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13. Abstract (Maximum 200 Words) (abstract should contain no proprietary or confidential information)
 Dietary fat and cooking practices, such as overcooking of meats that can lead to the formation of heterocyclic amines (HAAs) and polycyclic aromatics hydrocarbons (PAHs), differ by racial groups and culture. The project is a case control study designed to assess the role of dietary fat, cholesterol, cooking practices (e.g., of fatty foods that would increase HAAs and PAHs), smoking, and alcohol consumption as risk factors for breast cancer among African-American women in Washington, DC. The primary goal of the project is to identify non-hormonal dietary risk and genetic susceptibility factors for breast cancer in African-American women. To date, a total of 97 breast cancer cases and 96 controls have completed the study. The conditional response rate is 44% for cases and 13% for controls. The refusal rate is 11% for cases and 10% for controls. Preliminary analysis has revealed that in this sample of African-American women there is a dose response relationship between alcohol use and breast cancer risk. In addition, genotype analysis of NAT has revealed consistent findings with current literature. The African-American women were more often slow acetylators than rapid or intermediate. Mutagen sensitivity suggests an association between chromosomal radiosensitivity and risk of breast cancer.

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Introduction

Dietary fat and cooking practices, such as overcooking of meats that can lead to the formation of heterocyclic amines (HAAs) and polycyclic aromatic hydrocarbons (PAHs), differ by racial groups and culture. The project initially will assess the role of dietary fat, cholesterol, cooking practices (i.e., of fatty foods that would increase HAAs and PAHs), smoking, and alcohol consumption as risk factors for breast cancer. The primary goal of the project is to identify non-hormonal dietary risk and genetic susceptibility factors for breast cancer in African-American women. Specifically, the hypotheses that these are risk factors mediated by host capacity for metabolism will be tested. The study design also will allow the testing of new hypotheses as they emerge. A case-control study of breast cancer incident cases and controls will be conducted on African-American women in Washington, D.C. Genetic variation in apolipoproteins (Apo E, Apo A, Apo B), N-acetyl transferase (NAT 1 and NAT 2), Cytochrome P₄₅₀ (CYPIA1), Glutathione-S-transferase M1 (GSTM1), and alcohol dehydrogease (ADH2 and ADH3) will be determined. Odds ratios and logistic regression will be used to evaluate the association of genetic polymorphisms and dietary factors as risk factors for breast cancer. Also examined will be the effect modification for known breast cancer risk factors by these genetic polymorphisms.

Body

Task 1. Start-up phase and plan development (Month 1-4), has been completed.

✓ **Recruit staff**

A research associate was hired and three pre-doctoral students also were assigned to assist in identifying study participants and conduct interviews. Enrollment of study participants increased due to their inclusion.

✓ **Develop survey instruments.**

An eligibility survey has been developed to screen and identify potential cases and controls. This survey addresses specific criteria which assist in determining if a woman should be included as a study participant. (Appendix A)

HAAs and epidemiology questionnaires have been developed and piloted among African-American women. The HAAs questionnaire is a 138-question survey designed to assess the role of dietary fat, cholesterol, cooking practices, and alcohol consumption in relation to breast cancer risk. The questions are designed to query each participant about their usual diet over the past year. In addition, several questions are asked to examine how often and how much certain foods are eaten. (Appendix B)

An eighty-questionnaire survey has been designed to examine different demographic characteristics and lifestyles. The areas addressed in the questionnaire are: general vital statistics (e.g., age, race, marital status, education, health insurance, and household income), medical history, menstrual and reproductive history, medication history, family history, tobacco history, nicotine dependence, alcohol history, and physical activity. (Appendix C)

In addition, a standardized protocol of research guidelines and procedures has been developed for study personnel. The manual of operation describes in detail step by step procedures for each phase of the project. The areas addressed are as follows: selection process for cases and controls, study procedures, data analysis, acronym and symbol definition for specific terms used in the study, consent forms and questionnaires to be used for this study. This procedure manual was designed to assist in standardizing study procedures (e.g., recruitment, interviewing, phlebotomy, processing of biological samples and data collection).

✓ **Obtain control lists from Health Care Finance Administration and the Department of Motor Vehicles**

A Voters' Registration list has been obtained and is being used to randomly select female population-based controls. The list of controls to be recruited will be randomly generated via the computer and matched by age (within one year) and zip codes to cases. This process has been more labor intensive than originally anticipated. One problem has been the format in downloading the tape to a diskette. The list was on a 9-track tape which had to be downloaded to several diskettes using specific equipment. Once the data was on a diskette it was uploaded to Excel and formatted. In order to randomly generate a list of names the data had to be uploaded to a statistical program, (i.e., SPSS). The data is write-protected therefore, the list generated from the computer cannot be saved to a diskette. Thus, hard copies have been obtained. In addition, there are no gender or race variables in the database. Therefore, once the computer generates a list of random names, all female names must be manually identified and each individual contacted by telephone.

The Health Care Finance Administration list currently is not being used because the majority of breast cancer cases seen at Howard University Hospital (HUH) are women under the age of 40.

Task 2. Subject recruitment and data collection (Month 5-30), had been completed.

✓ **Identify and recruit subjects into the study**

During year 3, a total of 193 women have been enrolled and completed all aspects of the study (97 breast cancer cases and 96 controls). In the original grant the statistical calculation for the population size was 119 per group for a 1:1 matched case-control study. The sample size was based on the following parameters: alpha = 0.05, power = 0.8 and a relative risk of 2.0 for breast cancer assuming that 50% of the population would be NAT2 rapid acetylators and 50% would have high exposure to HAAs. At the rate of accrual in conjunction with a no cost extension, we expected to at least meet the goal of 80% power resulting in 119 per group .

✓ **Perform genotyping analysis
N-acetyltransferases**

Heterocyclic amines found in well done meat require host-mediated metabolic activation before initiating DNA mutations and tumors in target organs. N-acetyltransferases catalyze the activation of heterocyclic amine carcinogens and are subject to genetic polymorphism. The NAT1 and NAT2 polymorphisms are very common in the human population, and individuals can be divided into rapid, intermediate and slow acetylator phenotypes. Studies of NAT1 and NAT2 polymorphisms are based

on the rationale that there are heritable variations in one's ability to balance the activation and detoxification pathways involved in removing xenobiotic compounds from the body. Studies have shown that the NAT1 and NAT2 rapid acetylators phenotypes are associated with breast cancer risk or advanced disease at first presentation.

NAT2 (m1, m2 and m3) polymorphisms were genotyped using PCR based RFLP assays. Three different fragment sizes created were 222, 207 and 138 respectively for the M1, M2 and M3. The PCR conditions are as follows: 100 ng of genomic DNA in a 50 ul reaction containing 20 mM Tris-HCl (pH 8.3), 40 mM KCl, 2.0 mM MgCl₂, 1.875 mM each dATP, dCTP, dGTP and dTTP; {M1- 15 pmol forward primer: 5'- atttctgcttgacagaagagaga-3', 15 pmol reverse primer: 5'-aaaatgatgtgggtataaatga-3'}, {M2- 15 pmol forward primer: 5'-tgcttgacagaagagagaggaa-3', 15 pmol reverse primer: 5'-ggttataaatgaagatgttgagac-3'}, {M3- 15 pmol forward primer: 5'-agatttcttggggagaaat-3', 15 pmol reverse primer: 5'-aaatctctgcccacc-3'}. 0.25 U of Amplitaq polymerase was used to catalyze the reaction, and cycling conditions as follows: initial denaturation for 5 minutes at 95° C, followed by 35 cycles of 94°C for 1 minute, 51°C for 1 minute, 72°C for 1 minute, and a final extension at 72°C for 10 minutes. Upon completion of the PCR reaction, the M1 product was digested with 2 units of KPN1 at 37°C for 12 hours to create a new restriction site where the rapid acetylating genotype had fragments at 187 and 35. The normal genotype had no digestion (fragment size of 222). For the M2 amplicon, 2 units of BamH1 at 37°C for 12 hours created a new restriction site at 112 and 95 bp for the rapid genotype and for the M3 allele, the PCR product was cut with 2 units of α-Taq1 at 65°C for 12 hours where the rapid genotype had fragment sizes of 95 and 43 bp, and the uncut fragment (138 bp) was the slow acetylating genotype. All digested products were run on 3% metaphor gels for higher resolution.

Table 1. NAT2, Polymorphisms in African-Americans

	<u>CASES</u>				<u>CONTROLS</u>			
	M1	M2	M3	NAT1 190	M1	M2	M3	NAT1 190
MM	16%	11%	2%	1%	7%	10%	5%	0%
MW	51%	53%	28%	9%	62%	45%	40%	7%
WW	33%	36%	70%	90%	31%	45%	55%	93%

**MM- rapid, MW- Intermediate, WW- Slow acetylator

The African-American women were more often slow acetylators than rapid or intermediate. Overall, no statistical significance was observed for any of the alleles (M1, M2, M3 and NAT1 190) when the cases were compared to the controls.

Mutagen sensitivity

African American women have the highest rates of mortality from breast cancer vs. any other ethnic group in the US. Factors contributing to their breast cancer development are not completely understood. Recent studies suggest that late diagnosis in African American women as one of several reasons for lower survival rate. Studying and testing biomarkers on ethnically classified cohort of women would have great significance in understanding breast cancer development and their early

reasons for lower survival rate. Studying and testing biomarkers on ethnically classified cohort of women would have great significance in understanding breast cancer development and their early detection. Relevant to this, we are performing a case-control study to determine whether radiation induced chromosomal breaks correlates with the risk of having breast cancer in African American women and if it could be used as biomarker.

A G₂-phase chromosomal radio-sensitivity assay (mutagen sensitivity assay) was performed on peripheral blood lymphocytes obtained from 45 cases and 42 controls. One ml of whole blood was cultured in 9 ml of blood media and exposed to 1 Gy of γ -radiation from a ¹³⁷Cs irradiator at 67 h post-stimulation. Followed by an additional 4 h of incubation, the cultures were treated with colcemid for 1 h to arrest the cells in metaphase. A minimum of 50 metaphase spreads was analyzed and frank chromatid breaks per cell were recorded. Mann-Whitney U test was used to compare cases and controls with α set at 0.05. Breast cancer cases had a significantly higher number of γ -radiation-induced chromatid breaks per cell compared to controls, with mean values of 0.35 (SD = 0.14) vs. 0.28 (SD= 0.13), respectively ($p = 0.03$). Categorization based on age at diagnosis, menarche, menopausal status, alcohol consumption and smoking appeared to influence radio-sensitivity significantly. Women diagnosed with breast cancer below 59 y had a higher number of breaks than controls ($p= 0.004$). Cases who had attained menarche between 10-12 years showed statistically higher number of breaks compared to controls ($p = 0.05$). Premenopausal women appeared to be more radiosensitive ($p = 0.03$) while for postmenopausal women no difference was observed. Mutagen sensitivity was significantly higher among cases who were currently smokers compared to current smokers among controls ($p = 0.03$). Breast cancer women with a history of alcohol consumption had a significantly higher number of mean breaks per cell than controls with similar history ($p = 0.04$). Grouping based on family history of breast cancer and other cancers did not show significant difference in radio-sensitivity.

These preliminary data suggest an association between chromosomal radio-sensitivity and risk of breast cancer in African American women. A larger study however, is needed to validate the use of radiation induced chromosomal sensitivity as a valid biomarker in this ethnic group.

✓ **Perform cholesterol analysis**

The samples are currently being assayed for lipid profile.

✓ **Collect epidemiological data**

A total of 193 women have completed the study (cases n=96 and controls n=97). An additional 46 women are being scheduled to meet the 119 per group to achieve 80% power.

Task 3. Interim analysis (Month 6-33), is ongoing.

✓ **Preliminary data**

An epidemiological database has been developed using ACCESS. The statistical package being used to analyze the data include SPSS.

The genotype data is currently being analyzed.

Task 4, Final analysis, report writing, and presentation.

✓ **Data analyses**

The epidemiologic data is currently being analyzed.

The nutrition data is in the process of being entered.

Preliminary analysis has been conducted on the genotyping data. For details please see the section entitled "Performing genotyping analysis".

✓ **Manuscript preparation**

The following list are highlights of anticipated manuscripts.

- Alcohol and breast cancer risk in African-American women
- Physical activity and breast cancer among African-American women
- Nicotine dependence and breast cancer among African-American women
- Assessment of dietary fat and cooking practices among African-American women with breast cancer
- Differences in cooking practices and physical activity as it relates to breast cancer
- Dietary fat, plasma lipids and breast cancer in African-American women

✓ **Communicate results in peer-reviewed journals and at scientific meetings**

It is anticipated that submission of papers will begin as early as January 2003.

KEY RESEARCH ACCOMPLISHMENTS

- Establishment of African-American molecular epidemiology cohort of breast cancer cases and controls
- 81% of our cases ascertained
- Cynthia Tucker conducted the dietary fat, plasma lipids and breast cancer assessment among the group of African-American women. This assessment will result in her receiving her Ph.D. in May, 2003.

REPORTABLE OUTCOMES

Carter-Nolan, PL Tucker, C, Adams-Campbell, LL. *Alcohol and Breast Cancer Risk in African American Women*. Department of Defense Breast Cancer Research Program - Era of Hope, 2002.

Adams-Campbell LL, Agurs-Collins T, Gaskins M, Carter-Nolan PL, Dunston G. *Diet, genetic polymorphisms and breast cancer in African-Americans*. Department of Defense Breast Cancer Research Program - Era of Hope, 2000.

Natarajan, TG, Shields PG, Carter-Nolan, PL, Tucker C. and Adams-Campbell, LL.
Mutagen sensitivity as predictor of breast cancer risk: a study in African-American women.
Submitted: American Association of Cancer Research Annual Meeting, 2003.

CONCLUSIONS

Preliminary analysis has revealed that in this sample of African-American women there is a dose response relationship (e.g., longer exposure time=increased risk) between alcohol use and breast cancer risk. In addition, women who drank for ten or fewer years, women who with a ten year or greater history of alcohol use had a three fold increased risk of developing breast cancer.

Preliminary genotype analysis of NAT has revealed consistent findings with current literature. The African-American women were more often slow acetylators than rapid or intermediate. In addition, preliminary assessment of the mutagen sensitivity suggests an association between chromosomal radiosensitivity and risk of breast cancer in African-American women.

The main conclusion of the study is that sufficient preliminary data has been established for a larger-scaled study to be conducted. Specifically, a larger study is needed to validate the use of radiation induced chromosomal sensitivity as a valid biomarker and to further investigate the dietary habits (intake of well done meats), breast cancer status and analysis based on NAT genotype stratification among African-American women

REFERENCES

None at this time.

APPENDICES
Appendix A
Eligibility Survey

DIET, GENETIC POLYMORPHISMS AND BREAST CANCER IN AFRICAN-AMERICAN WOMEN

Eligibility Survey for CASES

Name: _____

Address: _____

Telephone Number: (____) _____-_____

1) What is your race/ethnicity?

- | | |
|--|---|
| <input type="checkbox"/> Black or African-American | <input type="checkbox"/> American Indian/Alaskan Native |
| <input type="checkbox"/> White | <input type="checkbox"/> Asian/Pacific Islander |
| <input type="checkbox"/> Latina | <input type="checkbox"/> Other : _____ |

2) What is your date of birth: ____/____/____ age: ____

- | | YES | NO |
|--|--|--|
| 3) Were you diagnosed with breast cancer within the past 6 months? | <input type="checkbox"/> | <input type="checkbox"/> |
| 4) Were you born in the United States? | <input type="checkbox"/> | <input type="checkbox"/> |
| 5) Do you live in Washington, D.C.? | <input type="checkbox"/> | <input type="checkbox"/> |
| 6) Is English your first language?
<i>If no, are you fluent in English?</i> | <input type="checkbox"/>
<input type="checkbox"/> | <input type="checkbox"/>
<input type="checkbox"/> |
| 7) Do you currently live in a private home or apartment? | <input type="checkbox"/> | <input type="checkbox"/> |
| 8) Do you have a working telephone in your home? | <input type="checkbox"/> | <input type="checkbox"/> |

- | | | YES | NO |
|-----|--|--------------------------|--------------------------|
| 9) | Do you feel you are physically and mentally capable of being interviewed? | <input type="checkbox"/> | <input type="checkbox"/> |
| 10) | Are you able to agree (consent) to participate in this particular project? | <input type="checkbox"/> | <input type="checkbox"/> |
| 11) | Has a doctor or other health care provider told you that you have HIV or Hepatitis B or C? | <input type="checkbox"/> | <input type="checkbox"/> |
| 12) | Have you ever been interviewed for this study? | <input type="checkbox"/> | <input type="checkbox"/> |

Eligibility Status: Eligible, agree to participate -----> *Date of visit:* ___/___/___

Eligible, refuse to participate

Ineligible

Appendix B
HAAs Questionnaire

DIET AND CANCER IN AFRICAN-AMERICAN WOMEN

FOOD FREQUENCY QUESTIONNAIRE

HOWARD UNIVERSITY CANCER CENTER

NATIONAL CANCER INSTITUTE

Respondent ID number: _____

Today's date: _____ / _____ / _____

Interviewer ID: _____

Start time: _____ / _____ am..... 1
 HR MIN pm..... 2

End time: _____ / _____ am..... 1
 HR MIN pm..... 2

READ TO RESPONDENT:

Thank you for participating in our study. Your participation is very important to our research.

The interview that we will conduct today will examine your usual diet over the past year. It will involve several questions about how often and how much you eat certain foods. You will use these cards and food models (SHOW CARDS AND FOOD MODELS) to help answer some of the questions. There are no right or wrong answers. Whatever you report is fine. All your answers are confidential and will be used for research purposes only. The interview will take approximately 1 hour to complete.

Do you have any questions before we begin?

Throughout this interview I will ask you how often you ate certain foods in the past year. Please respond using the categories listed on this card (SHOW CARD 1).

A. How often did you eat (FOOD) in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO NEXT FOOD ITEM.

B. Each time, did you usually eat (READ PORTION SIZE CHOICES FOR THE FOOD ITEM)?

FOOD	NEVER	A FEW	2-3		3-4		5-6	EVERY	2+	PORTION SIZE EACH TIME	
		TIMES PER YR	1 PER MON	PER MON	1 PER WK	2 PER WK	PER WK		PER WK		PER DAY
1. Raw peaches, apricots or nectarines, while in season	00	01	02	03	04	05	06	07	08	09	1/2..... 1 1..... 2 2..... 3 3..... 4
2. Cantaloupe, while in season	00	01	02	03	04	05	06	07	08	09	1/8..... 1 1/4..... 2 1/2..... 3 1..... 4
3. Strawberries, while in season	00	01	02	03	04	05	06	07	08	09	SHOW SERVING SIZE CARD the amount in picture . . . A (1/4 c)..... 1 B (1/2 c)..... 2 C (1 c)..... 3 D (2 c)..... 4
4. Watermelon, while in season	00	01	02	03	04	05	06	07	08	09	SHOW SERVING SIZE CARD the amount in picture . . . A (1/4 c)..... 1 B (1/2 c)..... 2 C (1 c)..... 3 D (2 c)..... 4
5. Any other fruit, while in season, like grapes, honeydew, pineapple or kiwi	00	01	02	03	04	05	06	07	08	09	SHOW SERVING SIZE CARD the amount in picture . . . A (1/4 c)..... 1 B (1/2 c)..... 2 C (1 c)..... 3 D (2 c)..... 4
6. Bananas, all year round	00	01	02	03	04	05	06	07	08	09	1/2..... 1 1..... 2 2..... 3 3..... 4
7. Apples or pears, all year round	00	01	02	03	04	05	06	07	08	09	1/2..... 1 1..... 2 2..... 3 3..... 4
8. Oranges or tangerines, all year round	00	01	02	03	04	05	06	07	08	09	1/2..... 1 1..... 2 2..... 3 3..... 4

A. How often did you eat (FOOD) in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO
NEXT FOOD ITEM.

B. Each time, did you usually eat (READ PORTION SIZE CHOICES FOR THE FOOD ITEM)?

FOOD	NEVER	A FEW	2-3		3-4		5-6		EVERY DAY	2+ PER DAY	PORTION SIZE EACH TIME
		TIMES PER YR	1 PER MON	PER MON	1 PER WK	2 PER WK	PER WK	PER WK			
9. Grapefruit, <u>all year round</u>	00	01	02	03	04	05	06	07	08	09	1/2..... 1 1..... 2 2..... 3 3..... 4
10. Canned fruit like applesauce, fruit cocktail or dried fruit like raisins, <u>all year round</u>	00	01	02	03	04	05	06	07	08	09	SHOW SERVING SIZE CARD the amount in picture . . . A (1/4 c)..... 1 B (1/2 c)..... 2 C (1 c)..... 3 D (2 c)..... 4
11. Eggs, including egg biscuits or Egg McMuffins (not egg substitutes)	00	01	02	03	04	05	06	07	08	09	1 egg..... 1 2 eggs..... 2 3 eggs..... 3 4 eggs..... 4
12. Pancakes, waffles, French toast or Pop Tarts	00	01	02	03	04	05	06	07	08	09	1 pc..... 1 2 pc..... 2 3 pc..... 3 4 pc..... 4
13. Breakfast bars, granola bars or Power bars	00	01	02	03	04	05	06	07	08	09	1 bar..... 1 2 bars..... 2 3 bars..... 3 4 bars..... 4

A. How often did you eat (FOOD) in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO NEXT FOOD ITEM.

B. Each time, did you usually eat (READ PORTION SIZE CHOICES FOR THE FOOD ITEM)?

FOOD	NEVER	A FEW	2-3		1 PER WK	2 PER WK	3-4 PER WK	5-6 PER WK	EVERY DAY	2+ PER DAY	PORTION SIZE EACH TIME
		TIMES PER YR	1 PER MON	PER MON							
14. Cooked cereals like oatmeal, cream of wheat or grits	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>B (1/2 c)..... 1</p> <p>C (1 c)..... 2</p> <p>D (2 c)..... 3</p>
15. High-fiber cereals like All Bran, Raisin Bran or Fruit-n-Fiber	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>B (1/2 c)..... 1</p> <p>C (1 c)..... 2</p> <p>D (2 c)..... 3</p>

15a. IF RESPONSE TO FOOD ITEM 15 IS NEVER, CIRCLE 00 AND GO TO FOOD ITEM 16.

Which high-fiber cereal do you eat most often? (READ CHOICES TO RESPONDENT)

- All Bran or Bran Buds, 1
- Raisin Bran, 2
- Fiber One, Fruit-n-Fiber, etc. or 3
- Something Else? 6
- DK 8

FOOD	NEVER	A FEW	2-3		1 PER WK	2 PER WK	3-4 PER WK	5-6 PER WK	EVERY DAY	2+ PER DAY	PORTION SIZE EACH TIME
		TIMES PER YR	1 PER MON	PER MON							
16. Product 19, Just Right or Total cereal	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>B (1/2 c)..... 1</p> <p>C (1 c)..... 2</p> <p>D (2 c)..... 3</p>
17. Any other cold cereal, like Corn Flakes, Cheerios or Special K	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>B (1/2 c)..... 1</p> <p>C (1 c)..... 2</p> <p>D (2 c)..... 3</p>
18. Milk or milk substitutes on cereal	00	01	02	03	04	05	06	07	08	09	<p>SHOW FOOD MODEL</p> <p>3 oz..... 1</p> <p>4-5 oz..... 2</p> <p>6-7 oz..... 3</p> <p>8+ oz..... 4</p>

A. How often did you eat (FOOD) in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO NEXT FOOD ITEM.

B. Each time, did you usually eat (READ PORTION SIZE CHOICES FOR THE FOOD ITEM)?

FOOD	NEVER	A FEW	2-3	3-4	5-6	2+	PORTION SIZE EACH TIME				
		TIMES PER YR	1 PER MON	1 PER MON	2 PER WK	2 PER WK		PER WK	PER WK	EVERY DAY	PER DAY
19. Yogurt or frozen yogurt	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A (1/4 c)..... 1</p> <p>B (1/2 c)..... 2</p> <p>C (1 c)..... 3</p> <p>D (2 c)..... 4</p>
20. Cheese, sliced cheese or cheese spread, including on sandwiches	00	01	02	03	04	05	06	07	08	09	<p>1 sl..... 1</p> <p>2 sl..... 2</p> <p>3 sl..... 3</p> <p>4 sl..... 4</p>

20a. IF RESPONSE TO FOOD ITEM 20 IS NEVER, CIRCLE 00 AND GO TO FOOD ITEM 21.

When you eat cheese, is it . . .

- Usually low-fat..... 1
- Sometimes low-fat or..... 2
- Hardly ever low-fat? 3
- DK 8

How often did you eat the following vegetables, including fresh, frozen, canned or stir-fried, eaten at home or in a restaurant?

A. How often did you eat (FOOD) in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO NEXT FOOD ITEM.

B. Each time, did you usually eat (READ PORTION SIZE CHOICES FOR THE FOOD ITEM)?

FOOD	NEVER	A FEW	2-3	3-4	5-6	2+	PORTION SIZE EACH TIME				
		TIMES PER YR	1 PER MON	1 PER MON	2 PER WK	2 PER WK		PER WK	PER WK	EVERY DAY	PER DAY
21. Broccoli	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A (1/4 c)..... 1</p> <p>B (1/2 c)..... 2</p> <p>C (1 c)..... 3</p> <p>D (2 c)..... 4</p>

A. How often did you eat (FOOD) in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO NEXT FOOD ITEM.

B. Each time, did you usually eat (READ PORTION SIZE CHOICES FOR THE FOOD ITEM)?

FOOD	NEVER	A FEW	2-3		3-4		5-6		EVERY DAY	2+ PER DAY	PORTION SIZE EACH TIME
		TIMES PER YR	1 PER MON	PER MON	1 PER WK	2 PER WK	PER WK	PER WK			
22. Carrots, or mixed vegetables or stews containing carrots	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A (1/4 c)..... 1</p> <p>B (1/2 c)..... 2</p> <p>C (1 c)..... 3</p> <p>D (2 c)..... 4</p>
23. Corn	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A (1/4 c)..... 1</p> <p>B (1/2 c)..... 2</p> <p>C (1 c)..... 3</p> <p>D (2 c)..... 4</p>
24. Green beans or green peas	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A (1/4 c)..... 1</p> <p>B (1/2 c)..... 2</p> <p>C (1 c)..... 3</p> <p>D (2 c)..... 4</p>
25. Spinach	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A (1/4 c)..... 1</p> <p>B (1/2 c)..... 2</p> <p>C (1 c)..... 3</p> <p>D (2 c)..... 4</p>
26. Mustard greens, turnip greens or collards	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A (1/4 c)..... 1</p> <p>B (1/2 c)..... 2</p> <p>C (1 c)..... 3</p> <p>D (2 c)..... 4</p>
27. French fries, fried potatoes or hash brown	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A (1/4 c)..... 1</p> <p>B (1/2 c)..... 2</p> <p>C (1 c)..... 3</p> <p>D (2 c)..... 4</p>

A. How often did you eat (FOOD) in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO NEXT FOOD ITEM.

B. Each time, did you usually eat (READ PORTION SIZE CHOICES FOR THE FOOD ITEM)?

FOOD	NEVER	A FEW	2-3		3-4		5-6		EVERY	2+	PORTION SIZE EACH TIME
		TIMES PER YR	1 PER MON	PER MON	1 PER WK	2 PER WK	PER WK	PER WK			
28. White potatoes not fried, incl. boiled, baked, mashed and potato salad	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A (1/4 c)..... 1</p> <p>B (1/2 c)..... 2</p> <p>C (1 c)..... 3</p> <p>D (2 c)..... 4</p>
29. Sweet potatoes or yams (Not in pie)	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A (1/4 c)..... 1</p> <p>B (1/2 c)..... 2</p> <p>C (1 c)..... 3</p> <p>D (2 c)..... 4</p>
30. Cole slaw or cabbage	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A (1/4 c)..... 1</p> <p>B (1/2 c)..... 2</p> <p>C (1 c)..... 3</p> <p>D (2 c)..... 4</p>
31. Green salad	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A (1/4 c)..... 1</p> <p>B (1/2 c)..... 2</p> <p>C (1 c)..... 3</p> <p>D (2 c)..... 4</p>
32. Raw tomatoes, including those in salad	00	01	02	03	04	05	06	07	08	09	<p>1/4..... 1</p> <p>1/2..... 2</p> <p>1..... 3</p> <p>2..... 4</p>
33. Salad dressing	00	01	02	03	04	05	06	07	08	09	<p>1 Tbsp..... 1</p> <p>2 Tbsp..... 2</p> <p>3 Tbsp..... 3</p> <p>4 Tbsp..... 4</p>

33a. IF RESPONSE TO FOOD ITEM 33 IS NEVER, CIRCLE 00 AND GO TO FOOD ITEM 34.

Is your salad dressing . . .

- Usually low-fat..... 1
- Sometimes low-fat or..... 2
- Hardly ever low-fat? 3
- DK 8

A. How often did you eat (FOOD) in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO NEXT FOOD ITEM.

B. Each time, did you usually eat (READ PORTION SIZE CHOICES FOR THE FOOD ITEM)?

FOOD	NEVER	A FEW	2-3		1 PER WK	2 PER WK	3-4 PER WK	5-6 PER WK	EVERY DAY	2+ PER DAY	PORTION SIZE EACH TIME
		TIMES PER YR	1 PER MON	PER MON							
34. Any other vegetable, like okra, squash or cooked green peppers	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A (1/4 c)..... 1</p> <p>B (1/2 c)..... 2</p> <p>C (1 c)..... 3</p> <p>D (2 c)..... 4</p>
35. Refried beans or bean burritos	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A (1/4 c)..... 1</p> <p>B (1/2 c)..... 2</p> <p>C (1 c)..... 3</p> <p>D (2 c)..... 4</p>
36. Chili with beans (with or without meat)	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A (1/4 c)..... 1</p> <p>B (1/2 c)..... 2</p> <p>C (1 c)..... 3</p> <p>D (2 c)..... 4</p>
37. Baked beans, black-eye peas, pintos or any other dried beans	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A (1/4 c)..... 1</p> <p>B (1/2 c)..... 2</p> <p>C (1 c)..... 3</p> <p>D (2 c)..... 4</p>
38. Vegetable stew	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>B (1/2 c)..... 1</p> <p>C (1 c)..... 2</p> <p>D (2 c)..... 3</p>
39. Vegetable soup, vegetable beef, chicken vegetable or tomato soup	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>B (1/2 c)..... 1</p> <p>C (1 c)..... 2</p> <p>D (2 c)..... 3</p>

A. How often did you eat (FOOD) in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO NEXT FOOD ITEM.

B. Each time, did you usually eat (READ PORTION SIZE CHOICES FOR THE FOOD ITEM)?

FOOD	NEVER	A FEW	2-3		3-4		5-6		EVERY	2+	PORTION SIZE EACH TIME
		TIMES PER YR	1 PER MON	PER MON	1 PER WK	2 PER WK	PER WK	PER WK			
40. Split pea, bean or lentil soup	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>B (1/2 c)..... 1</p> <p>C (1 c)..... 2</p> <p>D (2 c)..... 3</p>
41. Any other soup, like chicken noodle, chowder, mushroom or instant soups	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>B (1/2 c)..... 1</p> <p>C (1 c)..... 2</p> <p>D (2 c)..... 3</p>
42. Spaghetti, lasagna or other pasta <u>with</u> <u>tomato sauce</u>	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A (1/4 c)..... 1</p> <p>B (1/2 c)..... 2</p> <p>C (1 c)..... 3</p> <p>D (2 c)..... 4</p>
43. Cheese dishes <u>without</u> tomato sauce, like macaroni and cheese	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A (1/4 c)..... 1</p> <p>B (1/2 c)..... 2</p> <p>C (1 c)..... 3</p> <p>D (2 c)..... 4</p>
44. Pizza, including carry-out	00	01	02	03	04	05	06	07	08	09	<p>1 sl..... 1</p> <p>2 sl..... 2</p> <p>3 sl..... 3</p> <p>4 sl..... 4</p>

For the next several meal items, I will ask you how often and how much you ate in the past year as well as how often a given cooking method, such as frying, grilling, or broiling was used to cook the meat.

DEFINITION FOR PREPARING/COOKING METHODS

Pan fry:	to cook items in a preheated heavy frying pan or griddle.
Grill/Barbecue:	to cook items on a grid <u>over</u> coals, open fire, or ceramic briquettes heated by gas.
Oven-broil:	to cook items by placing 2-6 inches <u>below</u> the heated surface in an oven after setting it on broil.
Fast food type:	Food item purchased at a fast food restaurant. Usually inexpensive food, such as hamburgers or fried chicken or fish, prepared and served quickly.
Baked or Roasted:	to cook with dry heat, as in an oven or near hot coals.
Boiled:	to cook in a heated liquid, usually water, that bubbles up and gives off vapor.
Deep fat fried:	to fry by immersing in a deep utensil of fat or oil.
Stewed:	to cook by boiling slowly. Usually mixtures of meat, chicken, or fish and vegetables with stock.

A. Again, using the categories on this card, please tell me, how often did you eat hamburgers or cheeseburgers in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO NEXT FOOD ITEM.

B. Each time, did you usually eat 1/8 of a pound, 1/4 of a pound, 1/2 of a pound or 3/4 of a pound?

C. [When you eat hamburgers or cheeseburgers], how often are they (COOKING METHOD)?

IF RESPONSE TO COOKING METHOD IS NEVER, CIRCLE 00 AND ASK QUESTION C FOR NEXT COOKING METHOD.

FOOD	NEVER	A									B. PORTION SIZE EACH TIME
		FEW TIMES PER YEAR	2-3 1 PER MON	3-4 1 PER WK	5-6 2 PER WK	7-8 PER WK	9-10 PER WK	11-12 1 PER DAY	13-14 PER DAY		
45A. Hamburgers or cheeseburgers	00	01	02	03	04	05	06	07	08	09	
c.1 Pan fried	00	01	02	03	04	05	06	07	08	09	
c.2 Grilled or barbecued	00	01	02	03	04	05	06	07	08	09	1/8 lb..... 1 1/4 lb..... 2 1/2 lb..... 3 3/4 lb..... 4
c.3 Oven-broiled	00	01	02	03	04	05	06	07	08	09	
c.4 Fast food type	00	01	02	03	04	05	06	07	08	09	
c.5 Cooked another way (SPECIFY) _____	00	01	02	03	04	05	06	07	08	09	

D. Please look at these pictures and tell me which picture best describes the hamburgers or cheeseburgers that you eat?

SHOW
PHOTOBOOK
(HAMBURGER
PICTURES)

- 0.5 01
- 1 02
- 1.5 03
- 2 04
- 2.5 05
- 3 06
- 3.5 07
- 4 08
- 4.5 09

A. How often did you eat beef steaks in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO NEXT FOOD ITEM.

B. Each time, did you usually eat the amount in picture A, B, C or D?

SHOW
SERVING
SIZE CARD

C. [When you eat beef steaks], how often are they (COOKING METHOD)?

IF RESPONSE TO COOKING METHOD IS NEVER, CIRCLE 00 AND ASK QUESTION C FOR NEXT COOKING METHOD.

FOOD	A										B. PORTION SIZE EACH TIME
	NEVER	FEW TIMES PER YEAR	1 PER MON	2-3 PER MON	1 PER WK	2 PER WK	3-4 PER WK	5-6 PER WK	1 PER DAY	2+ PER DAY	
46A. Beef steaks	00	01	02	03	04	05	06	07	08	09	
c.1 Pan fried	00	01	02	03	04	05	06	07	08	09	
c.2 Grilled or barbecued	00	01	02	03	04	05	06	07	08	09	A..... 1 B..... 2 C..... 3 D..... 4
c.3 Oven-broiled	00	01	02	03	04	05	06	07	08	09	
c.4 Cooked another way (SPECIFY) _____	00	01	02	03	04	05	06	07	08	09	

D. Please look at these pictures and tell me which picture best describes the beef steaks that you eat?

SHOW
PHOTOBOOK
(BEEF STEAK
PICTURES)

- 0.5..... 01
- 1..... 02
- 1.5..... 03
- 2..... 04
- 2.5..... 05
- 3..... 06
- 3.5..... 07
- 4..... 08
- 4.5..... 09

A. How often did you eat pork chops in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO NEXT FOOD ITEM.

B. Each time, did you usually eat the amount in picture A, B, C or D?

SHOW
SERVING
SIZE CARD

C. [When you eat pork chops], how often are they (COOKING METHOD)?

IF RESPONSE TO COOKING METHOD IS NEVER, CIRCLE 00 AND ASK QUESTION C FOR NEXT COOKING METHOD.

FOOD	NEVER	A									B. PORTION SIZE EACH TIME
		FEW TIMES PER YEAR	2-3 PER MON	1 PER MON	2 PER WK	3-4 PER WK	5-6 PER WK	2+ PER DAY	1 PER DAY	PER DAY	
47A. Pork chops	00	01	02	03	04	05	06	07	08	09	
c.1 Pan fried	00	01	02	03	04	05	06	07	08	09	A..... 1
c.2 Oven-broiled	00	01	02	03	04	05	06	07	08	09	B..... 2
c.3 Baked or roasted	00	01	02	03	04	05	06	07	08	09	C..... 3
c.4 Cooked another way (SPECIFY)	00	01	02	03	04	05	06	07	08	09	D..... 4

D. Please look at these pictures and tell me which picture best describes the pork chops that you eat?

SHOW
PHOTOBOOK
(PORK CHOP
PICTURES)

- 0.5..... 01
- 1..... 02
- 1.5..... 03
- 2..... 04
- 2.5..... 05
- 3..... 06
- 3.5..... 07

48. When you eat meat, do you ...

- Avoid eating the fat, 1
- Sometimes eat the fat, or 2
- Often eat the fat?..... 3
- DON'T EAT MEAT 0

A. How often did you eat bacon in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO NEXT FOOD ITEM.

B. Each time, did you usually eat 1, 2, 3 or 4 pieces?

C. [When you eat bacon], how often is it (COOKING METHOD)?

IF RESPONSE TO COOKING METHOD IS NEVER, CIRCLE 00 AND ASK QUESTION C FOR NEXT COOKING METHOD.

FOOD	A										B. PORTION SIZE EACH TIME
	NEVER	FEW TIMES PER YEAR	2-3		3-4		5-6		2+		
			1 PER MON	PER MON	1 PER WK	2 PER WK	PER WK	PER WK	1 PER DAY	PER DAY	
49A. Bacon	00	01	02	03	04	05	06	07	08	09	
c.1 Pan-fried	00	01	02	03	04	05	06	07	08	09	1 pc..... 1
c.2 Oven-broiled	00	01	02	03	04	05	06	07	08	09	2 pc..... 2
c.3 Microwaved	00	01	02	03	04	05	06	07	08	09	3 pc..... 3
c.4 Cooked another way (SPECIFY)	00	01	02	03	04	05	06	07	08	09	4 pc..... 4

D. Please look at these pictures and tell me which picture best describes the bacon that you eat?

SHOW
PHOTOBOOK
(BACON
PICTURES)

- 0.5 01
- 1 02
- 1.5 03
- 2 04
- 2.5 05
- 3 06
- 3.5 07

E. When you eat bacon, is it usually . . . (READ)

- Pork bacon, 1
- Canadian bacon, 2
- Turkey bacon, 3
- Beef bacon, or 4
- Something else? 6
- SPECIFY: _____
- DK 8

A. How often did you eat breakfast sausage or scrapple in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO NEXT FOOD ITEM.

B. Each time, did you usually eat 1, 2, 3 or 4 pieces?

C. [When you eat breakfast sausage or scrapple], how often is it (COOKING METHOD)?

IF RESPONSE TO COOKING METHOD IS NEVER, CIRCLE 00 AND ASK QUESTION C FOR NEXT COOKING METHOD.

FOOD	NEVER	A									B. PORTION SIZE EACH TIME
		FEW TIMES PER YEAR	1 PER MON	2-3 PER MON	1 PER WK	2 PER WK	3-4 PER WK	5-6 PER WK	1 PER DAY	2+ PER DAY	
50A. Breakfast sausage or scrapple	00	01	02	03	04	05	06	07	08	09	
c.1 Pan fried	00	01	02	03	04	05	06	07	08	09	1 pc..... 1
c.2 Grilled or barbecued	00	01	02	03	04	05	06	07	08	09	2 pc..... 2
c.3 Oven-broiled	00	01	02	03	04	05	06	07	08	09	3 pc..... 3
c.4 Cooked another way (SPECIFY) _____	00	01	02	03	04	05	06	07	08	09	4 pc..... 4

D. In the past year when you ate breakfast sausage or scrapple, was it usually cooked . . . (READ)

- Just until done, 1
- Well-done or crisp or 2
- Charred? 3
- DK 8

E. When you eat breakfast sausage or scrapple, is it usually . . . (READ)

- Pork sausage, 1
- Beef sausage, 2
- Turkey sausage, or..... 3
- Something else?..... 6
- SPECIFY: _____
- DK 8

A. How often did you eat other sausage, such as Polish, Italian, half-smoked or Vienna sausage, in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO NEXT FOOD ITEM.

B. Each time, did you usually eat 1, 2, 3 or 4 sausages?

C. [When you eat other sausage, such as Polish, Italian, half-smoked or Vienna sausage], how often is it (COOKING METHOD)?

IF RESPONSE TO COOKING METHOD IS NEVER, CIRCLE 00 AND ASK QUESTION C FOR NEXT COOKING METHOD.

FOOD	A										B. PORTION SIZE EACH TIME
	NEVER	FEW TIMES PER YEAR	1 PER MON	2-3 PER MON	1 PER WK	2 PER WK	3-4 PER WK	5-6 PER WK	1 PER DAY	2+ PER DAY	
51A. Other sausage, such as Polish, Italian, half smoked or Vienna sausage	00	01	02	03	04	05	06	07	08	09	
c.1 Oven-broiled	00	01	02	03	04	05	06	07	08	09	1..... 1
c.2 Grilled or barbecued	00	01	02	03	04	05	06	07	08	09	2..... 2
c.3 Boiled	00	01	02	03	04	05	06	07	08	09	3..... 3
c.4 Cooked another way (SPECIFY) _____	00	01	02	03	04	05	06	07	08	09	4..... 4

D. In the past year when you ate other sausage, such as Polish, Italian, half-smoked or Vienna sausage, was it usually cooked . . . (READ)

- Just until done, 1
- Well-done or crisp or 2
- Charred? 3
- DK 8

E. When you eat other sausage, such as Polish, Italian, half-smoked or Vienna sausage, is it usually made from . . . (READ)

- Pork, 1
- Beef, 2
- Turkey, or 3
- Something else 6
- SPECIFY: _____
- DK 8

A. How often did you eat fried chicken in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO NEXT FOOD ITEM.

B. Each time, did you usually eat 1, 2, 3 or 4 medium size pieces?

C. [When you eat fried chicken], how often is it (COOKING METHOD)?

IF RESPONSE TO COOKING METHOD IS NEVER, CIRCLE 00 AND ASK QUESTION C FOR NEXT COOKING METHOD.

FOOD	A										B. PORTION SIZE EACH TIME
	NEVER	FEW TIMES PER YEAR	1 PER MON	2-3 PER MON	1 PER WK	2 PER WK	3-4 PER WK	5-6 PER WK	1 PER DAY	2+ PER DAY	
52A. Fried chicken	00	01	02	03	04	05	06	07	08	09	
c.1 Fast food or deep-fat fried, prepared with coating	00	01	02	03	04	05	06	07	08	09	1 med pc..... 1 2 med pc..... 2 3 med pc..... 3 4 med pc..... 4
c.2 Pan fried, prepared without coating	00	01	02	03	04	05	06	07	08	09	
c.3 Cooked another way (SPECIFY)	00	01	02	03	04	05	06	07	08	09	

IF RESPONSE TO C2 (PAN FRIED. . .) IS NEVER, GO TO FOOD ITEM 53.

D. Please look at these pictures and tell me which picture best describes the pan-fried chicken (FOOD) that you eat?

SHOW
PHOTOBOOK
(CHICKEN,
PAN-FRIED
PICTURES)

- 0.5 01
- 1 02
- 1.5 03
- 2 04
- 2.5 05
- 3 06
- 3.5 07

A. How often did you eat chicken or turkey, including ground or in sandwiches in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO NEXT FOOD ITEM.

B. Did you usually eat the amount in picture A, B, C or D?

SHOW
SERVING
SIZE CARD

C. [When you eat chicken or turkey, including ground or in sandwiches], how often is it (COOKING METHOD)?

IF RESPONSE TO COOKING METHOD IS NEVER, CIRCLE 00 AND ASK QUESTION C FOR NEXT COOKING METHOD.

FOOD	NEVER	A	2-3		3-4		5-6	2+		B. PORTION SIZE EACH TIME	
		FEW TIMES PER YEAR	1 PER MON	PER MON	1 PER WK	2 PER WK	PER WK	PER WK	1 PER DAY		PER DAY
53A. Chicken or turkey, including in sandwiches	00	01	02	03	04	05	06	07	08	09	
c.1 Baked or roasted	00	01	02	03	04	05	06	07	08	09	A 1
c.2 Stewed	00	01	02	03	04	05	06	07	08	09	B 2
c.3 Oven-broiled	00	01	02	03	04	05	06	07	08	09	C 3
c.4 Grilled or barbecued	00	01	02	03	04	05	06	07	08	09	D 4
c.5 Cooked another way (SPECIFY)	00	01	02	03	04	05	06	07	08	09	

IF RESPONSE TO C.4 (GRILLED OR BARBECUE) IS NEVER, GO TO Q.54.

D. Please look at these pictures and tell me which picture best describes the grilled chicken that you eat?

SHOW
PHOTOBOOK
(GRILLED
CHICKEN
PICTURES)

- 0.5 01
- 1 02
- 1.5 03
- 2 04
- 2.5 05
- 3 06
- 3.5 07

54. IF RESPONSE TO FOOD ITEM 52 (FRIED CHICKEN) AND 53 (CHICKEN OR TURKEY) IS NEVER, GO TO FOOD ITEM 55.

When you eat chicken, do you . . .

- Avoid eating the skin, 1
- Sometimes eat the skin or 2
- Often eat the skin? 3

A. How often did you eat fried fish or a fish sandwich, including fried sardines in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO NEXT FOOD ITEM.

B. Each time, did you usually eat the amount in picture A, B, C or D?

SHOW
SERVING
SIZE CARD

C. [When you eat fried fish or a fish sandwich, including fried sardines], how often is it (COOKING METHOD)?

IF RESPONSE TO COOKING METHOD IS NEVER, CIRCLE 00 AND ASK QUESTION C FOR NEXT COOKING METHOD.

FOOD	A										B. PORTION SIZE EACH TIME
	NEVER	FEW TIMES PER YEAR	2-3 1 PER MON	3-4 1 PER MON	5-6 2 PER WK	7-8 1 PER WK	9-10 2 PER WK	11-12 3 PER WK	13-14 4 PER WK	15-16 1 PER DAY	
55A. Fried fish or a fish sandwich, including fried sardines	00	01	02	03	04	05	06	07	08	09	
c.1 Pan fried, prepared without coating	00	01	02	03	04	05	06	07	08	09	A 1
c.2 Fast food or deep fat fried, prepared with coating	00	01	02	03	04	05	06	07	08	09	B 2
c.3 Cooked another way (SPECIFY)	00	01	02	03	04	05	06	07	08	09	C 3
											D 4

A. How often did you eat other fish, including tuna in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO NEXT FOOD ITEM.

B. Did you usually eat the amount in picture A, B, C or D?

SHOW
SERVING
SIZE CARD

C. [When you eat other fish, including tuna], how often is it (COOKING METHOD)?

IF RESPONSE TO COOKING METHOD IS NEVER, CIRCLE 00 AND ASK QUESTION C FOR NEXT COOKING METHOD.

FOOD	NEVER	A FEW TIMES PER YEAR	2-3		3-4		5-6		2+		B. PORTION SIZE EACH TIME
			1 PER MON	PER MON	1 PER WK	2 PER WK	PER WK	PER WK	1 PER DAY	PER DAY	
56A. Other fish, including tuna	00	01	02	03	04	05	06	07	08	09	
c.1 Oven-broiled	00	01	02	03	04	05	06	07	08	09	
c.2 Baked	00	01	02	03	04	05	06	07	08	09	A 1
c.3 Cooked in a casserole	00	01	02	03	04	05	06	07	08	09	B 2
c.4 Used in a salad	00	01	02	03	04	05	06	07	08	09	C 3
c.5 Cooked another way (SPECIFY) _____	00	01	02	03	04	05	06	07	08	09	D 4

57. Using the categories on this card, please tell me how often you ate grilled or barbecued meats, including beef, pork, chicken or fish, during the summer months. Remember to think about last year.

SHOW
CARD 1

- NEVER..... 00
- A FEW TIMES PER YEAR..... 01
- ONCE PER MONTH..... 02
- 2-3 TIMES PER MONTH..... 03
- ONCE PER WEEK..... 04
- TWICE PER WEEK..... 05
- 3-4 TIMES PER WEEK..... 06
- 5-6 TIMES PER WEEK..... 07
- ONCE PER DAY..... 08
- 2 OR MORE TIMES PER DAY..... 09
- DK..... 98

58. Again, using the categories on this card, please tell me how often you ate barbecued meats, including beef, pork, chicken or fish, during the rest of the year. Again, please think about last year.

SHOW
CARD 1

- NEVER..... 00
- A FEW TIMES PER YEAR..... 01
- ONCE PER MONTH..... 02
- 2-3 TIMES PER MONTH..... 03
- ONCE PER WEEK..... 04
- TWICE PER WEEK..... 05
- 3-4 TIMES PER WEEK..... 06
- 5-6 TIMES PER WEEK..... 07
- ONCE PER DAY..... 08
- 2 OR MORE TIMES PER DAY..... 09
- DK..... 98

59. In the past year, how often did you eat smoked meats, such as ham, bacon, pastrami or turkey? Would you say...

- Never, 0
- Rarely, 1
- Sometimes or 2
- Often? 3
- DK 8

Using the categories on this card, please tell me . . .

A. How often did you eat (FOOD) in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO
NEXT FOOD ITEM.

B. Each time, did you usually eat (READ PORTION SIZE CHOICES FOR THE FOOD ITEM)?

FOOD	A FEW TIMES		2-3 PER MON		1 PER 2 PER WK WK		3-4 PER PER WK WK		5-6 PER PER WK WK		EVERY DAY	2+ PER DAY	PORTION SIZE EACH TIME
	NEVER	PER YR	MON	MON	1 PER WK	2 PER WK	3-4 PER WK	5-6 PER WK	08	09			
60. Meatloaf at home or in a restaurant	00	01	02	03	04	05	06	07	08	09			1/8 lb..... 1 1/4 lb..... 2 1/2 lb..... 3 3/4 lb..... 4
61. Beef roasts or pot roast, or in frozen dinners or sandwiches	00	01	02	03	04	05	06	07	08	09			SHOW SERVING SIZE CARD the amount in picture . . . A..... 1 B..... 2 C..... 3 D..... 4
62. Pork roasts or dinner ham	00	01	02	03	04	05	06	07	08	09			SHOW SERVING SIZE CARD the amount in picture . . . A..... 1 B..... 2 C..... 3 D..... 4
63. Veal, lamb or deer meat	00	01	02	03	04	05	06	07	08	09			SHOW SERVING SIZE CARD the amount in picture . . . A..... 1 B..... 2 C..... 3 D..... 4
64. Ribs or spareribs	00	01	02	03	04	05	06	07	08	09			3-4..... 1 5-6..... 2 7-8..... 3 9+..... 4

A. How often did you eat (FOOD) in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO NEXT FOOD ITEM.

B. Each time, did you usually eat (READ PORTION SIZE CHOICES FOR THE FOOD ITEM)?

FOOD	A FEW	2-3	3-4	5-6	2+	PORTION SIZE EACH TIME					
	TIMES NEVER	1 PER MON	1 PER WK	2 PER WK	PER WK		PER WK	EVERY DAY	PER DAY		
65. Liver, including chicken livers or liverwurst	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A 1</p> <p>B 2</p> <p>C 3</p> <p>D 4</p>
66. Gizzard, pork neckbones, chittlins, pigs feet, etc.	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A 1</p> <p>B 2</p> <p>C 3</p> <p>D 4</p>
67. Gravy	00	01	02	03	04	05	06	07	08	09	<p>1 Tbsp 1</p> <p>2 Tbsp 2</p> <p>3 Tbsp 3</p> <p>4 Tbsp 4</p>

67a. IF RESPONSE TO FOOD ITEM 67 (GRAVY) IS NEVER, CIRCLE 00, AND GO TO FOOD ITEM 68.

In the past year when you ate gravy, was it usually . . .

- Made from meat drippings, 1
- Store bought cans or 2
- Store bought packets? 3
- DK 8

A. How often did you eat (FOOD) in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO NEXT FOOD ITEM.

B. Each time, did you usually eat (READ PORTION SIZE CHOICES FOR THE FOOD ITEM)?

FOOD	A FEW TIMES		2-3 PER MON		1 PER 2 PER WK		3-4 PER 5-6 PER WK		EVERY DAY	2+ PER DAY	PORTION SIZE EACH TIME
	NEVER	PER YR	MON	MON	WK	WK	WK	WK	DAY	DAY	
68. Hot dogs	00	01	02	03	04	05	06	07	08	09	1..... 1 2..... 2 3..... 3 4..... 4

68a. IF RESPONSE TO FOOD ITEM 68 IS NEVER, CIRCLE 00 AND GO TO FOOD ITEM 69.

Are your hot dogs . . .

- Usually low fat, 1
- Sometimes low fat or 2
- Hardly ever low fat? 3
- DK 8

FOOD	A FEW TIMES		2-3 PER MON		1 PER 2 PER WK		3-4 PER 5-6 PER WK		EVERY DAY	2+ PER DAY	PORTION SIZE EACH TIME
	NEVER	PER YR	MON	MON	WK	WK	WK	WK	DAY	DAY	
69. Baloney, sliced ham, turkey lunch meat or other lunch meat	00	01	02	03	04	05	06	07	08	09	1 sl 1 2 sl 2 3 sl 3 4 sl 4

69a. IF RESPONSE TO FOOD ITEM 69 IS NEVER, CIRCLE 00 AND GO TO FOOD ITEM 70.

Are your lunch meats . . .

- Usually low-fat or turkey, 1
- Sometimes low-fat or 2
- Hardly ever low-fat? 3
- DK 8

A. How often did you eat (FOOD) in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO
NEXT FOOD ITEM.

B. Each time, did you usually eat (READ PORTION SIZE CHOICES FOR THE FOOD ITEM)?

FOOD	A FEW	2-3		3-4		5-6		EVERY	2+	PORTION SIZE EACH TIME	
	TIMES	1 PER	PER	1 PER	2 PER	PER	PER				
	NEVER	PER YR	MON	MON	WK	WK	WK	WK	DAY	PER DAY	
70. Mixed dishes with <u>beef or pork</u> , like stew, corned beef hash, stuffed cabbage or meat dish with noodles	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A 1</p> <p>B 2</p> <p>C 3</p> <p>D 4</p>
71. Mexican foods, such as tacos, burritos, enchiladas, tamales, etc., <u>made with beef or pork</u>	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A 1</p> <p>B 2</p> <p>C 3</p> <p>D 4</p>
72. Mixed dishes with <u>chicken or turkey</u> , like chicken casserole, turkey meatloaf, chicken and noodles, pot pie or in stir-fry	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A 1</p> <p>B 2</p> <p>C 3</p> <p>D 4</p>
73. Mexican foods, such as tacos, burritos, enchiladas, tamales, etc., <u>made with chicken or turkey</u>	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A 1</p> <p>B 2</p> <p>C 3</p> <p>D 4</p>

A. How often did you eat (FOOD) in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO
NEXT FOOD ITEM.

B. Each time, did you usually eat (READ PORTION SIZE CHOICES FOR THE FOOD ITEM)?

FOOD	A FEW TIMES		2-3	3-4	5-6	EVERY DAY	2+ PER DAY	PORTION SIZE EACH TIME			
	NEVER	PER YR	1 PER MON	PER MON	1 PER WK				2 PER WK	PER WK	PER WK
74. Oysters	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A 1</p> <p>B 2</p> <p>C 3</p> <p>D 4</p>
75. Other shellfish like shrimp, scallops or crabs	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A 1</p> <p>B 2</p> <p>C 3</p> <p>D 4</p>
76. Noodles, macaroni or pasta salad	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A (1/4 c) 1</p> <p>B (1/2 c) 2</p> <p>C (1 c) 3</p> <p>D (2 c) 4</p>
77. Tofu or bean curd	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A (1/4 c) 1</p> <p>B (1/2 c) 2</p> <p>C (1 c) 3</p> <p>D (2 c) 4</p>
78. Meat substitutes, such as veggie burgers or Gardenburgers	00	01	02	03	04	05	06	07	08	09	<p>1 patty 1</p> <p>2 patties 2</p> <p>3 patties 3</p> <p>4 patties 4</p>
79. Chinese food, Thai or other Asian food, not counted above	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A (1/4 c) 1</p> <p>B (1/2 c) 2</p> <p>C (1 c) 3</p> <p>D (2 c) 4</p>

A. How often did you eat (FOOD)?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO NEXT FOOD ITEM.

B. Each time, did you usually eat (READ PORTION SIZE CHOICES FOR THE FOOD ITEM)?

FOOD	A FEW TIMES		2-3 PER MON		1 PER 2 PER WK		3-4 5-6 PER WK		EVERY DAY	2+ PER DAY	PORTION SIZE EACH TIME
	NEVER	PER YR	MON	MON	WK	WK	WK	WK			
80. Snacks like potato chips, corn chips or popcorn (not pretzels)	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A (1/4 c) 1</p> <p>B (1/2 c) 2</p> <p>C (1 c) 3</p> <p>D (2 c) 4</p>

80a. IF RESPONSE TO FOOD ITEM 80 IS NEVER, CIRCLE 00 AND PROCEED TO FOOD ITEM 81.

Are these snacks . . .

- Usually low-fat, 1
- Sometimes low-fat or 2
- Hardly ever low-fat? 3
- DK 8

FOOD	A FEW TIMES		2-3 PER MON		1 PER 2 PER WK		3-4 5-6 PER WK		EVERY DAY	2+ PER DAY	PORTION SIZE EACH TIME
	NEVER	PER YR	MON	MON	WK	WK	WK	WK			
81. Peanuts, other nuts or seeds	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A (1/4 c) 1</p> <p>B (1/2 c) 2</p> <p>C (1 c) 3</p> <p>D (2 c) 4</p>
82. Crackers	00	01	02	03	04	05	06	07	08	09	<p>SHOW SERVING SIZE CARD</p> <p>the amount in picture . . .</p> <p>A (1/4 c) 1</p> <p>B (1/2 c) 2</p> <p>C (1 c) 3</p> <p>D (2 c) 4</p>
83. Doughnuts or Danish pastry	00	01	02	03	04	05	06	07	08	09	<p>1..... 1</p> <p>2..... 2</p> <p>3..... 3</p> <p>4..... 4</p>

A. How often did you eat (FOOD)?

SHOW CARD 1	IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO NEXT FOOD ITEM.
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B. Each time, did you usually eat (READ PORTION SIZE CHOICES FOR THE FOOD ITEM)?

FOOD	A FEW TIMES		2-3	1 PER		2 PER	3-4	5-6	EVERY	2+	PORTION SIZE EACH TIME
	NEVER	PER YR	PER MON	1 PER WK	2 PER WK	PER WK	PER WK	DAY	PER DAY		
84. Cake, sweet rolls or coffee cake	00	01	02	03	04	05	06	07	08	09	<div style="border: 1px solid black; padding: 2px;">SHOW SERVING SIZE CARD</div> the amount in picture . . . A 1 B 2 C 3 D 4

84a. IF RESPONSE TO FOOD ITEM 84 IS NEVER, CIRCLE 00 AND PROCEED TO FOOD ITEM 85.

Are they . . .

- Usually low-fat, 1
- Sometimes low-fat or 2
- Hardly ever low-fat? 3
- DK 8

FOOD	A FEW TIMES		2-3	1 PER		2 PER	3-4	5-6	EVERY	2+	PORTION SIZE EACH TIME
	NEVER	PER YR	PER MON	1 PER WK	2 PER WK	PER WK	PER WK	DAY	PER DAY		
85. Cookies	00	01	02	03	04	05	06	07	08	09	1-2..... 1 3-5..... 2 6-7..... 3 8+..... 4

85a. IF RESPONSE TO FOOD ITEM 85 IS NEVER, CIRCLE 00 AND PROCEED TO FOOD ITEM 86.

Are your cookies . . .

- Usually low-fat, 1
- Sometimes low-fat or 2
- Hardly ever low-fat? 3
- DK 8

A. How often did you eat (FOOD) in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO NEXT FOOD ITEM.

B. Each time, did you usually eat (READ PORTION SIZE CHOICES FOR THE FOOD ITEM)?

FOOD	A FEW TIMES		2-3 PER		3-4 PER		5-6 PER		EVERY DAY	2+ PER DAY	PORTION SIZE EACH TIME
	NEVER	PER YR	MON	MON	1 PER WK	2 PER WK	PER WK	PER WK			
86. Ice cream, ice milk or ice cream bars	00	01	02	03	04	05	06	07	08	09	<div style="border: 1px solid black; padding: 2px;">SHOW SERVING SIZE CARD</div> the amount in picture . . . A 1 B 2 C 3 D 4

86a. IF RESPONSE TO FOOD ITEM 86 IS NEVER, CIRCLE 00 AND PROCEED TO FOOD ITEM 87.

Is your ice cream . . .

- Usually low-fat, 01
- Sometimes low-fat or 02
- Hardly ever low-fat? 03
- DK 04

FOOD	A FEW TIMES		2-3 PER		3-4 PER		5-6 PER		EVERY DAY	2+ PER DAY	PORTION SIZE EACH TIME
	NEVER	PER YR	MON	MON	1 PER WK	2 PER WK	PER WK	PER WK			
87. Pumpkin pie or sweet potato pie	00	01	02	03	04	05	06	07	08	09	1/2 sl 1 1 sl 2 2 sl 3 3 sl 4
88. Any other pie or cobbler	00	01	02	03	04	05	06	07	08	09	1/2 sl 1 1 sl 2 2 sl 3 3 sl 4
89. Chocolate candy or candy bars	00	01	02	03	04	05	06	07	08	09	1 sm bar 1 1 med bar 2 1 lg bar 3 2 lg bars 4
90. Other candy, not chocolate, like hard candy, caramel or jelly beans	00	01	02	03	04	05	06	07	08	09	1-2 pc 1 3-5 pc 2 6-7 pc 3 8+ pc 4

A. How often did you eat (FOOD) in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO
NEXT FOOD ITEM.

B. Each time, did you usually eat (READ PORTION SIZE CHOICES FOR THE FOOD ITEM)?

FOOD	NEVER	A FEW TIMES PER YR	1 PER MON	2-3 PER MON	1 PER WK	2 PER WK	3-4 PER WK	5-6 PER WK	EVERY DAY	2+ PER DAY	PORTION SIZE EACH TIME
91. Biscuits or muffins	00	01	02	03	04	05	06	07	08	09	1..... 1 2..... 2 3..... 3 4..... 4
92. Rolls, hamburger buns, English muffins or bagels	00	01	02	03	04	05	06	07	08	09	1/2..... 1 1..... 2 2..... 3 3..... 4
93. <u>Dark</u> bread like rye or whole wheat, including in sandwiches	00	01	02	03	04	05	06	07	08	09	1 sl..... 1 2 sl..... 2 3 sl..... 3 4 sl..... 4
94. <u>White</u> bread or toast, including French, Italian or in sandwiches	00	01	02	03	04	05	06	07	08	09	1 sl..... 1 2 sl..... 2 3 sl..... 3 4 sl..... 4
95. Corn bread or corn muffins	00	01	02	03	04	05	06	07	08	09	1 pc..... 1 2 pc..... 2 3 pc..... 3 4 pc..... 4
96. Tortillas	00	01	02	03	04	05	06	07	08	09	1..... 1 2..... 2 3..... 3 4..... 4
97. Rice or dishes made with rice	00	01	02	03	04	05	06	07	08	09	SHOW SERVING SIZE CARD the amount in picture . . . A (1/4 c)..... 1 B (1/2 c)..... 2 C (1 c)..... 3 D (2 c)..... 4

A. How often did you eat (FOOD) in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO
NEXT FOOD ITEM.

B. Each time, did you usually eat (READ PORTION SIZE CHOICES FOR THE FOOD ITEM)?

FOOD	A										PORTION SIZE EACH TIME
	NEVER	FEW TIMES PER YR	1 PER MON	2-3 PER MON	1 PER WK	2 PER WK	3-4 PER WK	5-6 PER WK	EVERY DAY	2+ PER DAY	
98. Margarine (not butter) on bread or on potatoes or vegetables, etc.	00	01	02	03	04	05	06	07	08	09	1 pat/tsp 1 2 pat/tsp 2 3 pat/tsp 3 4 pat/tsp 4
99. Butter (not margarine) on bread or on potatoes or vegetables, etc.	00	01	02	03	04	05	06	07	08	09	1 pat/tsp 1 2 pat/tsp 2 3 pat/tsp 3 4 pat/tsp 4
100. Peanut butter	00	01	02	03	04	05	06	07	08	09	1 Tbsp 1 2 Tbsp 2 3 Tbsp 3 4 Tbsp 4
101. Jelly, jam or syrup	00	01	02	03	04	05	06	07	08	09	1 Tbsp 1 2 Tbsp 2 3 Tbsp 3 4 Tbsp 4
102. Mayonnaise or sandwich spreads	00	01	02	03	04	05	06	07	08	09	1 Tbsp 1 2 Tbsp 2 3 Tbsp 3 4 Tbsp 4
103. Catsup, salsa or chile peppers	00	01	02	03	04	05	06	07	08	09	1 Tbsp 1 2 Tbsp 2 3 Tbsp 3 4 Tbsp 4
104. Mustard, soy sauce, steak sauce, barbecue sauce or other sauces	00	01	02	03	04	05	06	07	08	09	1 Tbsp 1 2 Tbsp 2 3 Tbsp 3 4 Tbsp 4

A. How often did you drink (BEVERAGE) in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO
NEXT FOOD ITEM.

B. Each time, did you usually drink (READ PORTION SIZE CHOICES FOR THE BEVERAGE)?

BEVERAGE	NEVER	A FEW	2-3	3-4	5-6	2+	PORTION SIZE EACH TIME				
		TIMES PER YR	PER MON	PER WK	PER WK	PER WK		PER DAY			
105. Tomato juice or V-8 juice	00	01	02	03	04	05	06	07	08	09	1 gl..... 1 2 gl..... 2 3 gl..... 3 4 gl..... 4
106. Real 100% orange juice or grapefruit juice, including fresh, frozen or bottled	00	01	02	03	04	05	06	07	08	09	1 gl..... 1 2 gl..... 2 3 gl..... 3 4 gl..... 4

106a. IF RESPONSE TO BEVERAGE ITEM 106 IS NEVER, CIRCLE 00 AND PROCEED TO BEVERAGE ITEM 107.

When you drink orange juice, how often do you drink a calcium-fortified brand? Would you say. . .

- Usually, 1
- Sometimes or 2
- Hardly ever? 3
- DK 8

BEVERAGE	NEVER	A FEW	2-3	3-4	5-6	2+	PORTION SIZE EACH TIME				
		TIMES PER YR	PER MON	PER WK	PER WK	PER WK		PER DAY			
107. Other real fruit juices like apple juice, prune juice or lemonade	00	01	02	03	04	05	06	07	08	09	1 gl..... 1 2 gl..... 2 3 gl..... 3 4 gl..... 4

A. How often did you drink (BEVERAGE) in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO
NEXT FOOD ITEM.

B. Each time, did you usually drink (READ PORTION SIZE CHOICES FOR THE BEVERAGE)?

BEVERAGE	A FEW		2-3		3-4		5-6		2+		PORTION SIZE EACH TIME
	NEVER	PER YR	1 PER MON	PER MON	1 PER WK	2 PER WK	PER WK	PER WK	EVERY DAY	PER DAY	
108. Kool-Aid, Hi-C or other drinks with added vitamin C	00	01	02	03	04	05	06	07	08	09	1 gl..... 1 2 gl..... 2 3 gl..... 3 4 gl..... 4
109. Drinks with some juice in them, like Sunny Delight or Juice Squeeze	00	01	02	03	04	05	06	07	08	09	1 bot..... 1 2 bot..... 2 3 bot..... 3 4 bot..... 4
110. Instant breakfast milkshakes like Carnation, diet shakes like SlimFast or liquid supplements like Ensure	00	01	02	03	04	05	06	07	08	09	1 gl/cn..... 1 2 gl/cn..... 2 3 gl/cn..... 3 4 gl/cn..... 4
111. Glasses of milk (any kind)	00	01	02	03	04	05	06	07	08	09	1 gl..... 1 2 gl..... 2 3 gl..... 3 4 gl..... 4

111a. IF RESPONSE TO BEVERAGE ITEM 111 IS NEVER, CIRCLE 00 AND PROCEED TO BEVERAGE ITEM 112.

When you drink glasses of milk, what kind do you usually drink? (MARK ONLY ONE) Would you say . . .

- Whole milk,..... 1
- Reduced-fat 2% milk, 2
- Low-fat 1% milk, 3
- Non-fat milk, 4
- Rice milk or 5
- Soy milk?..... 6

A. How often did you drink (BEVERAGE) in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO NEXT FOOD ITEM.

B. Each time, did you usually drink (READ PORTION SIZE CHOICES FOR THE BEVERAGE)?

BEVERAGE	A FEW		2-3		3-4		5-6		2+		PORTION SIZE EACH TIME
	NEVER	TIMES PER YR	1 PER MON	PER MON	1 PER WK	2 PER WK	PER WK	PER WK	EVERY DAY	PER DAY	
112. Regular soft drinks, or bottled drinks like Snapple (not diet drinks)	00	01	02	03	04	05	06	07	08	09	1 bot/cn 1 2 bot/cn 2 3-4 bot/cn 3 5+ bot/cn 4
113. Beer or non-alcoholic beer	00	01	02	03	04	05	06	07	08	09	1 bot/cn 1 2 bot/cn 2 3-4 bot/cn 3 5+ bot/cn 4

113a. IF RESPONSE TO BEVERAGE ITEM 113 IS NEVER, CIRCLE 00 AND PROCEED TO BEVERAGE ITEM 114.

What kind do you usually drink? (MARK ONLY ONE) Would you say. . .

- Regular beer, 1
- Light beer or 2
- Non-alcoholic beer? 3

BEVERAGE	A FEW		2-3		3-4		5-6		2+		PORTION SIZE EACH TIME
	NEVER	TIMES PER YR	1 PER MON	PER MON	1 PER WK	2 PER WK	PER WK	PER WK	EVERY DAY	PER DAY	
114. Wine or wine coolers	00	01	02	03	04	05	06	07	08	09	1 gl 1 2 gl 2 3-4 gl 3 5+ gl 4

A. How often did you drink (BEVERAGE) in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO NEXT FOOD ITEM.

B. Each time, did you usually drink (READ PORTION SIZE CHOICES FOR THE BEVERAGE)?

BEVERAGE	NEVER	A FEW	2-3	3-4	5-6	2+	EVERY DAY	PER DAY	PORTION SIZE EACH TIME		
		TIMES PER YR	1 PER MON	1 PER WK	2 PER WK	PER WK				PER WK	
115. Liquor or mixed drinks	00	01	02	03	04	05	06	07	08	09	1 dr..... 1 2 dr..... 2 3-4 dr..... 3 5+ dr..... 4
116. Glasses of water, tap or bottled	00	01	02	03	04	05	06	07	08	09	1 gl..... 1 2 gl..... 2 3-4 gl..... 3 5+ gl..... 4
117. Coffee, regular or decaf	00	01	02	03	04	05	06	07	08	09	1 c..... 1 2 c..... 2 3-4 c..... 3 5+ c..... 4

117a. IF RESPONSE TO BEVERAGE ITEM 117 (COFFEE) IS NEVER, GO TO 118.

Do you usually add to your coffee... (MARK ONLY ONE)

- Cream or half & half, 1
- Nondairy creamer, 2
- Milk or 3
- None of these? 0

117b. How many teaspoons of sugar or honey do you usually put in each cup of coffee? Would you say...

- None, 0
- 1, 1
- 2, 2
- 3-4 or 3
- 5 or more? 4

A. How often did you drink (BEVERAGE) in the past year?

SHOW
CARD 1

IF RESPONSE TO FOOD ITEM IS NEVER, CIRCLE CODE 00 AND GO TO NEXT FOOD ITEM.

B. Each time, did you usually drink (READ PORTION SIZE CHOICES FOR THE BEVERAGE)?

BEVERAGE	A FEW TIMES PER YR		2-3 PER MON		1 PER 2 PER WK		3-4 PER 5-6 PER WK		EVERY DAY	2+ PER DAY	PORTION SIZE EACH TIME
	NEVER	PER YR	MON	MON	1 PER WK	2 PER WK	PER WK	PER WK	DAY	PER DAY	
118. Tea or iced tea (<u>not</u> herb teas)	00	01	02	03	04	05	06	07	08	09	1 c..... 1 2 c..... 2 3-4 c..... 3 5+ c..... 4

118a. IF RESPONSE TO BEVERAGE ITEM 118 (TEA) IS NEVER, GO TO 119.

Do you usually add to your tea . . . (MARK ONLY ONE)

- Cream or half & half, 1
- Nondairy creamer, 2
- Milk or 3
- None of these? 0

118b. How many teaspoons of sugar or honey do you usually put in each cup of tea? Would you say. . .

- None, 0
- 1, 1
- 2, 2
- 3-4 or 3
- 5 or more? 4

119. During the past year, have you taken any vitamins or minerals regularly, at least once a month?

- Yes, fairly regularly 1
- No, not regularly 2 (GO TO Q133) (p.39)

Now I will ask you specifically about multiple vitamins. We will be using these two cards in answering questions about vitamins and mineral supplement use [SHOW CARDS 2A AND 2B]. Using the category on this card [SHOW CARD 2A], please tell me. . .

A. How often did you take (VITAMIN TYPE)?

SHOW
CARD 2A

IF RESPONSE TO VITAMIN TYPE IS DIDN'T TAKE, CIRCLE CODE 0 AND GO TO NEXT VITAMIN TYPE.

B. How many years did you take (VITAMIN TYPE)?

SHOW
CARD 2B

VITAMIN TYPE	A.					B.					
	DIDN'T TAKE	A FEW DAYS PER MONTH	1-3 DAYS PER WEEK	4-6 DAYS PER WEEK	EVERY DAY	LESS THAN 1 YR	1 YR	2 YRS	3-4 YRS	5-9 YRS	10+ YRS
120. Regular Once-A-Day, Centrum or Thera type	0	1	2	3	4	01	02	03	04	05	06
121. Stress-tabs or B-Complex type	0	1	2	3	4	01	02	03	04	05	06
122. Antioxidant combination type	0	1	2	3	4	01	02	03	04	05	06

123. IF RESPONSE TO Q120 (REGULAR ONCE-A-DAY, CENTRUM, OR THERATYPE MULTIPLE VITAMINS) IS DIDN'T TAKE, GO TO 124.

When you took Once-a-day, Centrum or Thera-type multiple vitamins, did you usually take types that . . .

- Contain minerals such as, iron, zinc, etc. or..... 1
- Do not contain minerals?..... 2
- DK 8

Now I will ask you specifically about single vitamins that are not part of a multiple vitamin.

A. How often did you take (VITAMIN TYPE)?

SHOW
CARD 2A

IF RESPONSE TO VITAMIN TYPE IS DIDN'T TAKE, CIRCLE CODE 0 AND GO TO NEXT VITAMIN TYPE.

B. For how many years did you take (VITAMIN TYPE)?

SHOW
CARD 2B

VITAMIN TYPE	DIDN'T TAKE	A FEW	1-3	4-6	EVERY DAY	LESS THAN 1 YR	1 YR	2 YRS	3-4 YRS	5-9 YRS	10+ YRS
		PER MONTH	PER WEEK	PER WEEK							
124. Vitamin A (not beta-carotene)	0	1	2	3	4	01	02	03	04	05	06
125. Beta-carotene	0	1	2	3	4	01	02	03	04	05	06
126. Vitamin C	0	1	2	3	4	01	02	03	04	05	06

126a. IF RESPONSE TO Q126 (VITAMIN C) IS DIDN'T TAKE, GO TO 127.

How many milligrams of vitamin C did you usually take, on the days you took it? Would you say . . .

- 100, 01
- 250, 02
- 500, 03
- 750, 04
- 1000, 05
- 1500, 06
- 2000 or 07
- 3000 or more? 08
- DK 98

A. How often did you take (VITAMIN TYPE)?

SHOW
CARD 2A

IF RESPONSE TO VITAMIN TYPE IS DIDN'T TAKE, CIRCLE CODE 0 AND GO TO NEXT VITAMIN TYPE.

B. For how many years did you take (VITAMIN TYPE)?

SHOW
CARD 2B

VITAMIN TYPE	DIDN'T TAKE	A FEW	1-3	4-6	EVERY DAY	LESS	THAN 1 YR	1 YR	2 YRS	3-4 YRS	5-9 YRS	10+ YRS
		DAYS	DAYS	DAYS		PER MONTH						
127. Vitamin E	0	1	2	3	4	01	02	03	04	05	06	

127a. IF RESPONSE TO Q127 (VITAMIN E) IS DIDN'T TAKE, GO TO QUESTION 128.

How many IUs of vitamin E did you usually take, on the days you took it? Would you say . . .

- 100, 01
- 200, 02
- 300, 03
- 400, 04
- 600, 05
- 800, 06
- 1000 or 07
- 2000 or more? 08
- DK 98

VITAMIN TYPE	DIDN'T TAKE	A FEW	1-3	4-6	EVERY DAY	LESS	THAN 1 YR	1 YR	2 YRS	3-4 YRS	5-9 YRS	10+ YRS
		DAYS	DAYS	DAYS		PER MONTH						
128. Folic acid or folate	0	1	2	3	4	01	02	03	04	05	06	
129. Calcium, alone or combined with something else	0	1	2	3	4	01	02	03	04	05	06	
130. Zinc, alone or combined with something else	0	1	2	3	4	01	02	03	04	05	06	
131. Iron	0	1	2	3	4	01	02	03	04	05	06	
132. Selenium	0	1	2	3	4	01	02	03	04	05	06	

133. Did you take any of these supplements at least once a month? (READ) CIRCLE ALL THAT APPLY.

- Ginkgo..... 01
- Ginseng..... 02
- St. John's Wort..... 03
- Kava Kava..... 04
- Echinacea..... 05
- Melatonin..... 06
- DHEA..... 07
- Glucosamine or Chondroitin..... 08
- Something else..... 96
- NONE OF THESE..... 00

Finally, I would like to ask you a few general questions about what you eat. Using the categories on this card, please tell me . . .

A. In the past year . . .

SHOW
CARD 3

	LESS THAN ONCE PER WEEK	1-2 PER WEEK	3-4 PER WEEK	5-6 PER WEEK	1 PER DAY	1 1/2 PER DAY	2 PER DAY	3 PER DAY	4+ PER DAY
134. About how many servings of vegetables did you eat, per day or per week, not counting salad or potatoes?	01	02	03	04	05	06	07	08	09
135. About how many servings of fruit did you eat, not counting juices?	01	02	03	04	05	06	07	08	09
136. How often did you eat cold cereal?	01	02	03	04	05	06	07	08	09
137. How often did you use fat or oil in cooking?	01	02	03	04	05	06	07	08	09

138. What kinds of fat or oil did you usually use in cooking in the past year? (READ CHOICES TO RESPONDENT) MARK ONLY ONE OR TWO

- DK OR Pam..... 01
- Stick margarine..... 02
- Soft tub margarine..... 03
- Butter..... 04
- Butter/margarine blend..... 05
- Low-fat margarine..... 06
- Corn oil or vegetable oil..... 07
- Olive oil or canola oil..... 08
- Lard, fatback or bacon fat..... 09
- Crisco..... 10

READ TO RESPONDENT:

That completes our dietary interview.

Thank you very much for taking the time to complete this interview today. You have made a valuable contribution to our research.

REMEMBER TO RECORD END TIME ON THE COVER.

Appendix C
Epidemiology Questionnaire

DIET, GENETIC POLYMORPHISMS AND BREAST CANCER

IN

AFRICAN-AMERICAN WOMEN QUESTIONNAIRE

Respondent ID number: _____

Today's date: ____/____/____

Interviewer ID: _____

Start time: ____/____ am.....1
 HR MIN pm.....2

End time: ____/____ am.....1
 HR MIN pm.....2

READ TO RESPONDENT:

The interview that we will conduct at this time will examine various lifestyle factors and demographic characteristics. Please answer each question to the best of your ability. All your answers are confidential and will be used for research purposes only. The interview will take approximately 30 minutes to complete. Do you have any questions before we begin?

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**DIET, GENETIC POLYMORPHISMS AND BREAST CANCER IN
AFRICAN-AMERICAN WOMEN QUESTIONNAIRE**

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**DIET, GENETIC POLYMORPHISMS AND BREAST CANCER IN
AFRICAN-AMERICAN WOMEN QUESTIONNAIRE**

2. MEDICAL HISTORY

I would like to start by asking you some questions about your medical history and your health.

2.1 As an adult, currently or in the past, what serious illnesses or other health problems have you had. By serious I mean anything that made you stay overnight in a hospital or take medicines for more than 6 months?

What was the problem?	At what age did it begin?	Do you still have it now?	When did it stop?

2.2 Has a doctor ever told you that you have any of the following conditions? If yes, mark the condition and the age it was *first* diagnosed.

CONDITION	NO	YES	AGE			
			<30	30-39	40-49	50+
High blood pressure (not during pregnancy)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diabetes (not during pregnancy)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
High Cholesterol	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Heart attack	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Angina (chest pain)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stroke (CVA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blood clot in lungs or legs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**DIET, GENETIC POLYMORPHISMS AND BREAST CANCER IN
AFRICAN-AMERICAN WOMEN QUESTIONNAIRE**

CONDITION	NO	YES	AGE			
			<30	30-39	40-49	50+
Cyst in breast	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Was it confirmed by biopsy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fibroids in womb	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Endometriosis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lupus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sickle cell anemia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Breast cancer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lung cancer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Colon or rectal cancer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cervical Cancer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other serious illness _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2.3 When was your *last* visit to a doctor, nurse practitioner, clinic or hospital for health care for yourself?

less than 1 year ago	1	5-9 years ago	4
1-2 years ago	2	10 or more years ago	5
3-4 years ago	3		

2.4 When was your blood pressure *last* checked by a health care worker?

Never had it checked	1	3-4 years ago	4
less than 1 year ago	2	5-9 years ago	5
1-2 years ago	3	10 or more years ago	6

**DIET, GENETIC POLYMORPHISMS AND BREAST CANCER IN
AFRICAN-AMERICAN WOMEN QUESTIONNAIRE**

2.5 When was your *last* mammogram? [IF NEVER: skip to Question 2.7]

Never had one	1	3-4 years ago	4
less than 1 year ago	2	5 or more years ago	5
1-2 years ago	3		

2.6 How old were you when you had your *first* mammogram?

Never had one	1	45-49 years	4
less than 40 years	2	50 or more years	5
40-44 years	3		

2.7 In the *past year*, how many months did you practice breast self-examination?

none	1	4 - 6	4
1	2	7 - 11	5
2 - 3	3	12	6

2.8 When was your *last* pap smear?

never had one	1
less than 1 year ago	2
1 - 2 years ago	3
3 - 4 years ago	4
5 or more years ago	5

2.9 Did you ever have a D & C? (a scraping or cleaning out of your womb)

Yes	1
No -----> Go to Question 2.11	2

2.10 IF YES: What was your age at your *last* D & C?

Less than 30	1	40 - 44	4
30 - 34	2	45 -49	5
35 -39	3	50 or more	6

**DIET, GENETIC POLYMORPHISMS AND BREAST CANCER IN
AFRICAN-AMERICAN WOMEN QUESTIONNAIRE**

2.11 What is your current weight? _____ lbs

2.12 What was your weight at age 18? _____ lbs

2.13 What was your weight at age 21? _____ lbs

2.14 What was your weight at age 30? _____ lbs _____ N/A

2.13 How tall are you? _____ feet _____ inches

* * * * *

For clinic use only

height: _____ feet _____ inches

weight: _____ lbs

waist: _____ cm

hips: _____ cm

**DIET, GENETIC POLYMORPHISMS AND BREAST CANCER IN
AFRICAN-AMERICAN WOMEN QUESTIONNAIRE**

3. MENSTRUAL AND REPRODUCTIVE HISTORY

The next set of questions are about your menstrual and reproductive history.

3.1 How old were you when your menstrual periods began?

9 or less	1	13	5	17 or more	9
10	2	14	6	never had	10
11	3	15	7		
12	4	16	8		

3.2 At what age did your menstrual periods become regular?

9 or less	1	13	5	17 or more	9
10	2	14	6	never had	10
11	3	15	7		
12	4	16	8		

3.3 How many times have you been pregnant? _____

	Pregnancy number:											
	1	2	3	4	5	6	7	8	9	10	11	12
3.4 How old were when you became pregnant?												
Age												
3.5 What happened to each of those pregnancies?												
Single live birth												
Multiple live birth, any living												
Multiple live birth, none living												
Stillbirth												
Miscarriage												
Induced Abortion												

**DIET, GENETIC POLYMORPHISMS AND BREAST CANCER IN
AFRICAN-AMERICAN WOMEN QUESTIONNAIRE**

3.5 (continued)	Pregnancy number:											
	1	2	3	4	5	6	7	8	9	10	11	12
Ectopic or tubal												
Molar												
Currently pregnant												
Other (specify)												
3.6 Did you breast feed any of these babies for at least two weeks or longer?												
Yes 1												
No 2												

3.7 Have you had a menstrual period in the last 6 weeks?

Yes 1 -----> Go to Question 4.6
No 2

3.8 Has a doctor or other health professional told you that you had completed menopause or the change of life?

Yes 1
No 2 -----> Go to Question 4.1

3.9 At what age was your last menstrual period? _____

3.10 What was the reason that your menstrual periods stopped? _____

MENO	Change of life or natural Menopause	1 -----> Go to Question 4.1
HYSW	Hysterectomy, still has ovaries	2
HYSO	Hysterectomy, ovaries removed	3
HYS1	Hysterectomy, one ovary	4
PREG	Currently pregnant	5
HORMF	Taking female hormones	6
OTHER	Other reason (specify: _____)	7

**DIET, GENETIC POLYMORPHISMS AND BREAST CANCER IN
AFRICAN-AMERICAN WOMEN QUESTIONNAIRE**

3.11 If your periods stopped because of surgery, what was removed? (Mark all that apply)

- | | |
|-------------------------------|---|
| womb (uterus) removed | 1 |
| both ovaries removed | 2 |
| 1 ovary removed | 3 |
| don't know if ovaries removed | 4 |

3.12 If you had surgery, what was the reason? (Mark all that apply)

- | | |
|--------------------|---|
| fibroids in womb | 1 |
| endometriosis | 2 |
| bleeding from womb | 3 |
| other -----> _____ | 4 |

**DIET, GENETIC POLYMORPHISMS AND BREAST CANCER IN
AFRICAN-AMERICAN WOMEN QUESTIONNAIRE**

4. MEDICATION HISTORY

Now I will ask you some questions about your medication history.

4.1 Have you ever used replacement female hormones (like estrogen) for menopause (include pills, injections, or patches)?

- | | |
|------------------------------|---|
| Yes | 1 |
| No -----> Go to Question 4.6 | 2 |

4.2 IF YES: When did you last take them?

- | | |
|----------------------|---|
| still taking them | 1 |
| less than 1 year ago | 2 |
| 1 - 2 years ago | 3 |
| 3 or more years ago | 4 |

4.3 How many years did you take them?

- | | | | |
|------------------|---|------------------|---|
| less than 1 year | 1 | 5 - 6 years | 5 |
| 1 year | 2 | 7 - 9 years | 6 |
| 2 years | 3 | 10 - 14 years | 7 |
| 3 - 4 years | 4 | 15 or more years | 8 |

4.4 What did you use most recently?

- | | |
|--|---|
| Premarin or other estrogen pills alone | 1 |
| Progesterone (Provera, etc.) pills alone | 2 |
| Estrogen and progesterone together | 3 |
| Patch estrogen and progesterone | 4 |
| Estrogen vaginal cream | 5 |

Name of Medication -----> _____

4.5 If you used progesterone, what was your pattern of use?

- | | |
|-----------------------------------|---|
| used continuously (everyday) | 1 |
| used 2 - 3 weeks each month | 2 |
| used less than 2 weeks each month | 3 |
| other patter of use -----> _____ | 4 |

**DIET, GENETIC POLYMORPHISMS AND BREAST CANCER IN
AFRICAN-AMERICAN WOMEN QUESTIONNAIRE**

4.6 Do you currently take any of the following medications at least 3 days a week?

ASPIRIN (Anacin, Bayer, Excedrin, etc.)			
<input type="checkbox"/> Yes	→ For how long →	<input type="checkbox"/> less than 1 yr.	<input type="checkbox"/> 3 - 4 yrs.
		<input type="checkbox"/> 1 yr.	<input type="checkbox"/> 5 or more yrs.
<input type="checkbox"/> No		<input type="checkbox"/> 2 yrs.	
ACETOMINOPHEN (Tylenol, Anacin-3, Panadol, etc.)			
<input type="checkbox"/> Yes	→ For how long →	<input type="checkbox"/> less than 1 yr.	<input type="checkbox"/> 3 - 4 yrs.
		<input type="checkbox"/> 1 yr.	<input type="checkbox"/> 5 or more yrs.
<input type="checkbox"/> No		<input type="checkbox"/> 2 yrs.	
Water pills for high blood pressure or other reasons (Diuril, Hydrodiuril, etc)			
<input type="checkbox"/> Yes	→ For how long →	<input type="checkbox"/> less than 1 yr.	<input type="checkbox"/> 3 - 4 yrs.
		<input type="checkbox"/> 1 yr.	<input type="checkbox"/> 5 or more yrs.
<input type="checkbox"/> No		<input type="checkbox"/> 2 yrs.	
Other blood pressure medication (Vasotec, Minipres, Calan, etc.)			
<input type="checkbox"/> Yes	→ For how long →	<input type="checkbox"/> less than 1 yr.	<input type="checkbox"/> 3 - 4 yrs.
		<input type="checkbox"/> 1 yr.	<input type="checkbox"/> 5 or more yrs.
<input type="checkbox"/> No		<input type="checkbox"/> 2 yrs.	
Insulin			
<input type="checkbox"/> Yes	→ For how long →	<input type="checkbox"/> less than 1 yr.	<input type="checkbox"/> 3 - 4 yrs.
		<input type="checkbox"/> 1 yr.	<input type="checkbox"/> 5 or more yrs.
<input type="checkbox"/> No		<input type="checkbox"/> 2 yrs.	
Pills for diabetes			
<input type="checkbox"/> Yes	→ For how long →	<input type="checkbox"/> less than 1 yr.	<input type="checkbox"/> 3 - 4 yrs.
		<input type="checkbox"/> 1 yr.	<input type="checkbox"/> 5 or more yrs.
<input type="checkbox"/> No		<input type="checkbox"/> 2 yrs.	
List any other medications (including herbal medicines) you are currently using at least 3 days a week (except vitamins):			

**DIET, GENETIC POLYMORPHISMS AND BREAST CANCER IN
AFRICAN-AMERICAN WOMEN QUESTIONNAIRE**

5. FAMILY HISTORY

Now I would like to ask you some questions about whether there has been any cancer in your family.

5.1 Has anyone in your family that is related to you by blood, ever been told they have cancer, include children, parents, grandparents, brothers, sisters or immediate aunts or uncles?

- Yes 1
 No -----> Go to Question 6.1 2

5.2 IF YES: Please list below those relatives who have had cancer. (Please indicate maternal or paternal relative)

Which relative?	First name	What type of cancer?	Age at diagnosis

**DIET, GENETIC POLYMORPHISMS AND BREAST CANCER IN
AFRICAN-AMERICAN WOMEN QUESTIONNAIRE**

6. TOBACCO HISTORY

Now I would like to ask you about smoking.

6.1 Have you ever smoked one cigarette or more everyday for at least a year?

- Yes, I smoke currently 1
- Yes, but I no longer smoke 2
- No -----> Go to question 6.10 3 *[Disregard Section 7]*

6.2 At what age did you start to smoke regularly?

- | | | | |
|------------|---|------------|---|
| 14 or less | 1 | 18 | 5 |
| 15 | 2 | 19 | 6 |
| 16 | 3 | 20 | 7 |
| 17 | 4 | 21 or more | 8 |

6.3 Have you increased or decreased your amount of cigarette smoking in the last 3 months?

- Yes 1
- No 2

6.4 How many cigarettes have you smoked in the last 48 hours? _____

6.5 How many cigarettes have you smoked in the last 1 hour? _____

6.6 In the *first* few years that you smoked, how many cigarettes did you smoke each day?

- | | | | |
|-------------|---|------------|---|
| less than 5 | 1 | 25-34 | 4 |
| 5-14 | 2 | 35-44 | 5 |
| 15-24 | 3 | 45 or more | 6 |

**DIET, GENETIC POLYMORPHISMS AND BREAST CANCER IN
AFRICAN-AMERICAN WOMEN QUESTIONNAIRE**

6.7 In the *last* few years that you smoked, how many cigarettes did you smoke each day?

less than 5	1	25-34	4
5-14	2	35-44	5
15-24	3	45 or more	6

6.8 If you have stopped smoking, when did you stop?

less than 1 year ago	1	3-4 years ago	4
1 year ago	2	5-9 years ago	5
2 years ago	3	10 or more years ago	6
		N/A; still smoking	7

6.9 How many years have you been smoking or did you smoke in the past?

Less than 10	1	20-24	4
10-14	2	25-29	5
15-19	3	30 or more	6

6.10 Have you ever smoked cigars on a daily basis for more than 6 months?

Yes, I smoke currently	1
Yes, but I no longer smoke	2
No -----> Go to question 6.15	3

6.11 At what age did you begin to smoke cigars? _____

6.12 How many cigars do you usually smoke in a day, week, or month?

_____	_____	_____
Number	Day / Week	Month

6.13 How many cigars have you smoked in the last 48 hours? _____

**DIET, GENETIC POLYMORPHISMS AND BREAST CANCER IN
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6.14 Have you increased or decreased your level of cigar smoking in the last 3 months?

Yes 1
No 2

6.15 In your home as an adult, does or did anyone (e.g., husband, partner, children, parent, etc.) smoke cigarettes?

Yes 1
No 2 -----> Go to question 7.1

6.16 How many people smoke in your home? _____

6.17 Who smokes in your home?

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

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7. NICOTINE DEPENDENCE

[Please note: if the answer to 6.1 is NO disregard this section.]

Now I will ask you some questions to examine your nicotine dependence.

7.1 How soon after you wake up do you smoke your first cigarette?

Within 5 minutes	3	31-60 minutes	1
6- 30 minutes	2	After 60 minutes	0

7.2 Do you find it difficult to refrain from smoking in places where it is forbidden (e.g., in church, at the library, in the cinema, etc.)?

Yes	1
No	0

7.3 Which cigarette would you hate most to give up?

The first one in the morning	1
All others	0

7.4 How many cigarettes/day do you smoke?

10 or less	0	21-30	2
11-20	1	31 or more	3

7.5 Do you smoke more frequently during the first hours after waking than during the rest of the day?

Yes	1
No	0

7.6 Do you smoke if you are so ill that you are in bed most of the day?

Yes	1
No	0

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8. ALCOHOL HISTORY

Now I would like to ask you some questions about consumption of alcoholic beverages.

8.1 Did you ever drink alcoholic beverages (beer, wine, wine cooler, or liquor) at least once a week for at least a year?

- Yes, I drink currently 1
- Yes, but I no longer drink 2
- No -----> Go to Question 8.5 3

8.2 IF YES: At what age did you start to drink alcoholic beverages regularly?

- | | | | |
|--------------|---|------------|---|
| less than 15 | 1 | 25 - 29 | 4 |
| 15 - 19 | 2 | 30 or more | 5 |
| 20 - 24 | 3 | | |

8.3 In the *first few* years that you drank alcoholic beverages, how many drinks did you have each week (1 drink equals 1 beer, 1 glass of wine or wine cooler, or 1 shot of liquor)?

- | | | | |
|-------------|---|------------|---|
| less than 1 | 1 | 14 - 20 | 5 |
| 1 - 3 | 2 | 21 - 27 | 6 |
| 4 - 6 | 3 | 28 or more | 7 |
| 7 - 13 | 4 | | |

8.4 How many years have been drinking or did you drink in the past?

- | | | | |
|--------------|---|------------|---|
| less than 10 | 1 | 20 - 24 | 4 |
| 10 - 14 | 2 | 25 - 29 | 5 |
| 15 - 19 | 3 | 30 or more | 6 |

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8.5 In the past year, how many drinks of beer, wine, (or wine cooler) and liquor did you drink?

Number of drinks per week	Beer (12 oz)	Wine (4 oz)	Liquor (1 shot)
None			
less than 1			
1 - 3			
4 - 6			
7 - 13			
14 - 20			
21 or more			

8.6 Have you had any alcoholic beverages such as beer, wine or liquor in the last 7 days?

Yes 1
No 2 -----> Go to Question 9.1

8.7 IF YES: Please complete the following table

Number of drinks per week in the last 7 days.	Beer (12 oz)	Wine (4 oz)	Liquor (1 shot)
None			
less than 1			
1 - 3			
4 - 6			
7 - 13			
14 - 20			
21 or more			

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9. PHYSICAL ACTIVITY

Now I would like to discuss physical activity.

9.1 On average, during the *past year*, how many hours each day did you spend:

	None	less than 1 hour	1 - 2 hours	3 - 4 hours	5 or more hrs.
Sitting in a car or bus					
Sitting at work / school					
Watching television					
Sitting at meals					
Other sitting					
Walking at work / school					
Walking to or from work / school					

9.2 On average, during the *past year*, how many hours each day did you spend:

	None	less than 1 hour	1 hour	2 hours	3 - 4 hours	5 - 6 hours	7 - 9 hours	10 or more hours
Walking for exercise								
Moderate activity (such as housework, gardening, bowling)								

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9.3 On average, at each of the following times, how many hours each *week* did you participate in strenuous physical activity (such as basketball, swimming, running, aerobics)?

	None	less than 1 hour	1 hour	2 hours	3 - 4 hours	5 - 6 hours	7 - 9 hours	10 or more hours
In the past year								
During high school								
At around age 21								
At around age 30								
At around age 40								

*N/A = not applicable

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9.4 Tell me about the kinds of activities you do in hours per week:				
	In the last 7 days	One year ago	At age 40	At age 20
Walking				
Jogging/running				
Lap swimming				
Tennis or racquetball				
Bicycling or stationary bike				
Aerobics/calisthenics				
Dancing				
Weight lifting				
Gardening, mowing, planting				
Heavy housework, vacuuming				
Light house work				
Sitting, (reading, watching TV)				

N/A - not applicable

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10. DEMOGRAPHIC INFORMATION

Lastly, I would like to ask you some general questions about your demographics.

10.1 What is your current age: _____ yrs.

10.2 What is your race/ethnicity:

- | | | | |
|---------------------------|---|----------------------------------|---|
| Black or African American | 1 | American Indian / Alaskan Native | 4 |
| White | 2 | Asian / Pacific Islander | 5 |
| Hispanic | 3 | Other | 6 |

10.3 What is your marital status?

- | | |
|----------------------------------|---|
| Single, never married | 1 |
| Married | 2 |
| Divorced | 3 |
| Separated | 4 |
| Widowed | 5 |
| Has a partner, living as married | 6 |

10.4 What was the highest level of education that you completed:

- | | |
|--|----|
| Didn't go to school | 1 |
| Grade School (1-4 years) | 2 |
| Grade School (5-8 years) | 3 |
| Some high school (9-11 years) | 4 |
| High School diploma or GED | 5 |
| Vocational or training school after high school graduation | 6 |
| Some college or Associate Degree | 7 |
| College graduate or Bacclareate Degree | 8 |
| Some College or Professional school after college graduation | 9 |
| Master's Degree | 10 |
| Doctoral Degree (Ph.D., MD, JD, etc.) | 11 |

**10.5 Which category or categories best describe how you usually pay for your medical care?
(Mark all that apply)**

- | | |
|---|---|
| Private insurance (e.g., Blue Cross/Blue Shield, Aetna, etc.) | 1 |
| Prepaid Private Insurance (e.g., HMO, Group Health Plan) | 2 |
| Medicaid (e.g., medical assistance, _____) | 3 |
| No insurance | 4 |
| Other: _____ | 5 |

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10.6 What is your current level of household income per year? *[Show the categories]*

Less than \$10,000	1
\$10,000-30,000	2
\$30,000-60,000	3
\$60,000-90,000	4
Greater than \$90,000	5

10.7 How many people are currently supported in your household? _____

CLOSING: This concludes the interview. Thank you very much for your help with this study. We may contact you again later if we need to clarify any of the information you have provided.

Time ended: _____ AM
PM

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11. INTERVIEWER REMARKS

11.1 Interview was conducted:

Home	1
Hospital - inpatient	2
Hospital - outpatient	3
Non-residential, non-hospital location	4
Other (specify: _____)	5

11.2 Respondants cooperation was:

Very good	1
Good	2
Fair	3
Poor	4

The quality of the information in each section of the interview was:					
		Very Good	Good	Fair	Poor
1	IDENTIFIER SHEET				
2	MEDICAL HISTORY				
3	MENSTRUAL & REPRODUCTIVE HISTORY				
4	MEDICATION HISTORY				
5	FAMILY HISTORY				
6	TOBACCO HISTORY				
7	NICOTINE DEPENDENCE				
8	ALCOHOL HISTORY				
9	PHYSICAL ACTIVITY				
10	DEMOGRAPHIC INFORMATION				
11	INTERVIEWER REMARKS				
12	MEDICAL RECORD ABSTRACTION FOR CASES				

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11.3 The overall quality of the interview was:

Very good	1
Good	2
Fair	3
Poor	4

11.4 The main reason for fair or poor quality of information was because the respondent:

_____	1	Did not know enough information regarding the topics
	2	Did not want to be more specific
	3	Did not understand or speak English well
	4	Was upset or depressed
	5	Had poor hearing or speech
	6	Was confused by frequent interruptions
	7	Was emotionally unstable
	8	Reserved
	9	Was physically ill
	10	Other specify: _____

Reviewers' initials: _____

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12. MEDICAL RECORD ABSTRACT *FOR CASES ONLY*

12.1 Name of medical record abstractor: _____

12.2 Date of medical record abstract: ___/___/___

12.3 Name of Hospital: _____

12.4 Medical Record Number: _____

12.5 Admission Date for this hospitalization: ___/___/___

12.6 Discharge date for this hospitalization: ___/___/___

12.7 Date of Birth: ___/___/___

12.8 Marital status: _____

Married	1
Widowed	2
Legally divorced	3
Separated	4
Never married	5
Doesn't know	6
Unavailable - Specify why but do not code:	

12.9 Discharge Diagnoses: (from discharge summary, if not available then state source, but do not code)

Diagnosis	ICD Code

12.10 Previous medical diagnoses recorded in history of present illness:

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Diagnosis	ICD Code

12.11 Name of this surgery: _____

12.12 Operative Findings: _____

12.13 Type of Anesthesia: _____

12.14 Medications administered during surgery and in recovery:

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12.15 Medicines listed at time of admission from history of present illness:

12.16 Medicines taken within 48 hours prior to blood draw for study: (if surgery was within 48 hours of admission then list all medicines given in hospital plus medicines listed at time of admission)

12.17 Blood Group: _____

12.18 Weight upon admission: _____ lbs

12.19 Height upon admission: _____ feet _____ inches

12.20 Subject smoke cigarettes: Yes 1
 No 2 -----> **Go to Question 12.22**
 Unavailable 3

12.21 If a smoker, then what information is available (pack years, number of years, etc.):

12.22 Subject drinks alcohol: Yes 1
 No 2 -----> **Go to Question 12.24**
 Unavailable 3

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12.23 If drinks alcohol, then what information is available:

12.24 Subject use illicit or illegal drugs:

Yes 1
No 2 -----> Go to Question 12.26
Unavailable 3

12.25 If subject uses illicit or illegal drugs, then what information is available:

12.26 Family history of cancer:

Yes 1
No 2 -----> Go to Question 12.28
Unavailable 3

12.27 IF YES: Who in the family is noted to have cancer?

Family Member	Type of Cancer	Age at diagnosis

12.28 Occupation listed in medical record:

Yes (specify: _____) 1
No 2
Unavailable 3

Appendix D
Submitted Abstracts

MUTAGEN SENSITIVITY AS A PREDICTOR OF BREAST CANCER RISK: A STUDY IN AFRICAN-AMERICAN WOMEN

Thanemozhi G. Natarajan¹, Peter G. Shields¹, Pamela Carter-Nolan², Cynthia Tucker² and Lucile L. Adams-Campbell².

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African American women have the highest rates of mortality from breast cancer vs. any other ethnic group in the US. Factors contributing to their breast cancer development are not completely understood. Recent studies suggest that late diagnosis in African American women as one of several reasons for lower survival rate. Studying and testing biomarkers on ethnically classified cohort of women would have great significance in understanding breast cancer development and their early detection. Relevant to this, we are performing a case-control study to determine whether radiation induced chromosomal breaks correlates with the risk of having breast cancer in African American women and if it could be used as biomarker. African American women diagnosed with breast cancer were recruited from Howard University Cancer Center, Washington, DC. Controls were healthy African American women with no previous cancer history. A G₂-phase chromosomal radio-sensitivity assay (mutagen sensitivity assay) was performed on peripheral blood lymphocytes obtained from 45 cases and 42 controls. One ml of whole blood was cultured in 9 ml of blood media and exposed to 1 Gy of γ -radiation from a ¹³⁷Cs irradiator at 67 h post-stimulation. Followed by an additional 4 h of incubation, the cultures were treated with colcemid for 1 h to arrest the cells in metaphase. A minimum of 50 metaphase spreads was analyzed and frank chromatid breaks per cell were recorded. Mann-Whitney U test was used to compare cases and controls with α set at 0.05. Breast cancer cases had a significantly higher number of γ -radiation-induced chromatid breaks per cell compared to controls, with mean values of 0.35 (SD = 0.14) vs. 0.28 (SD= 0.13), respectively ($p = 0.03$). Categorization based on age at diagnosis, menarche, menopausal status, alcohol consumption and smoking appeared to influence radio-sensitivity significantly. Women diagnosed with breast cancer below 59 y had a higher number of breaks than controls ($p= 0.004$). Cases who had attained menarche between 10-12 years showed statistically higher number of breaks compared to controls ($p = 0.05$). Premenopausal women appeared to be more radiosensitive ($p = 0.03$) while for postmenopausal women no difference was observed. Mutagen sensitivity was significantly higher among cases who were currently smokers compared to current smokers among controls ($p = 0.03$). Breast cancer women with a history of alcohol consumption had a significantly higher number of mean breaks per cell than controls with similar history ($p = 0.04$). Grouping based on family history of breast cancer and other cancers did not show significant difference in radio-sensitivity. These preliminary data suggest an association between chromosomal radio-sensitivity and risk of breast cancer in African American women. A larger study however, is needed to validate the use of radiation induced chromosomal sensitivity as a valid biomarker in this ethnic group.

ALCOHOL AND BREAST CANCER RISK IN AFRICAN AMERICAN WOMEN

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ABSTRACT: The etiology of breast cancer in African American women is not well understood. Historically, African-American women have presented with advanced disease including large tumor size, increased number of positive axillary lymph nodes, and more distant metastatic disease than White or Hispanic women. It is hypothesized that certain behavioral factors such as alcohol consumption may be associated with increased risk of breast cancer. Epidemiological data have supported alcohol consumption as a weak to moderate risk factor for breast cancer. Alcohol has been noted as a risk factor in postmenopausal women, in particular. The goal of the present study is to determine the relationship of alcohol to risk of breast cancer in African-American women.

A sample of 114 African-American women was recruited to the study of breast cancer. Women included in the study received a diagnosis of breast cancer or underwent treatment at Howard University Hospital and resided in the Washington, D.C. area. All breast cancer cases had to be identified within 1 year of diagnosis. Breast cancer cases represented incident cases. The controls were selected from the District of Columbia's Voter Election Board registration. All controls were randomly selected females from the Voter Registration list and group matched by age (within 1 year) and zip codes to the cases.

The mean age of the cases and controls were 57.0 and 53.0 years, respectively. There were 50 (69.4%) and 22(30.6%) pre and postmenopausal women with breast cancer compared to 19 (45.2%) and 23 (54.8%) for the controls. It was observed among the cases that 18.1% (13), 15.3% (11) and 66.7% (48) were current, former and never drinkers. Among the controls the rates were 31.0 (13), 26.2% (11), and 42.9% (18) respectively for current, former and never. There was a statistically significant difference between the cases and controls for alcohol consumption ($p=.046$). The cigarette smoking rates were different between the cases and control ($p=.066$). The findings of the present study reveal that there is an association between behavioral factors such as alcohol and breast cancer.

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Diet, Genetic Polymorphisms and Breast Cancer Among African-Americans

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Dietary fat and cooking practices, such as overcooking of meats that can lead to the formation of heterocyclic amines (HAAs) and polycyclic aromatic hydrocarbons (PAHs), differ by racial groups and culture. The project initially will assess the role of dietary fat, cholesterol, cooking practices (i.e. of fatty foods that would increase HAAs and PAHs), smoking, and alcohol consumption as risk factors for breast cancer. The primary goal of the project is to identify non-hormonal dietary risk and genetic susceptibility factors for breast cancer in African-American women. Specifically, the hypotheses that these are risk factors mediated by host capacity for metabolism will be tested. The study design also will allow the testing of new hypotheses as they emerge. A case-control study of 250 breast cancer incident cases and 250 controls will be conducted on African-American women in Washington, D.C. Genetic variation in apolipoproteins (Apo E, Apo A, Apo B), N-acetyl transferase (NAT 1 and NAT 2), Cytochrome P₄₅₀ (CYPIA1), Glutathione-S-transferase M1 (GSTM1), and alcohol dehydrogease (ADH2 and ADH3) will be determined. Odds ratios and logistic regression will be used to evaluate the association of genetic polymorphisms and dietary factors as risk factors for breast cancer. Also examined will be the effect modification for known breast cancer risk factors by these genetic polymorphisms.

During the first year of the study the following methodological issues have been addressed: IRB approval; development and piloting of a HAAs questionnaire and epidemiology questionnaire among African-American women; development of an eligibility survey; submission and notification of approval to conduct this research project at the Howard University General Clinical Research Center (GCRC); and the development of a standardized protocol of research guidelines and procedures for GCRC. In addition, a Voter Registration list has been obtained and is being used to randomly select female population-based controls. The list of controls to be recruited will be randomly generated via the computer and matched by age (within one year) and zip codes to cases.