



Teens shown evidence of skin damage from sun exposure, found DMS's Ardis Olson, M.D., were more likely than a control group (59% versus 35%) to say they'd use sunscreen in the future.

## Seeking subtle differences in skin cancer risk

If we can figure out why people get cancer, then we stand a chance of learning how to prevent it," says Dartmouth epidemiologist Margaret Karagas, Ph.D. She investigates the subtle differences that may make people more or less susceptible to certain cancer risk factors. In a recent study, she and her collaborators showed that exposure to radiation increased people's risk of getting two common types of skin cancer. They went on to show that the risk is increased in those exposed to radiation at an early age and those with a sun-sensitive skin type.

**Link:** The first link between radiation and cancer was made in the early 1900s, when it was reported that radiologists working with x-rays developed skin cancer. Since then, it has been well established that radiation is carcinogenic. Of course radiation is still commonly used for diagnostic and treatment purposes, notes Karagas, although the doses are lower than those that early radiologists were exposed to. She explains that radiation is used not only in x-rays and cancer treatments but also in imaging techniques such as fluoroscopy and CT scans.

What are the implications of exposure to these levels of radiation? And are there additional risk factors that make some people more prone to getting skin cancer from radiation? These are some of the questions that Karagas, who is the associate director of Dartmouth's Center for Environmental Health Sciences, has been looking at. Her recent paper was published in the journal *Epidemiology*.

**Cell:** The study examined basal cell and squamous cell carcinomas, the two most common types of skin cancer. With treatment, they are rarely life-threatening, though the ability of squamous cell carcinoma to metastasize makes it slightly more dangerous. Through a collaboration with the New Hampshire Society for Derma-

tology, the researchers collected a wide range of information on over 1,000 people with basal cell carcinoma and over 800 people with squamous cell carcinoma. This information included the individuals' history of radiation exposure and sun exposure, as well as their sun-sensitivity, or tendency to sunburn. The same information was also gathered from a similar collection of control subjects.

**Skin:** The team found a strong association between radiation exposure and basal cell carcinoma—something many previous studies have shown. But the association between radiation exposure and squamous cell carcinoma had not been previously established. In this study, Karagas identified that association primarily in people with a sun-sensitive skin type, as determined by the individual's tendency to sunburn. Subjects who had experienced radiation exposure when they were less than 20 years old also showed an increased risk for both types of skin cancer.

While radiation exposure appears to elevate the risk of getting skin cancer, the benefits of such treatments may well outweigh that risk. So, Karagas emphasizes, "we don't want to scare people off from treatment they need—we just want people to be mindful that there are risks associated with radiation." KRISTEN GARNER

JON GILBERT FOX



Karagas is shining the light of day on skin cancer.

### A raft of results

Ta-Yuan Chang, Ph.D., reported in the *Journal of Biochemistry* that plasma membrane (PM) lipid rafts, cholesterol-rich areas of cell membranes, play a key role in cholesterol metabolism. Scientists knew that mammalian cells synthesize sterols, as well as cholesterol, in the endoplasmic reticulum (ER). Sterols move to the PM, then back to the ER, for processing to cholesterol. But no one understood how. Chang's lab determined that rafts complete cholesterol biosynthesis "by participating in the retrograde movement of precursor sterols back to the ER."



### Coverage for veterans

Medicare data helps VA planners analyze older veterans' use of health-care services, but it's harder to determine where younger VA enrollees get their care or how it's funded. A DMS team used three hospitalization datasets to compare payers for younger and older enrollees and found that most younger vets use private insurance more often than the VA or other coverage. "Veterans of the current Middle East conflict are likely to need extensive care, which will challenge the VA system," the team wrote in *Medical Care*. "Understanding younger veterans' health-care needs, service utilization, and payment options may require synthesizing data from multiple sources."

