosensitive	169	147.2	461	441.1	630	588.3
Lung & Bronchus	166	145.7	140	115.3	306	261.0
Breast	3	1.5	321	325.8	324	327.3
Possibly Radiosensitive	167	144.5	69	73.8	236	218.3
Esophagus	19	12.2	3	4.1	22	16.2
Stomach	23	21.3	16	10.7	39	32.0
Liver	8	7.6	5	3.7	13	11.3
Brain & Other Nervous System	30	23.2	16	17.0	46	40.2
Urinary Bladder	42	41.0	10	14.1	52	55.1
Other Urinary System	39	30.3	8	16.2	47	46.5
Multiple Myeloma	6	9.0	11	7.9	17	17.0
All Invasive Cancers	964	927.5	988	964.4	1,952	1,892.0
OBS: Observed EXP: Expected CLL: Chronic Lymphocytic Leukemia						


Please do not hesitate to contact me if you have further questions or need additional analysis.

Cordially,

K. Nasseri

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Research Epidemiologist

cc. Sue Watkins, RRA, CTR, Director, Tri-Counties Regional Cancer Registry
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 Census tracts used by Dr. Nasserri in his analysis of cancer rates within 5-mile radius of Rocketdyne Santa Susana Field Laboratory.

