

# **Understanding the Role of Diabetes in Breast Cancer Survival among African-American and European-American populations in South Carolina**

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**CANCER PREVENTION  
& CONTROL PROGRAM**  
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# Background & Motivations

- South Carolina
  - Breast cancer overall mortality greater than the national average
  - 7<sup>th</sup> in diabetes prevalence in the US
- Breast cancer is the 2<sup>nd</sup> leading cause of cancer-related deaths among women
- Project aims to highlight possible reasons diabetes may influence breast cancer survival rates



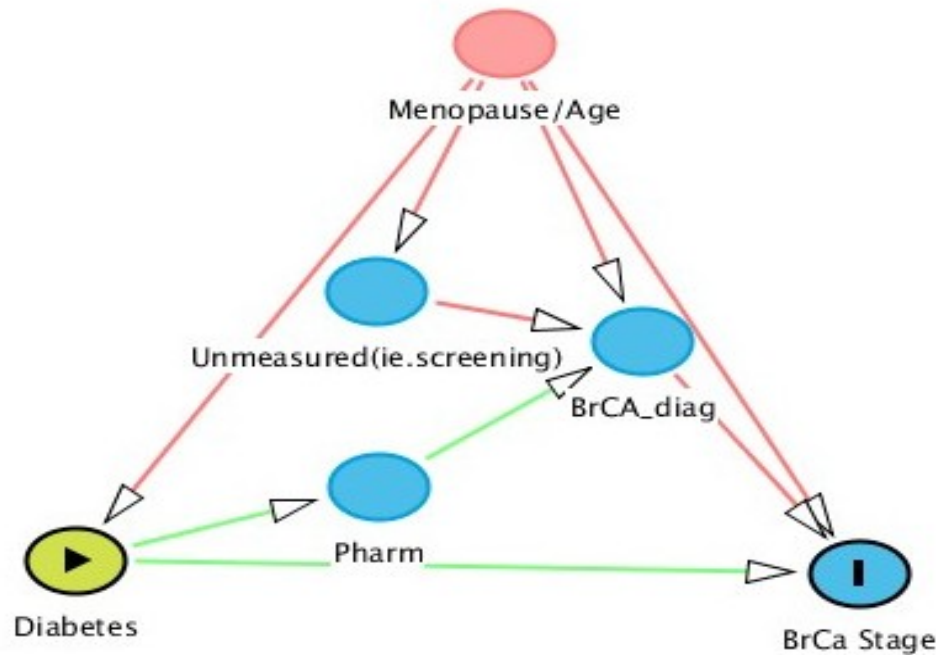
# Purpose

- Examine breast cancer stage and survival rates among racial groups in South Carolina
  - African-American (AA) and European-American (EA)
- AA women in the U.S. experience the lowest breast cancer survival rates among all ethnic groups compared to EA
- Consider future implementations of ethnic-specific health interventions related to diabetes and breast cancer



# Directed Acyclic Graph (DAG)

## Diabetes and breast cancer stage



# Methods

- Retrospective cohort study
- Medicaid records between 1993- 2002 linked with South Carolina Central Cancer Registry (SCCCR) 1996-2001
- SEER summary stage:
  - Stage III Distant
  - Stage II Regional
  - Stage I Local
  - Stage 0 In situ
- **Relevant Covariates**
  - Sex, race, marital status, exposure status, diabetes medication, menopause status



# Results

	Stage 0/ In Situ*	No.	Stage I ** OR ‡ (CI) §	No.	Stage II ** OR ‡ (CI) §	No.	Stage III ** OR ‡ (CI) §
<b>African- American</b> (n=679)							
Menopause							
Yes	64	151	<b>0.58 (0.36, 0.95)</b>	119	<b>0.53 (0.32, 0.86)</b>	20	<b>0.44 (0.21, 0.91)</b>
No	34	141	1.00	124	1.00	26	1.00
Diabetes							
Yes	29	73	1.23 (0.33, 4.54)	59	1.34 (0.36, 5.05)	9	1.36 (0.22, 8.59)
No	69	219	1.00	184	1.00	37	1.00
Diabetes Medication							
Yes	26	62	0.69 (0.18, 2.68)	49	0.60 (0.15, 2.40)	7	0.44 (0.06, 3.20)
No	72	230	1.00	194	1.00	39	1.00
<b>European- American</b> (n=692)							
Menopause							
Yes	52	299	1.46 (0.83, 2.56)	127	0.80 (0.44, 1.44)	29	0.86 (0.38, 1.96)
No	22	83	1.00	66	1.00	14	1.00
Diabetes							
Yes	11	47	0.40 (0.10, 1.28)	14	0.25 (0.05, 1.16)	1	N/A***
No	63	335	1.00	179	1.00	42	
Diabetes Medication							
Yes	7	40	2.86 (0.65, 12.6)	11	2.29 (0.38, 13.7)	1	N/A***
No	67	342	1.00	182	1.00	42	



**Table 3. Multivariate Adjusted Stratum Specific- measures of association for breast cancer stage**



# Results

	African-American			European-American		
	No. of controls*	No.	OR (CI)	No. of controls*	No.	OR (CI)
Menopause						
Yes	244	110	<b>1.78 (1.21, 2.62)</b>	359	148	<b>2.98 (1.82, 4.89)</b>
No	248	77	1.00	155	30	1.00
Diabetes						
Yes	113	57	1.52 (0.61, 3.77)	63	10	1.92 (0.55, 6.66)
No	379	130	1.00	451	168	1.00
Diabetes Medication						
Yes	96	48	1.05 (0.40, 2.75)	53	6	<b>0.16 (0.04, 0.74)</b>
No	396	139	1.00	461	172	1.00
Breast Cancer						
Stage III	8	38	<b>69.4 (23.8, 203.0)</b>	8	35	<b>37.8 (13.0, 110.0)</b>
Stage II	156	88	<b>7.49 (3.43, 16.3)</b>	138	55	<b>3.07 (1.41, 6.69)</b>
Stage I	239	53	<b>2.79 (1.27, 6.14)</b>	303	79	1.83 (0.87, 3.88)
Stage 0	90	8	1.00	65	9	1.00

**Table 4. Adjusted Stratum Specific- measures of association for the outcome of deceased vs. not deceased at date of last follow-up**



# Discussion

- ✓ This study illustrates the discrepancy between EA and AA brCA stage and survival rates
- ✓ Menopause may have a protective effect on breast cancer stage in AA's
- ✓ Diabetes medication may have protective effect on survival for EA's
- ✓ Breast cancer stage is twice as detrimental to AA survival
- ✓ Further recommendation: Consider diabetes medication, menopause, diabetes diagnosis





# Contact Information

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