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13. ABSTRACT *(Maximum 200 Words)*

The present study estimated age-specific hospital admission rates for breast cancer in African American (AA) and White women through analyzing National Hospital Discharge Survey (NHDS) data from 1988 to 1994. Weighted linear regression was used to analyze trends. Specific standard errors for rates analyzed in the regression were produced using the SUDAAN program. The statistical significance of the weighted least squares test for trends is based on the two-sided z-test with a critical value of 1.96 (α=0.05). Hospital admission rates of breast cancer cases decreased among white women ($p<0.0004$). The rates for AA women were cubically associated with the lowest rate in 1990 and an increase in 1993. The mean 'Length of stay' was linearly decreasing over study period for Whites ($p<0.0093$) but not for AA women ($p<0.43$). Mean number of diagnosis was significantly increasing over time among whites ($p<0.005$) while that of AA was not linearly associated ($p<0.24$). Mean number of procedures was not linearly increasing among whites ($p<0.13$) nor among AA ($p<0.13$). 'Unspecified essential hypertension' was the most frequent comorbid condition of breast cancer and 'Injection of infusion of cancer chemotherapeutic substance' was the most frequently used procedure for comorbid of breast cancer.

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INTRODUCTION

Although the overall incidence rate of breast cancer is lower among African American (AA) than white women, the incidence rate of breast cancer is higher among young (<45 years) AA women than young white women[1]. To investigate this trend, we estimated age-specific hospital admission rates for breast cancer in AA and white women through analyzing National Hospital Discharge Survey (NHDS) data from 1988 to 1994. Trend analyses[2-3] on age-specific and overall breast cancer admissions were included in the annual report of year 2000.

BODY

There were six specific aims of the present study:

(1) To estimate age-specific breast cancer hospital admission rate among African American and White women from 1988 to 1994 using NHDS data
(2) To assess the 8 year trend (include 1987) of age-specific breast cancer hospital admission rate among <40 and 40-49 African American and White women
(3) To estimate number of comorbid illness and categorize top ten illness by frequency, by race from 1988 to 1994
(4) To compare the number of procedures performed for similar comorbid illness by race from 1988 to 1994
(5) To describe general characteristic of breast cancer patients i.e., marital status, length of stay, expected source of payment, geographic region, age, and race from 1987 to 1994
(6) Through this eight-year estimation, provide recommendations on education, primary prevention and screening for breast cancer.

Findings of specific aim (1) were reported in the annual report of year 2000. For specific aim (2), due to the sample design changed in 1988, we did not include 1987 data in the analysis. The age groups used for the hospital admission rates included all ages, 20 to 44 years, 45 to 59 years, 60 to 69 years, and 70 to 84 years for accurate assessments of rates. Findings of specific aim (2) were included in the annual report of year 2000.

Diagnostic data included up to seven diagnoses per patient. For specific aim (3), the average number of diagnoses was 3.04 in 1988 and 3.41 in 1994 among white and 3 and 3.16 among AA, respectively. In order to find comorbidity of breast cancer, we excluded diagnoses or procedures related to breast cancer (i.e., ICD-9-CM: 174.0 – 174.9, 196.3, 198.81, and 233 and procedure codes 40.3, 40.51, 85.1, 85.11, 85.12, 85.19, 85.2 through 85.23, 85.4, and 85.41 through 85.48) and listed the top 10 diagnoses from 1988 to 1994 (Tables 1a -1g: Appendix A and by race - Tables 2a-2n: Appendix B). The frequency was not weighted to the U.S. women. Unspecified essential hypertension was the most frequent comorbid condition of breast cancer for both white and African American women.

The procedure data included a maximum of four procedures per patient. The average number of procedures was 1.52 in 1988 and 1.59 in 1994 among white and 1.44 and 1.49 among AA, respectively. We excluded procedures related to breast cancer (procedure codes 40.3, 40.51, 85.1, 85.11, 85.12, 85.19, 85.2 through 85.23, 85.4, and 85.41 through 85.48) and listed five most frequently used procedures (Tables 3a-3g: Appendix C and by race - Tables 4a-4n: Appendix D). The frequency was not weighted to the U.S. women. Injection of infusion of cancer chemotherapeutic substance was the most frequently used procedure of comorbid condition of breast cancer.

Findings of specific aim (5) were reported in the annual report of year 2000. It is our view that there should be required health education courses where breast self examination is taught at the high school and college levels. These courses may have the largest input on early detection in populations of young women at increased risk of developing breast cancer. Montgomery County Public High Schools, Maryland, has a

breast health education program sponsored by Hadassah called "Check It Out" (Appendix E). It is conducted in an assembly format. The session features an educational film, presentations by a survivor and a registered nurse. A program similar to "Check It Out" should be designed and implemented throughout the U.S Public High Schools, particularly where students are predominantly African Americans.

KEY RESEARCH ACCOMPLISHMENTS:

- Age-specific breast cancer hospital admission rates were estimated from 1988 to 1994 using NHDS data.
- Linear trends of breast cancer hospital admission rates among race and age groups were assessed.
- Influential year for the linear trend was analyzed.
- Diagnoses and procedures of comorbidity of breast cancer were analyzed.
- General characteristics of breast cancer patients (i.e., marital status, length of stay, expected source of payment, geographic region, age, and race) were described.

REPORTABLE OUTCOMES:

- Abstract
  1. Kim KS, Owen W, Chung K, and Hurtt K. "National Discharge Survey Data Analysis of Breast Cancer Between African and American and White Women", Era of Hope: Department of Defense Breast Cancer Research Program Meeting", Proceedings Vol.1, p.345, 2000. (Appendix F)
  2. Kim KS, Kim J, and Lee KY. "Detecting an Influential Year in Understanding Linear Trend of National Breast Cancer Hospital Admission Rates in 1988-1994, USA", Bulletin of the International Statistical Institute: 53rd Session contributed Papers, Book2, pp505-506, 2001. (Appendix G)

- Presentation
  1. Kim KS, Owen W, Chung K, and Hurtt K. "National Discharge Survey Data Analysis of Breast Cancer Between African and American and White Women", Era of Hope Department of Defense Breast Cancer Research Program Meeting", Atlanta, Georgia, June 8-12, 2000.
  2. Kim KS, Kim J, and Lee KY. "Detecting an Influential Year in Understanding Linear Trend of National Breast Cancer Hospital Admission Rates in 1988-1994, USA", Seoul, Korea, August 22-29, 2001.

- Funding applied for based on work supported by this award
  Idea Award, Department of Defense, applied in June 2001.
  Title: National Hospital Discharge Survey Data and National Survey of Ambulatory Surgery Data Analysis of Breast Cancer between African American and White Women (Appendix H – Abstract)

CONCLUSIONS:

National hospital admission rates of breast cancer were linearly decreasing except for AA women age 20-44 group. The percentages of white and AA women in the 20-44 age group for the years under study were respectively, 1988:17.4% and 14.1%, 1989:15.5% and 20.7%, 1990:19.1% and 23.2%, 1991: 18.4% and 23.9%, 1992:18.2% and 27.2%, 1993:21.1% and 25.2%, and 1994:18.2% and 30.6%. This phenomenon indicates that higher proportion in young AA women than whites across the years from 1989 to 1994.

For ages 20-44, the relative risk of hospital admission due to breast cancer was higher among AA than whites for women discharged in 1989, 1992, 1993, and 1994 but not for those discharged in 1988, 1990, and 1991. Advances in medical technology and new anesthetic drugs that allow patients to regain consciousness more quickly following surgery, have increasingly enabled many procedures to be performed outside the hospital inpatient setting. Data from the SMG Marketing Group indicate that in 1993, U.S. hospitals performed about 12.4 million outpatient surgical procedures and that about 52

percent of all surgery in hospitals was ambulatory surgery[4-5]. Therefore, the omission of ambulatory surgery from the surgical care database has left a significant gap in coverage and limits the utility of the current NHDS data[6]. National Survey of Ambulatory Surgery (NSAS) data has to be analyzed in addition to NHDS data to examine the trend of health care utilization of breast cancer.

It is recommended that a breast health education program similar to "Check It Out" be implemented throughout U.S. Public High Schools especially where students are predominantly African Americans.

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1. Breast Cancer Facts and Figures 1999-2000, American Cancer Society, p2.
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4. McLemore T, Lawrence L. (1997) Plan and Operation of the National Survey of Ambulatory Surgery. Vital and Health Statistics. Series 1, no 37.
5. SMG Marketing Group, Inc. (1996) Outpatient surgery centers exceed 3 million cases. SMG Market Letter 8(5).
6. National Survey of Ambulatory Surgery (1997)- Public Use Data Tape Documentation.

LIST OF PERSONNEL

Kwangmi Chung	Research Associate	50%
Willis Owen, Ph.D.	Consultant	

APPENDICES

APPENDIX A

Table 1a. Frequency and Percent of Ten Most Frequent Comorbid Diagnoses of Breast Cancer in 1988

ICD-9CM	Diagnosis	Frequency	%
6101	Diffuse cystic masopathy	285	5.3
4019	Unspecified essential hypertension	253	4.7
1985	Secondary malignant neoplasm of bone and bone marrow	168	3.1
V103	Personal history of malignant neoplasm in breast	168	3.1
V581	Chemotherapy	168	3.1
2859	Anemia, unspecified	114	2.1
217	Benign neoplasm of breast	109	2.0
25000	Type II Diabetes Mellitus without complication	100	1.9
5990	Urinary Tract Infection, site not specified	85	1.6
4140	Coronary atherosclerosis	84	1.6

Table 1b. Frequency and Percent of Ten Most Frequent Comorbid Diagnoses of Breast Cancer in 1989

ICD-9CM	Diagnosis	Frequency	%
4019	Unspecified essential hypertension	260	5.0
6101	Diffuse cystic masopathy	210	4.0
1985	Secondary malignant neoplasm of bone and bone marrow	171	3.3
V103	Personal history of malignant neoplasm in breast	169	3.2
V581	Chemotherapy	146	2.8
217	Benign neoplasm of breast	97	1.9
2859	Anemia, unspecified	97	1.9
25000	Type II Diabetes Mellitus without complication	81	1.5
5990	Urinary Tract Infection, site not specified	79	1.5
1977	Secondary malignant neoplasm of liver	71	1.4

Table 1c. Frequency and Percent of Ten Most Frequent Comorbid Diagnoses of Breast Cancer in 1990

ICD-9CM	Diagnosis	Frequency	%
4019	Unspecified essential hypertension	221	6.5
1985	Secondary malignant neoplasm of bone and bone marrow	144	4.3
V103	Personal history of malignant neoplasm in breast	120	3.6
6101	Diffuse cystic masopathy	96	2.8
25000	Type II Diabetes Mellitus without complication	68	2.0
5990	Urinary Tract Infection, site not specified	60	1.8
4140	Coronary atherosclerosis	59	1.8
2859	Anemia, unspecified	58	1.7
1970	Secondary malignant neoplasm of lung	55	1.6
V581	Chemotherapy	53	1.6

Table 1d. Frequency and Percent of Ten Most Frequent Comorbid Diagnoses of Breast Cancer in 1991

ICD-9CM	Diagnosis	Frequency	%
4019	Unspecified essential hypertension	290	5.4
6101	Diffuse cystic masopathy	190	3.6
1985	Secondary malignant neoplasm of bone and bone marrow	184	3.5
2859	Anemia, unspecified	121	2.3
V103	Personal history of malignant neoplasm in breast	114	2.1
V581	Chemotherapy	113	2.1
25000	Type II Diabetes Mellitus without complication	100	1.9
5990	Urinary Tract Infection, site not specified	90	1.7
2330	Carcinoma Insitu of breast	81	1.5
4280	Congestive Heart Failure	71	1.3

Table 1e. Frequency and Percent of Ten Most Frequent Comorbid Diagnoses of Breast Cancer in 1992

ICD-9CM	Diagnosis	Frequency	%
4019	Unspecified essential hypertension	253	5.1
6101	Diffuse cystic masopathy	180	3.6
1985	Secondary malignant neoplasm of bone and bone marrow	140	2.8
V581	Chemotherapy	131	2.6
V103	Personal history of malignant neoplasm in breast	128	2.6
2330	Carcinoma Insitu of breast	84	1.7
1970	Secondary malignant neoplasm of Lung	75	1.5
5990	Urinary Tract Infection, site not specified	74	1.5
25000	Type II Diabetes Mellitus without complication	73	1.5
217	Benign neoplasm of breast	71	1.4

Table 1f. Frequency and Percent of Ten Most Frequent Comorbid Diagnoses of Breast Cancer in 1993

ICD-9CM	Diagnosis	Frequency	%
4019	Unspecified essential hypertension	343	6.5
V581	Chemotherapy	169	3.2
1985	Secondary malignant neoplasm of bone and bone marrow	152	2.9
6101	Diffuse cystic masopathy	147	2.8
2859	Anemia, unspecified	113	2.1
V103	Personal history of malignant neoplasm in breast	99	1.9
4280	Congestive Heart Failure	96	1.8
25000	Type II Diabetes Mellitus without complication	92	1.7
2768	Hypopotassemia	92	1.7
2330	Carcinoma Insitu of breast	84	1.6

Table 1g. Frequency and Percent of Ten Most Frequent Comorbid Diagnoses of Breast Cancer in 1994

ICD-9CM	Diagnosis	Frequency	%
V581	Chemotherapy	565	7.8
2330	Carcinoma Insitu of breast	300	4.1
6101	Diffuse cystic masopathy	287	3.9
1985	Secondary malignant neoplasm of bone and bone marrow	268	3.7
4019	Unspecified essential hypertension	266	3.7
2880	Agranulocytosis	177	2.4
4280	Congestive Heart Failure	125	1.7
2765	Volume Depletion	117	1.6
217	Benign Neoplasm of Breast	115	1.6
1977	Secondary malignant neoplasm of Liver	110	1.5

APPENDIX B

Table 2a. Frequency and Percent of Ten Most Frequent Comorbid Diagnoses of Breast Cancer among White Women in 1988

ICD-9CM	Diagnosis	Frequency	%
6101	Diffuse cystic masopathy	264	5.8
4019	Unspecified essential hypertension	191	4.2
V103	Personal history of malignant neoplasm in breast	155	3.4
1985	Secondary malignant neoplasm of bone and bone marrow	151	3.3
V581	Chemotherapy	116	2.6
2859	Anemia, unspecified	98	2.2
217	Benign neoplasm of breast	92	2.0
25000	Type II Diabetes Mellitus without complication	76	1.7
4140	Coronary atherosclerosis	75	1.7
5990	Urinary Tract Infection, site not specified	73	1.6

Table 2b. Frequency and Percent of Ten Most Frequent Comorbid Diagnoses of Breast Cancer among African American Women in 1988

ICD-9CM	Diagnosis	Frequency	%
4019	Unspecified essential hypertension	58	7.8
V581	Chemotherapy	52	7.0
25000	Type II Diabetes Mellitus without complication	22	3.0
6101	Diffuse cystic masopathy	20	2.7
1985	Secondary malignant neoplasm of bone and bone marrow	17	2.3
217	Benign neoplasm of breast	17	2.3
2859	Anemia, unspecified	14	1.9
5990	Urinary Tract Infection, site not specified	12	1.6
V103	Personal history of malignant neoplasm in breast	12	1.6
1977	Secondary malignant neoplasm of liver	9	1.2

Table 2c. Frequency and Percent of Ten Most Frequent Comorbid Diagnoses of Breast Cancer among White Women in 1989

ICD-9CM	Diagnosis	Frequency	%
4019	Unspecified essential hypertension	211	4.7
6101	Diffuse cystic masopathy	194	4.3
1985	Secondary malignant neoplasm of bone and bone marrow	152	3.4
V103	Personal history of malignant neoplasm in breast	143	3.2
V581	Chemotherapy	120	2.7
217	Benign neoplasm of breast	84	1.9
2859	Anemia, unspecified	74	1.7
5990	Urinary Tract Infection, site not specified	71	1.6
25000	Type II Diabetes Mellitus without complication	66	1.5
1977	Secondary malignant neoplasm of liver	58	1.3

Table 2d. Frequency and Percent of Ten Most Frequent Comorbid Diagnoses of Breast Cancer among African American Women in 1989

ICD-9CM	Diagnosis	Frequency	%
4019	Unspecified essential hypertension	47	7.0
V581	Chemotherapy	25	3.7
2859	Anemia, unspecified	21	3.1
V103	Personal history of malignant neoplasm in breast	20	3.0
1977	Secondary malignant neoplasm of liver	19	2.8
1985	Secondary malignant neoplasm of bone and bone marrow	19	2.8
25001	Type II Diabetes Mellitus	16	2.4
6101	Diffuse cystic masopathy	16	2.4
217	Benign neoplasm of breast	13	1.9
2768	Hypopotassemia	13	1.9

Table 2e. Frequency and Percent of Ten Most Frequent Comorbid Diagnoses of Breast Cancer among White Women in 1990

ICD-9CM	Diagnosis	Frequency	%
4019	Unspecified essential hypertension	196	6.6
1985	Secondary malignant neoplasm of bone and bone marrow	130	4.4
V103	Personal history of malignant neoplasm in breast	115	3.9
6101	Diffuse cystic masopathy	87	2.9
25000	Type II Diabetes Mellitus without complication	61	2.0
4140	Coronary atherosclerosis	54	1.8
5990	Urinary Tract Infection, site not specified	52	1.7
2859	Anemia, unspecified	51	1.7
V581	Chemotherapy	46	1.5
1970	Secondary malignant neoplasm of lung	45	1.5

Table 2f. Frequency and Percent of Ten Most Frequent Comorbid Diagnoses of Breast Cancer among African American Women in 1990

ICD-9CM	Diagnosis	Frequency	%
4019	Unspecified essential hypertension	25	6.4
1985	Secondary malignant neoplasm of bone and bone marrow	14	3.6
25001	Type II Diabetes Mellitus	13	3.3
1970	Secondary malignant neoplasm of lung	10	2.5
6101	Diffuse cystic masopathy	9	2.3
4280	Congestive Heart Failure	8	2.0
5990	Urinary Tract Infection, site not specified	8	2.0
25000	Type II Diabetes Mellitus without complication	7	1.8
2859	Anemia, unspecified	7	1.8
V581	Chemotherapy	7	1.8

Table 2g. Frequency and Percent of Ten Most Frequent Comorbid Diagnoses of Breast Cancer among White Women in 1991

ICD-9CM	Diagnosis	Frequency	%
4019	Unspecified essential hypertension	237	5.1
6101	Diffuse cystic masopathy	174	3.8
1985	Secondary malignant neoplasm of bone and bone marrow	167	3.6
V103	Personal history of malignant neoplasm in breast	106	2.3
2859	Anemia, unspecified	99	2.1
V581	Chemotherapy	93	2.0
25000	Type II Diabetes Mellitus without complication	85	1.8
5990	Urinary Tract Infection, site not specified	78	1.7
2330	Carcinoma Insitu of breast	70	1.5
4280	Congestive Heart Failure	65	1.4

Table 2h. Frequency and Percent of Ten Most Frequent Comorbid Diagnoses of Breast Cancer among African American Women in 1991

ICD-9CM	Diagnosis	Frequency	%
4019	Unspecified essential hypertension	51	8.3
V581	Chemotherapy	20	3.3
2859	Anemia, unspecified	19	3.1
1985	Secondary malignant neoplasm of bone and bone marrow	15	2.4
6101	Diffuse cystic masopathy	15	2.4
217	Benign neoplasm of breast	13	2.1
25000	Type II Diabetes Mellitus without complication	12	2.0
2765	Volume Depletion	12	2.0
2780	Obesity	12	2.0
2330	Carcinoma Insitu of breast	11	1.8

Table 2i. Frequency and Percent of Ten Most Frequent Comorbid Diagnoses of Breast Cancer among White Women in 1992

ICD-9CM	Diagnosis	Frequency	%
4019	Unspecified essential hypertension	200	4.7
6101	Diffuse cystic masopathy	160	3.8
1985	Secondary malignant neoplasm of bone and bone marrow	125	3.0
V581	Chemotherapy	120	2.8
V103	Personal history of malignant neoplasm in breast	110	2.6
2330	Carcinoma Insitu of breast	74	1.8
1970	Secondary malignant neoplasm of Lung	70	1.7
5990	Urinary Tract Infection, site not specified	65	1.5
2765	Volume Depletion	61	1.4
217	Benign neoplasm of breast	60	1.4

Table 2j. Frequency and Percent of Ten Most Frequent Comorbid Diagnoses of Breast Cancer among African American Women in 1992

ICD-9CM	Diagnosis	Frequency	%
4019	Unspecified essential hypertension	52	7.8
6101	Diffuse cystic masopathy	17	2.5
V103	Personal history of malignant neoplasm in breast	16	2.4
1985	Secondary malignant neoplasm of bone and bone marrow	15	2.3
2768	Hypopotassemia	13	2.0
25000	Type II Diabetes Mellitus without complication	12	1.8
1977	Secondary malignant neoplasm of liver	11	1.7
217	Benign neoplasm of breast	11	1.7
V581	Chemotherapy	11	1.7
2330	Carcinoma Insitu of breast	10	1.5

Table 2k. Frequency and Percent of Ten Most Frequent Comorbid Diagnoses of Breast Cancer among White Women in 1993

ICD-9CM	Diagnosis	Frequency	%
4019	Unspecified essential hypertension	277	6.2
V581	Chemotherapy	152	3.4
1985	Secondary malignant neoplasm of bone and bone marrow	133	3.0
6101	Diffuse cystic masopathy	132	3.0
2859	Hypopotassemia	93	2.1
V103	Personal history of malignant neoplasm in breast	88	2.0
2768	Hypopotassemia	81	1.8
4280	Congestive Heart Failure	81	1.8
2330	Carcinoma Insitu of breast	72	1.6
4140	Coronary atherosclerosis	67	1.5

Table 2l. Frequency and Percent of Ten Most Frequent Comorbid Diagnoses of Breast Cancer among African American Women in 1993

ICD-9CM	Diagnosis	Frequency	%
4019	Unspecified essential hypertension	61	8.3
25000	Type II Diabetes Mellitus without complication	29	3.5
1970	Secondary malignant neoplasm of lung	20	2.7
1985	Secondary malignant neoplasm of bone and bone marrow	19	2.6
2859	Anemia, unspecified	19	2.6
1972	Secondary malignant neoplasm of pleura	17	2.3
V581	Chemotherapy	17	2.3
4280	Congestive Heart Failure	14	1.9
6101	Diffuse cystic masopathy	13	1.8
2330	Carcinoma Insitu of breast	12	1.6

Table 2m. Frequency and Percent of Ten Most Frequent Comorbid Diagnoses of Breast Cancer among White Women in 1994

ICD-9CM	Diagnosis	Frequency	%
V581	Chemotherapy	483	8.2
1985	Secondary malignant neoplasm of bone and bone marrow	243	4.1
4019	Unspecified essential hypertension	213	3.6
6101	Diffuse cystic masopathy	204	3.4
2330	Carcinoma Insitu of breast	177	3.0
2880	Agranulocytosis	162	2.7
2765	Volume Depletion	109	1.8
4280	Congestive Heart Failure	125	1.7
1977	Secondary malignant neoplasm of Liver	99	1.7
V103	Personal history of malignant neoplasm in breast	82	1.4

Table 2n. Frequency and Percent of Ten Most Frequent Comorbid Diagnoses of Breast Cancer among African American Women in 1994

ICD-9CM	Diagnosis	Frequency	%
V581	Chemotherapy	81	8.0
4019	Unspecified essential hypertension	51	5.1
2330	Carcinoma Insitu of breast	50	5.0
6101	Diffuse cystic masopathy	35	3.5
1983	Secondary malignant neoplasm of brain and spinal cord	27	2.7
217	Benign neoplasm of breast	27	2.7
1985	Secondary malignant neoplasm of bone and bone marrow	23	2.3
2859	Anemia, unspecified	19	1.9
61172	Lump or mass in breast	18	1.8
25000	Type II Diabetes Mellitus without complication	17	1.7

APPENDIX C

Table 3a. Frequency and Percent of Five Most Frequent Comorbid Procedures of Breast Cancer in 1988

ICD-9CM	Procedure	Frequency	%
9925	Injection of Infusion of cancer chemo-therapeutic substance	171	13.1
9214	Bone Scan	96	7.4
8703	Computerized Axial tomography of head	47	3.6
3893	Venous Catheterization, not elsewhere specified	44	3.4
8801	Computerized Axial tomography of Abdomen	42	3.2

Table 3b. Frequency and Percent of Five Most Frequent Comorbid Procedures of Breast Cancer in 1989

ICD-9CM	Procedure	Frequency	%
9925	Injection of Infusion of cancer chemo-therapeutic substance	152	11.8
9214	Bone Scan	63	4.9
3893	Venous Catheterization, not elsewhere Specified	44	3.4
8703	Computerized Axial tomography of head	37	2.9
403	Regional lymph node excision	31	2.4

Table 3c. Frequency and Percent of Five Most Frequent Comorbid Procedures of Breast Cancer in 1990

ICD-9CM	Procedure	Frequency	%
9214	Bone Scan	51	6.9
9925	Injection of Infusion of cancer chemotherapeutic substance	35	4.7
8595	Insertion of breast tissue expander	34	4.6
403	Regional Lymph node excision	29	3.9
8703	Computerized Axial tomography of head	25	3.4

Table 3d. Frequency and Percent of Five Most Frequent Comorbid Procedures of Breast Cancer in 1991

ICD-9CM	Procedure	Frequency	%
9925	Injection of Infusion of cancer chemo-therapeutic substance	137	9.8
403	Regional Lymph node excision	61	4.4
3893	Venous Catheterization, not elsewhere specified	60	4.3
9214	Bone Scan	60	4.3
9904	Transfusion of Packed Cells	48	3.4

Table 3e. Frequency and Percent of Five Most Frequent Comorbid Procedures of Breast Cancer in 1992

ICD-9CM	Procedure	Frequency	%
9925	Injection of Infusion of cancer chemo-therapeutic substance	169	12.4
403	Regional Lymph node excision	84	6.2
9904	Transfusion of Packed Cells	45	3.3
8607	Insertion totally implantable vascular access device	44	3.2
9214	Bone Scan	44	3.2

Table 3f. Frequency and Percent of Five Most Frequent Comorbid Procedures of Breast Cancer in 1993

ICD-9CM	Procedure	Frequency	%
9925	Injection of Infusion of cancer chemo-therapeutic substance	177	13.1
403	Regional Lymph node excision	113	8.4
8595	Insertion of breast tissue expander	44	3.3
9904	Transfusion of Packed Cells	40	3.0
9214	Bone Scan	34	2.5

Table 3g. Frequency and Percent of Five Most Frequent Comorbid Procedures of Breast Cancer in 1994

ICD-9CM	Procedure	Frequency	%
9925	Injection of Infusion of cancer chemo-therapeutic substance	181	13.2
403	Regional Lymph node excision	90	6.6
8595	Insertion of breast tissue expander	46	3.4
9904	Transfusion of Packed Cells	45	3.3
8607	Insertion totally implantable vascular access device	43	3.2

APPENDIX D

Table 4a. Frequency and Percent of Five Most Frequent Comorbid Procedures of Breast Cancer among White Women in 1988

ICD-9CM	Procedure	Frequency	%
9925	Injection of Infusion of cancer chemo-therapeutic substance	130	11.7
9214	Bone Scan	86	7.8
8703	Computerized Axial tomography of head	41	3.7
8801	Computerized Axial tomography of Abdomen	37	3.3
3893	Venous Catheterization, not elsewhere specified	35	3.2

Table 4b. Frequency and Percent of Five Most Frequent Comorbid Procedures of Breast Cancer among African American Women in 1988

ICD-9CM	Procedure	Frequency	%
9925	Injection of Infusion of cancer chemo-therapeutic substance	41	21.5
9214	Bone Scan	10	5.2
3893	Venous Catheterization, not elsewhere Specified	9	4.7
403	Regional lymph node excision	9	4.7
3491	Thoracentesisv	8	4.2

Table 4c. Frequency and Percent of Five Most Frequent Comorbid Procedures of Breast Cancer among White Women in 1989

ICD-9CM	Procedure	Frequency	%
9925	Injection of Infusion of cancer chemo-therapeutic substance	127	11.5
9214	Bone Scan	52	4.7
3893	Venous Catheterization, not elsewhere specified	37	3.4
403	Regional Lymph node excision	27	2.5
860	Other local excision or destruction of lesion	26	2.4

Table 4d. Frequency and Percent of Five Most Frequent Comorbid Procedures of Breast Cancer among African American Women in 1989

ICD-9CM	Procedure	Frequency	%
9925	Injection of Infusion of cancer chemo-therapeutic substance	25	14.5
8703	Computerized Axial tomography of head	12	7.0
9214	Bone Scan	8	4.7
8954	Electrographic monitoring	6	3.5
8801	Computerized axial tomography of abdomen	5	2.9

Table 4e. Frequency and Percent of Five Most Frequent Comorbid Procedures of Breast Cancer among White Women in 1990

ICD-9CM	Procedure	Frequency	%
9214	Bone Scan	48	7.3
8595	Insertion of breast tissue expander	32	4.9
9925	Injection of Infusion of cancer chemo-therapeutic substance	29	4.4
403	Regional Lymph node excision	27	4.1
8703	Computerized Axial tomography of head	22	3.4

Table 4f. Frequency and Percent of Five Most Frequent Comorbid Procedures of Breast Cancer among African American Women in 1990

ICD-9CM	Procedure	Frequency	%
9925	Injection of Infusion of cancer chemo-therapeutic substance	6	6.7
4523	Colonoscopy	4	4.4
9202	Liver Scan and radioisotope function study	4	4.4
3404	Insertion of intercostals catheter for drainage	3	3.3
8703	Computerized Axial tomography of head	3	3.3

Table 4g. Frequency and Percent of Five Most Frequent Comorbid Procedures of Breast Cancer among White Women in 1991

ICD-9CM	Procedure	Frequency	%
9925	Injection of Infusion of cancer chemo-therapeutic substance	115	9.6
9214	Bone Scan	55	4.6
403	Regional Lymph node excision	53	4.4
3893	Venous Catheterization, not elsewhere specified	51	4.3
9904	Transfusion of Packed Cells	48	3.4

Table 4h. Frequency and Percent of Five Most Frequent Comorbid Procedures of Breast Cancer among African American Women in 1991

ICD-9CM	Procedure	Frequency	%
9925	Injection of Infusion of cancer chemo-therapeutic substance	21	13.0
3893	Venous Catheterization, not elsewhere specified	9	5.6
403	Regional Lymph node excision	8	5.0
8595	Insertion of breast tissue expander	5	3.1
3491	Thoracentesis	4	2.5

Table 4i. Frequency and Percent of Five Most Frequent Comorbid Procedures of Breast Cancer among White Women in 1992

ICD-9CM	Procedure	Frequency	%
9925	Injection of Infusion of cancer chemo-therapeutic substance	148	12.9
403	Regional Lymph node excision	74	6.5
3893	Venous Catheterization, not elsewhere specified	39	3.4
9214	Bone Scan	39	3.4
9904	Transfusion of Packed Cells	37	3.2

Table 4j. Frequency and Percent of Five Most Frequent Comorbid Procedures of Breast Cancer among African American Women in 1992

ICD-9CM	Procedure	Frequency	%
9925	Injection of Infusion of cancer chemo-therapeutic substance	20	10.3
403	Regional Lymph node excision	10	5.2
8607	Insertion of totally implantable vascular access device	9	4.6
3491	Thoracentesis	6	3.1
850	Mastotomy	6	3.1

Table 4k. Frequency and Percent of Five Most Frequent Comorbid Procedures of Breast Cancer among White Women in 1993

ICD-9CM	Procedure	Frequency	%
9925	Injection of Infusion of cancer chemo-therapeutic substance	159	14.1
403	Regional Lymph node excision	102	9.0
8595	Insertion of breast tissue expander	43	3.8
9904	Transfusion of Packed Cells	33	2.9
9214	Bone scan	30	2.7

Table 4l. Frequency and Percent of Five Most Frequent Comorbid Procedures of Breast Cancer among African American Women in 1993

ICD-9CM	Procedure	Frequency	%
9925	Injection of Infusion of cancer chemo-therapeutic substance	17	9.5
403	Regional Lymph node excision	11	6.2
3491	Insertion of breast tissue expander	9	5.0
9904	Transfusion of Packed Cells	6	3.4
8607	Insertion totally implantable vascular access device	5	2.8

Table 4m. Frequency and Percent of Five Most Frequent Comorbid Procedures of Breast Cancer among White Women in 1994

ICD-9CM	Procedure	Frequency	%
9925	Injection of Infusion of cancer chemo-therapeutic substance	124	9.5
9904	Transfusion of Packed Cells	31	4.0
8607	Insertion totally implantable vascular access device	22	2.8
8595	Insertion of breast tissue expander	17	2.2
3893	Venous Catheterization, not elsewhere specified	16	2.1

Table 4n. Frequency and Percent of Five Most Frequent Comorbid Procedures of Breast Cancer among African American in 1994

ICD-9CM	Procedure	Frequency	%
9925	Injection of Infusion of cancer chemo-therapeutic substance	22	15.9
9229	Other radiotherapeutic procedure	6	4.4
850	Mastotomy	4	2.9
8703	Computerized Axial tomography of head	4	2.9
9214	Bone Scan	4	2.9

APPENDIX E

Your Body Is A Beautiful Responsibility

Check It Out Program

PROGRAM DESCRIPTION

A one hour breast education and awareness program for teenage girls, presented in the school classroom.

Hadassah Mission

- To encourage 11th and 12th grade girls to take responsibility for their own bodies, and to teach them the skills needed to detect breast cancer early.
- To enhance Hadassah's image in the community.
- To attract new Hadassah members and increase the involvement of current members.

Goal

The goal of the Hadassah *Check It Out* program is to teach 11th and 12th grade girls breast self-examination so that they will develop good life-skill habits that could one day save their lives and to teach young women to take responsibility for their own bodies.

Sharing Information

The girls are asked to take the information home and share it with their mothers and grandmothers. Experience has shown that after a presentation many mothers and grandmothers go for check-ups of suspicious lumps in their breasts.

WHAT YOU NEED TO IMPLEMENT *CHECK IT OUT*

- *A class of 11th and 12th grade girls.*
- *A breast cancer survivor to tell her story*
- *A nurse from a local participating hospital to teach breast self-examination.*
- *A video on breast self-examination.*
- *Hadassah volunteers to prepare the kits, do the publicity and introduce the program and Hadassah*

Program Outline

- Introduction and explanation of the program by a Hadassah volunteer
- Every participant receives a Breast Health Awareness kit containing: a Hadassah Breast Self-Examination Shower Card; a plastic model of a breast, "Facts About Hadassah" and "The New Me" brochures, a brochure on BSE donated by the local hospital and/or the American Cancer Society
- A survivor relates her story, stressing why self examination and early detection of breast cancer are so crucial
- A nurse from a local hospital, certified in BSE, teaches self-examination using a video and answers questions from the audience
- Under the guidance of the nurse, the young women practice self-exams and finding lumps with the aid of a plastic model breast.
- Students are encouraged to talk to the school nurse or guidance counselor about any concerns they may have
- They are urged to take the information home and share it with their mothers, grandmothers and other adult women in the family

APPENDIX F

Era of

Department of
Breast Cancer
Research Program
Meeting

NATIONAL HOSPITAL DISCHARGE SURVEY DATA ANALYSIS OF BREAST CANCER BETWEEN AFRICAN AMERICAN AND WHITE WOMEN

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This study will estimate age-specific hospital admission rates for breast cancer in African American (AA) and white women through analyzing National Hospital Discharge Survey (NHDS) data from 1988 to 1994. Breast cancer admissions were not proportionally equal between AA and white women across the various age groups. For white women, the mean age ranged from 59.8 to 61.1, the mean length of stay ranged from 4.8 to 6.1, the mean number of diagnoses ranged from 3.1 to 3.5, and the mean number of procedures ranged from 1.5 to 1.7. For AA women, the mean age ranged from 52.9 to 60, the mean length of stay ranged from 6 to 8.3, the mean number of diagnoses ranged from 3 to 3.7, and the mean number of procedures ranged from 1.3 to 1.7. The following table shows the age-specific hospital admission rates.

Table 1. Age-specific hospital admission rate* of breast cancer by race for 1988-1994.

Age	20-44		45-59		60-69		70-84	
Year	W	AA	W	AA	W	AA	W	AA
1988	96.5	88.5	497.4	636.1	529.4	969.2	684.4	1411
1989	83.1	97.9	461.9	391.0	533.4	599.0	638.4	1204
1990	93.8	69.3	391.3	257.7	529.3	372.0	494.9	582.0
1991	84.8	75.2	322.4	431.2	500.4	425.4	563.2	306.9
1992	86.5	99.8	385.5	509.9	485.6	383.6	535.2	272.6
1993	95.3	102	300.6	483.9	432.9	404.6	549.7	637.9
1994	73.7	87.5	352.6	423.4	376.0	323.9	390.4	404.5

* rate per 100,000

For ages 20-44, the relative risk of hospital admission due to breast cancer was higher among AA than whites for the years 1989, 1992, 1993, and 1994. The percentages of white and AA women in the 20-44 age group for the years under study were respectively, 1988:16.9% and 13.8%, 1989:15.5% and 20.3%, 1990:19% and 23.3%, 1991:18.4% and 23.7%, 1992:17.8% and 27.8%, 1993:20.8% and 24.9%, and 1994: 17.9% and 26.1%. This phenomenon supports our hypothesis that AA women had higher proportion of breast cancer in a young age group compared to white women.

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Detecting an Influential Year in Understanding Linear Trend of National Breast Cancer Hospital Admission Rates in 1988-1994, USA

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National Hospital Discharge Survey Data of Breast Cancer in 1988-1994

The National Hospital Discharge Survey (NHDS) collects data from a sample of inpatient records obtained from a national sample of hospitals with certain restrictions. In this paper, we determine a linear trend of breast cancer hospital admission rates among age group in relation to White/African American (AA) women group. To do so, weighted linear regression is used for the data from NHDS from 1988 to 1994. The weights used in the weighted regression analysis are the reciprocals of the variances of the individual predicted values obtained from the SUDAAN program, then SAS was applied to do the regression analysis part. Linear trends in hospital admission rates as well as length of stay were determined. Influential year in determining linear trend in each category was determined by Cook's D[1]. We only investigated years 1989 to 1993 to be considered as an influential year to the linear trend.

A trend analysis [2-3] of breast cancer patients using NHDS will provide an important background in understanding yearly changes of breast cancer patients admitted to the hospital. The data were grouped into race and age. In addition, the percentages of hospital admitted breast cancer patients with specific race/age were analyzed. Table 1 summarizes groups with significant linear trend with influential year in determining the linear trend.

TABLE 1. Hospital admission rates for white/AA women age specified with significant linear trend

Race	Scale	Age group	Linear trend	Influential year
white	rate	entire	-12.93	1993
white	rate	60-69	-25.59	1990
white	rate	70-84	-33.49	1990
AA	percent	20-44	2.34	1993
AA	rate	60-69	-55.91	1990

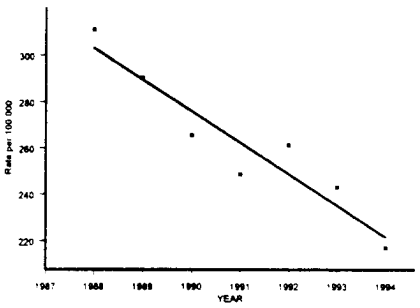

Figure 1. Breast Cancer Hospital Admission Rates among White Women

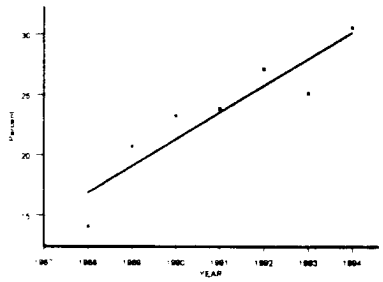

Figure 2. Breast Cancer Admission Percent of African American Women ages 20-44

What we can notice from the above table is national hospital admission rates indicating a linear trend are decreasing except the AA women age 20-44 group. Figure 1 shows a linear trend of decreasing breast cancer admission rates among white women over six-year period. The most influential year in determining linearity was 1993 with Cook's D of 0.204. For ages 20-44, the relative risk of hospital admission due to breast cancer was higher among AA than whites for the years 1989, 1992, 1993, and 1994. The percentages of white and AA women in the 20-44 age group for the years under study were respectively, 1988:17.4% and 14.1%, 1989:15.5% and 20.7%, 1990:19.1% and 23.2%, 1991: 18.4% and 23.9%, 1992: 18.2% and 27.2%, 1993: 21.1% and 25.1%, and 1994:18.2% and 30.6%. This phenomenon indicates that higher proportion in young AA women than whites across the years from 1988 to 1994. Especially since the AA women age 20-44 group is under the percent measurement that is percentage of the age 20-44 AA women relative to the entire age of AA women group, it indicates that young AA women have a significant increasing linear trend in national hospital admissions despite of decreasing linearity of the other categories (Figure 2). It is also noticeable that the AA women of age 60-69 shows a significant declining trend compared to the white women of the same age group. The year of 1990 is the most influential year in determining the linear trend of the hospital admission rates for both groups as well as white women of age 70-84.

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APPENDIX H

TECHNICAL ABSTRACT

National Hospital Discharge Survey Data and National Survey of Ambulatory Surgery Data Analysis of Breast Cancer between African American and White Women
Kyungsook Kim, Ph.D., Idea Award

Background: Young (<45 years) African American (AA) women has higher incidence rate of breast cancer than young White women. By analyzing National Hospital Discharge Survey (NHDS) data from 1988 to 1994, it was revealed that for ages 20-44, the relative risk of hospital admission due to breast cancer was higher among AA than whites for the years 1989, 1992, 1993, and 1994 but not for the years 1988, 1990, and 1991. With advances in medical technology and new anesthetic drugs that allow patients to regain consciousness more quickly following surgery, have increasingly enabled many procedures to be performed outside the hospital inpatient setting. Data from the SMG Marketing Group indicate that in 1993, U.S. hospitals performed about 12.4 million outpatient surgical procedures and that about 52 percent of all surgery in hospitals were ambulatory surgery. Therefore, the omission of ambulatory surgery from the surgical care database has left a significant gap in coverage and limits the utility of the current NHDS data. National Survey of Ambulatory Surgery (NSAS) data has to be analyzed in addition to NHDS data.

Objective/Hypothesis: Since young AA women has higher incidence rate of breast cancer, the combined rate (i.e., hospital admission rate from NHDS data and surgery rate from NSAS data) will be higher among young AA women than young white women.

Specific Aims: (1) To estimate age-specific breast cancer hospital admission rate among AA and White women from 1994 to 1996 using NHDS data, (2) to estimate age-specific breast cancer surgery rate among AA and White women from 1994 to 1996 using NSAS data, and (3) to compare the combined rate from (1) and (2) to the incidence data from the Surveillance, Epidemiology, and End Results program.

Study Design: This study is a cross-sectional study. Independent population based NHDS and NSAS for three consecutive years (1994-1996) will be obtained and analyzed to answer the specific aims. Racial differences in breast cancer hospital admission rate, surgery rate of young age group will be examined using comparisons of proportions from several independent samples.

Relevance: This study represents a unique opportunity to examine a nationwide random sample of women with breast cancer. We feel that the results of such a study may be more representative than single or multi-center studies and may be helpful in the changing of national policies on education, primary prevention and screening for breast cancer.