

Multiethnic Cohort Update

Did you know that you have been a member of the Multiethnic Cohort Study for more than 12 years? Thank you. Your long-term commitment to our research is helping us in the fight against cancer.

Since the Fall of 2003, approximately 115,000 of you have received our latest Health Research Survey (see accompanying photo of survey and envelope). An additional 85,000 of you will receive the survey by 2007. We have received more than 60,000 completed surveys so far. By 2008, our goal is to receive more than 150,000 surveys, so it is very important that each and every one of you who receives the survey completes it and returns it to us as soon as possible. If you have not returned your survey, a research associate may be calling you to encourage you to do so.

Because of the large number of surveys we receive, they are being optically scanned by a machine that reads your answers and enters them into a computer. The information is then analyzed by the study's researchers.

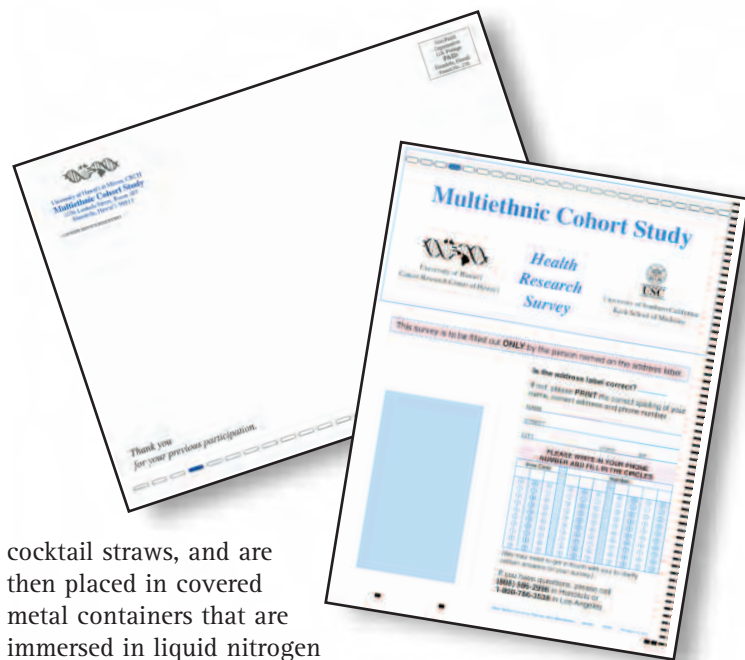
In addition to the survey, blood and urine samples are also being collected from study participants in order to measure substances absorbed from foods or produced in the body, and how that may affect the risk of getting cancer.

To date, approximately 28,660 blood samples have been collected from Hawai'i study participants and another 31,932 blood samples from California study participants. These samples will be collected for another year and a half, and we hope to collect samples from as many as 70,000 total participants.

The blood collected from each participant is then processed in the laboratory. It is separated into its component parts of serum, plasma, white cells, and red cells. The components are injected into very small tubes called cryovials, which look like



Leila Martin places one of the cryovials into a metal container.



cocktail straws, and are then placed in covered metal containers that are immersed in liquid nitrogen at minus 196 degrees centigrade (or minus 321E Fahrenheit) until they are analyzed. The study has more than 1 million cryovials to date.

What makes the Multiethnic Cohort Study unique is its size and diversity. As we may have mentioned before, this study is one of the largest ongoing population studies in the world, representing five major ethnic groups. The information we are gathering from you is enabling our researchers to look for possible links between cancer and nutrition, cancer and other factors such as smoking, and to determine whether genes make people either more or less susceptible to cancer. Please know that your participation is providing researchers with valuable information that will one day save lives. Turn to pages 2 and 3 in this newsletter to learn about the recent findings from the study.

If you have any questions about the study, please call us collect at 1-808-586-2996 in Hawai'i or tollfree at 1-800-786-3538 in California. We thank you for your continued participation. Remember, together, we CAN make a difference. ❖

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IN THE SPOTLIGHT

Nutritionist Suzanne Murphy

One of the key researchers working on the Multiethnic Cohort Study is Suzanne Murphy, Ph.D., R.D., Director of the Nutrition Support Shared Resource at the Cancer Research Center of Hawai'i. Her main role with the study is analyzing the results of the dietary survey that you have completed. She is also directing a special project to find better ways of measuring dietary supplement intake.

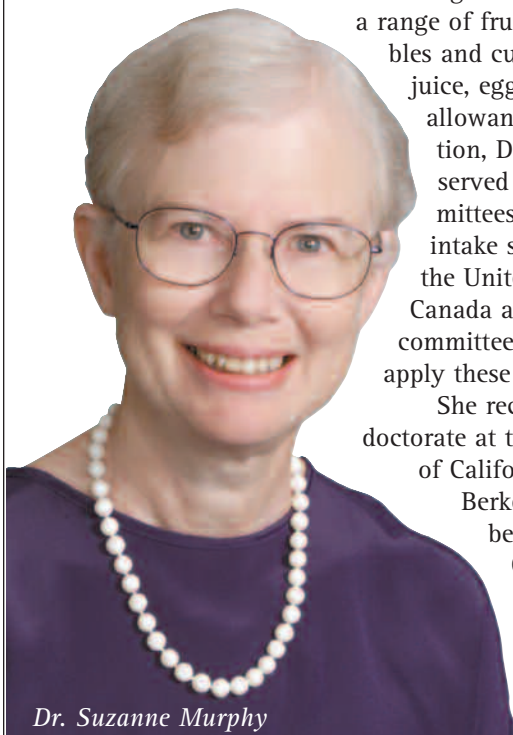
Last November, Dr. Murphy was awarded the *Excellence in Dietary Guidance Award* at the 132nd Annual Meeting of the American Public Health Association (APHA) in Washington, D.C. This national honor recognizes individuals who have made world-class contributions in dietary guidance formulation, research, education, implementation and/or policy change.

More recently, Dr. Murphy was named to the Food and Nutrition Board (FNB) of the Institute of Medicine, which is part of the National Academies of Science. This scientific board studies issues relating to the safety and adequacy of the nation's food supply as well as establishes principles and guidelines for adequate nutrition. The board also appoints committees to evaluate current nutrition policies. She says it is an honor to participate in the decision-making process.

Dr. Murphy's contributions were recently made evident as chair of the FNB committee that recommended major changes for the Special Supplemental Nutrition Program for Women, Infants and Children Program (WIC), which serves nearly 8 million people. The recommended changes include offering

a range of fruits and vegetables and cutting back on juice, egg, and cheese allowances. In addition, Dr. Murphy has served on FNB committees to set nutrient intake standards for the United States and Canada and chaired a committee on how to apply these standards.

She received her doctorate at the University of California at Berkeley and has been at the Cancer Research Center since 1999. ❖



Dr. Suzanne Murphy

<RECENT FINDINGS>

STUDY FINDS Heavy Consumption of Processed Meats Linked to Increased Risk for Pancreatic Cancer

One of the most recent findings to come out of the Multiethnic Cohort Study, which made national news, is that heavy consumption of hot dogs, sausages and luncheon meats, as well as turkey hot dogs and turkey sausage, is linked to an increased risk of developing pancreatic cancer.

"The results suggest that it is not the fat or cholesterol content of these foods but rather that chemical reactions that occur during meat preparation might be responsible for the association with pancreatic cancer," says Ute Nöthlings, Dr. PH., M.S.E., a postdoctoral fellow at the Cancer Research Center of Hawai'i and the study's lead investigator. "Such chemical reactions can produce carcinogens."

Dr. Nöthlings reported the results at the 96th Annual Meeting of the American Association for Cancer Research in Los Angeles, which generated considerable national media coverage. The study examined the relationship of diet to pancreatic cancer among 190,545 men and women representing five ethnic groups in the Multiethnic Cohort Study. An average follow-up of seven years yielded 482 cases of pancreatic cancer.

Some other risk factors for pancreatic cancer have been reported previously in other studies. These include cigarette smoking, a history of diabetes, and a family history of pancreatic cancer. The Multiethnic Cohort Study investigators were able to show that processed meat is an additional risk factor. Persons who ate an average of 40 grams (1 1/2 ounces) of processed meat per day had a 67 percent increase in risk over those who didn't eat as much from this food category. A diet high in pork and red meat also increased pancreatic cancer risk by about 50 percent, compared with Multiethnic Cohort Study participants who ate less of these meats.

"This presents an important piece of evidence that a reduced intake of red meat and processed meat can possibly lower a person's chances of getting the disease," Dr. Nöthlings comments.

Dr. Nöthlings is originally from Germany, where she received her doctorate in public health. Having previously worked in diet and cancer research, she is happy to be working with the Multiethnic Cohort Study. ❖

DID YOU KNOW
...that cancer is the costliest illness in the United States and that economic costs for cancer in 2003 were estimated at \$189.5 billion?

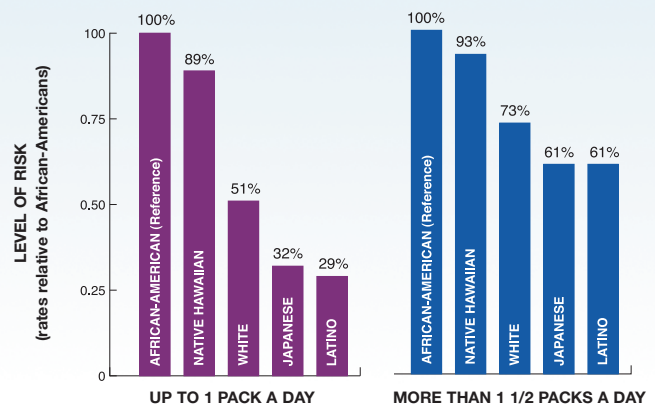
ETHNIC DIFFERENCES in Smoking-Related Lung Cancer Risk

A striking feature of most cancers is the extent to which the rates vary among different ethnic or racial populations. Lung cancer is a good example. Rates of lung cancer are twice as high in African-American and Native Hawaiian men as in Japanese-American and Latino men (Figure 1). Since cigarette smoking is known to be the major cause of lung cancer, the most obvious explanation for this difference is that African-American and Native Hawaiian men smoke more than the other two groups. However, another possibility is that African-Americans and Native Hawaiians get more lung cancer because they are more susceptible than the other groups to the effects of carcinogens (cancer-causing substances) in cigarette smoke. The Multiethnic Cohort (MEC) study provided researchers with an opportunity to examine this possibility.

Using information on smoking from the extensive questionnaire that MEC participants filled out when they joined the study, investigators were able to

FIGURE 2
Risk of Lung Cancer
by Smoking Level Among
Men in Different Ethnic
Groups Relative to
African-Americans

For example, for up to 1 pack a day, Latino men are at 29% of the risk of African-Americans, while for more than 1 1/2 packs a day Latino men are 61% of the risk of African-Americans.



compare the rates of lung cancer among the five racial/ethnic groups in the cohort at different levels of smoking. What they found was most revealing. Of course for each ethnic group, the rates of lung cancer increased at higher levels of smoking and were the lowest for non-smokers. However, for smoking levels up to 20 cigarettes a day (1 pack), African-American and Native Hawaiian men were at much higher risk of getting lung cancer than men of the other groups (Figure 2). As the chart shows, at levels of smoking up to 1 pack a day, the rates of lung cancer were distinctly lower in the Japanese-American, Latino and white men than African American men (as a reference), but as the level of smoking increased to 1 1/2 packs a day or more, these differences among the groups were marginal. Although the data shown in the chart are for men, the very same

thing was found for women.

Furthermore, the findings were the same no matter which type of lung cancer a person developed (there are different forms of lung cancer, depending on which cells in the lung are affected).

What these results suggest is that there are indeed differences among ethnic groups in their susceptibility to the carcinogenic effects of cigarette smoke, provided that the level of exposure is not too great. But, when the exposure is unusually high (above 30 cigarettes a day), all groups are at roughly the same risk. The basis for the relative protection in the Japanese-American, Latino and white groups at lower levels of smoking probably involves the genes responsible for the body's metabolism (processing) of the carcinogens in tobacco smoke, in order to get rid of them. These genes

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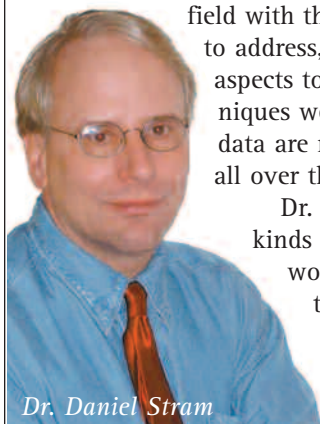
IN THE SPOTLIGHT

Biostatistician Daniel Stram

As a biostatistician, Daniel O. Stram, Ph.D.'s first project with the Multiethnic Cohort Study was determining how well the questionnaires were measuring diet. He is involved in developing statistical methodology that is used to analyze the data from the study.

Dr. Stram believes the study is going very well. "In many ways, the Multiethnic Cohort Study is leading the field with the kind of problems we are starting to address," he says. "One of the most exciting aspects to me is the realization that the techniques we have developed to analyze our data are now being used by other scientists all over the country as well as the world."

Dr. Stram has worked on many different kinds of projects, but he most enjoys working on the epidemiology of important diseases. "The reason I like it so much is because the statistical problems are so challenging," Dr. Stram explains.



Dr. Daniel Stram

"There are so many ways to make a mistake when analyzing these kinds of complex data, so that getting it right, and having that be recognized by other experts in the field, is always rewarding," he continues.

Originally from Philadelphia, he received his undergraduate degree in mathematics at Tufts University in Boston and doctorate in statistics from Temple University in Philadelphia. He has worked at Princeton University and Harvard University. His background also includes working for three years in Hiroshima, Japan on a joint Japanese and American research study of the health of the atomic bomb survivors. Dr. Stram moved to California in 1990 and became a tenured professor in the Department of Preventive Medicine at the University of Southern California's Keck School of Medicine in 2004.

Dr. Stram has served on the Board of Radiation Effects Research of the National Academies of Science for two three-year terms and is presently a member of the Committee on an Assessment of Centers for Disease Control and Prevention Radiation Studies of the National Academies of Science. Since 1995, he has authored or coauthored some 20 papers that are related to the Multiethnic Cohort Study. ❖



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RECIPE FOR HEALTHY LIVING

**RAINBOW SALSA
 WITH PITA WEDGES**

This recipe was the third place winner in the Hawaii Medical Service Association's 5 A Day Recipe Contest 2005.

Nutrition analysis

Serves 12

5 oz. serving of salsa with 8 pita wedges provides:

Calories 120

Fat Calories 25 (19% fat)

% Daily Value*

Dietary Fiber	3g
Sodium	450mg
Serving of veg/fruit	1
Vitamin C	15%
Vitamin A	10%
Iron	8%
Calcium	4%

**Percent Daily Values are based on a 2,000 calorie diet.*

Ingredients:

5 cup seeded, medium diced roma tomatoes	1/2 cup chopped cilantro
1/3 cup small diced white onions	1 1/2 tsp. lemon juice
1 cup medium diced avocado (medium firmness)	1/4 tsp. sambal olek (chili garlic paste, optional or substituted with a Mexican chili powder)
1 cup canned, drained black beans	1 1/2 tsp. kosher salt
1 cup canned, drained corn	black pepper to taste
1 Tbsp. minced garlic	4 pita breads (6.5" diameter)

Salsa:

Sprinkle 1/4 teaspoon of salt on the chopped tomatoes and let sit for 5–10 minutes to drain excess liquid. Drizzle lemon juice to lightly coat the avocado pieces to prevent browning. Gently mix the tomatoes, onions, beans, corn, and cilantro together and then mix in the avocado. Add the sambal olek, remaining salt, and black pepper to the mixture. The amount of sambal olek and black pepper can be increased or reduced according to taste. Chill and refrigerate until ready to serve.

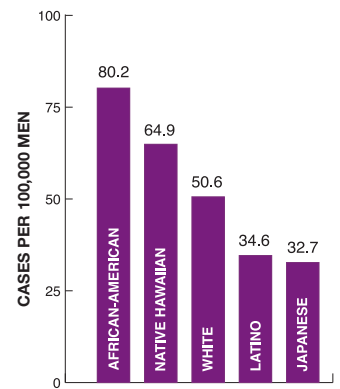
Pita Wedges:

Preheat oven to 350 degrees. Split the pita bread into two circular pieces. Cut each circular piece into 12 wedges (each pita makes 24 wedges). Place one layer of pita wedges on a pan and toast in the oven for 15–20 minutes. Serve as an accompaniment to the salsa.

Ethnic Differences in Smoking-Related Lung Cancer Risk

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FIGURE 1
 Lung Cancer Rates Among Men by Ethnicity



come in different forms (variants) that can be more, or less, effective in what they do. Individuals vary in which of these variants they inherit, and racial/ethnic groups vary in which of the variants are more common in their populations. Scientists are continuing to study such differences in the hope that someday it can be understood why cancer develops in some individuals, and not in others. ❖