

National Cancer Institute
Division of Cancer Epidemiology and Genetics

National Cancer Advisory Board
December 4, 2002

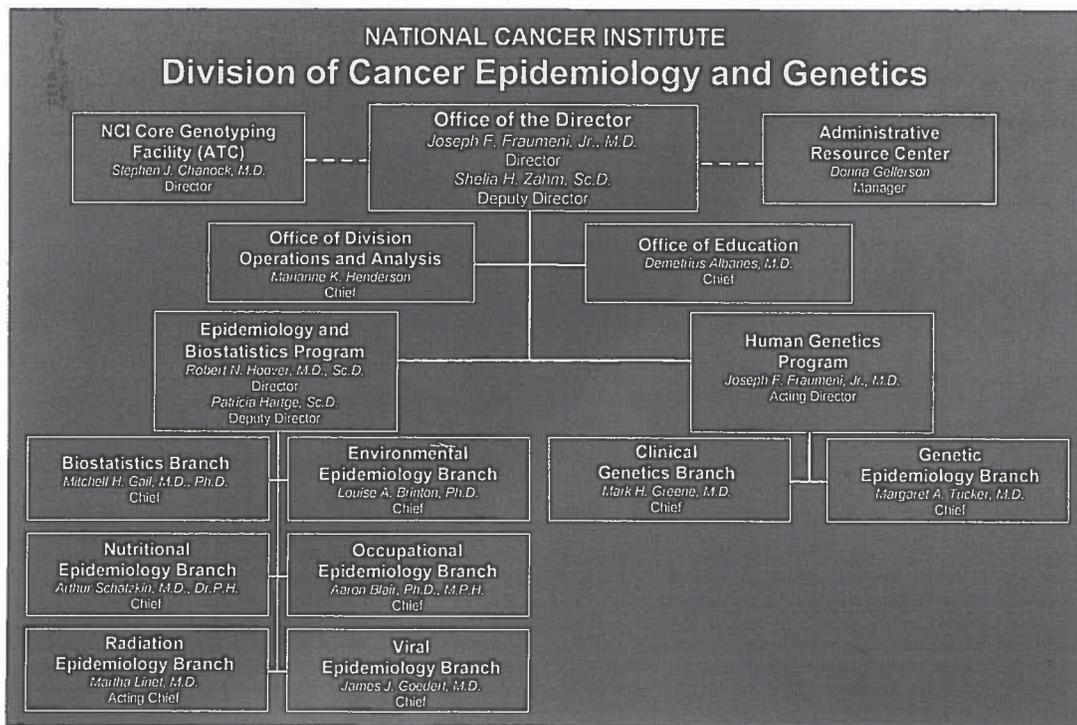
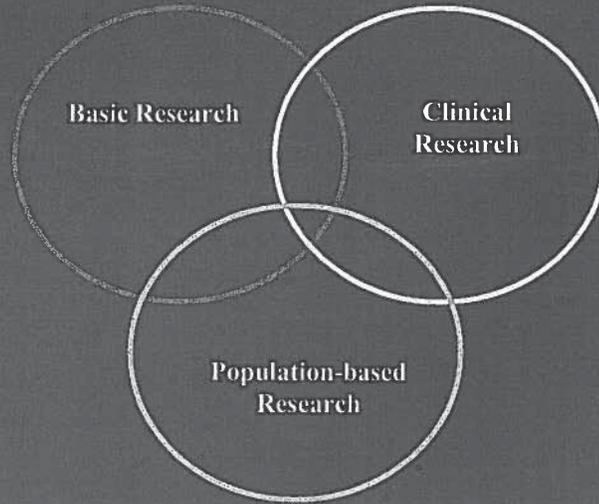
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DEPARTMENT OF HEALTH AND HUMAN SERVICES
NATIONAL INSTITUTES OF HEALTH

Categories of Cancer Causation

		Environment	
		-	+
Genes	-	Spontaneous	Environment
	+	Genes	Interaction

Interdisciplinary Approach to Population-based Research



DCEG Operating Philosophy

- Broad-based high-quality epidemiologic research program in cancer causation that complements extramural activities and supports mission of NCI
- National and international perspective with capacity to investigate natural experiments and respond rapidly to emergent public health concerns and scientific opportunities, to launch long-term studies when needed, and to conduct research that informs clinical decision-making and public policy
- Transdisciplinary approach to population-based research designed to uncover the genetic and environmental determinants of cancer, and the opportunities for preventive interventions

DCEG Operating Philosophy (cont)

- Building infrastructure, resources, and intramural/extramural coalitions for the next generation of epidemiologic studies that integrate genomic and other emerging technologies
- Strengthening postdoctoral and predoctoral fellowship programs that train the next generation of scientists in epidemiology, genetics, and biostatistics

Divisions of Cancer
Epidemiology and
Genetics

NOVEMBER 2002
NUMBER 16

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SHEDDING NEW LIGHT ON RISK FACTORS FOR MELANOMA

Although many of the risk factors for malignant melanoma—the deadliest form of skin cancer—are known, they are not well understood. Recent findings by DCEG researchers are providing new insights into the genetic and environmental factors that increase the risk for the disease. About 10 percent of malignant melanomas occur among persons who have an affected family member. Other known risk factors for melanoma are the presence of atypical moles, total number of moles, skin sensitivity to the sun, freckling, and hair, eye, and skin color.

It has long been known that occurrence of melanoma is higher in southern regions of the United States where sunshine is more intense. However, relating an individual's melanoma risk to his or her sun exposure has been hard to do. The main difficulty has been in determining precisely how much sunlight a person has been exposed to and how much of that exposure is from the midrange, ultraviolet B (UVB) wavelengths that are most closely associated with skin cancer.

A group of DCEG researchers led by Thomas R. Fears, Ph.D., Biostatistics Branch, addressed this problem by devising a new method of estimating a person's lifetime sun exposure based on past residence. In a collaborative study conducted with the University of Penn-

sylvanic Administration study, a person's cumulative intensity of exposure was estimated by adding up the RB counts for each residence location in six-month increments. Average annual intensity was determined by dividing the cumulative intensity by the person's age in years. The study, published in the July 15 issue of *Cancer Research*, revealed that melanoma risk increased with increasing average intensity of UVB exposure: a 10 percent increase in average lifetime intensity was associated with a 19 percent increase in risk of melanoma for males and a 16 percent increase for females.



Dr. Margaret Factor using a Densitometer to Estimate Daylight Intensity