

Supplemental Online Content

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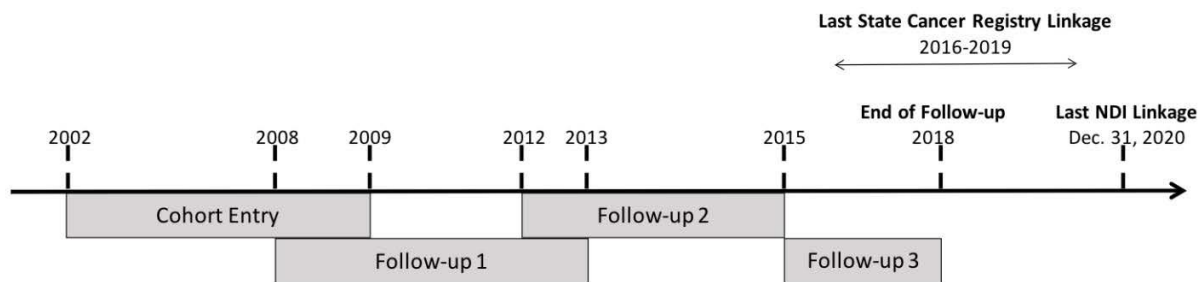
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This supplemental material has been provided by the authors to give readers additional information about their work.

eFigure. Schematic Representing the Follow-Up Data Collection of the Southern Community Cohort Study



This schematic represents the timing of cohort entry and each of the three follow-up surveys. Incident diagnosis of colorectal cancer is captured through linkages with state cancer registries and the National Death Index. The most recent linkages with state cancer registries occurred in 2016-2019, depending on the state. The most recent linkages with the National Death Index was through December 31, 2020.

Abbreviations: NDI – National Death Index

eTable 1. Characteristics of Southern Community Cohort Study Participants With and Without Incident Colorectal Cancer (CRC) (n = 54,597) ^a				
	Cohort (n = 54,597)		No CRC (n = 54,111)	Incident CRC (n = 486)
Enrollment age, median (25 th -75 th percentile), years	51 (46-58)		51 (46-58)	55 (49-62)
Male sex	19,811 (36%)		19,629 (36%)	182 (37%)
Enrollment Source				
Community Health Center	45,431 (83%)		45,033 (83%)	398 (82%)
General Population	9,166 (17%)		9,078 (17%)	88 (18%)
Race				
African American	36,170 (66%)		35,835 (66%)	335 (69%)
White	16,277 (30%)		16,143 (30%)	134 (28%)
Other ^b	2,150 (4%)		2,133 (4%)	17 (3%)
Educational attainment				
< High school	14,353 (26%)		14,209 (26%)	144 (30%)
High school	17,664 (32%)		17,503 (32%)	161 (33%)
> High school	22,580 (41%)		22,399 (41%)	181 (37%)
Household income, \$				
< 15,000	28,792 (53%)		28,513 (53%)	279 (57%)
15,000-49,999	19,735 (36%)		19,583 (36%)	152 (31%)
≥ 50,000	6,070 (11%)		6,015 (11%)	55 (11%)
Insurance, yes	34,747 (64%)		34,445 (64%)	302 (62%)
Colorectal cancer screening, yes	18,229 (33%)		18,098 (33%)	131 (27%)
Family history of colorectal cancer	3,712 (7%)		3,673 (7%)	39 (8%)
Obese body mass index, ≥ 30 kg/m ²	26,616 (49%)		26,362 (49%)	254 (52%)
Smoking status				
Never	21,630 (40%)		21,428 (40%)	202 (42%)
Former	13,457 (25%)		13,317 (25%)	140 (29%)
Current	19,510 (36%)		19,366 (36%)	144 (30%)
Non and moderate alcohol consumers ^c	46,443 (85%)		46,023 (85%)	420 (86%)
Physical activity, median (25 th -75 th percentile), MET-hrs/day	17 (9-30)		17 (9-29)	17 (9-28)
Sedentary time, median (25 th -75 th percentile), hours	9 (6-12)		9 (6-12)	8 (6-12)
^a Data presented as N (%) for categorical variables, and median (IQR) for continuous variables				
^b Includes Hispanic/Latino, Asian or Pacific Islander, American Indian or Alaska Native, participants of more than one race, and participants from other racial or ethnic groups				
^c Non to moderate alcohol consumption defined as alcohol intake ≤1 drink/day for women or ≤2 drink/day for men.				
Abbreviations: CRC – colorectal cancer; MET – metabolic equivalent				

eTable 2. Characteristics of Southern Community Cohort Study Participants Stratified by Timing of Diabetes Diagnosis Among the Full Analytic Sample (n = 73,477)^a			
		Diabetes (n = 25,992)	
	No diabetes (n = 47,485)	Prevalent (n = 14,998)	Incident (n = 10,994)
Enrollment age, median (25 th -75 th percentile), years	49 (44-56)	54 (48-61)	50 (45-56)
Male sex	21,272 (45%)	5,342 (36%)	3,731 (34%)
Enrollment Source			
Community Health Center	41,183 (87%)	13,247 (88%)	9,275 (84%)
General Population	6,302 (13%)	1,751 (12%)	1,719 (16%)
Race			
African American	31,162 (66%)	10,578 (71%)	8,335 (76%)
White	14,420 (30%)	3,818 (25%)	2,318 (21%)
Other ^b	1,903 (4%)	602 (4%)	341 (3%)
Educational attainment			
< High school	12,777 (27%)	5,059 (34%)	3,066 (28%)
High school	15,988 (34%)	4,827 (32%)	3,721 (34%)
> High school	18,720 (39%)	5,112 (34%)	4,207 (38%)
Household income, \$			
< 15,000	25,858 (54%)	9,071 (60%)	6,013 (55%)
15,000-49,999	16,706 (35%)	4,977 (33%)	4,096 (37%)
≥ 50,000	4,921 (10%)	950 (6%)	885 (8%)
Insurance, yes	27,164 (57%)	10,084 (67%)	6,644 (60%)
Colorectal cancer screening, yes	12,881 (27%)	5,731 (38%)	3,363 (31%)
Family history of colorectal cancer	2,991 (6%)	1,063 (7%)	689 (6%)
Obese body mass index, ≥ 30 kg/m ²	16,740 (35%)	9,874 (66%)	6,116 (56%)
Smoking status			
Never	16,228 (34%)	6,234 (42%)	4,227 (38%)
Former	9,361 (20%)	4,398 (29%)	2,474 (23%)
Current	21,896 (46%)	4,366 (29%)	4,293 (39%)
Non and moderate alcohol consumers ^c	37,413 (79%)	13,732 (92%)	9,166 (83%)
Physical activity, median (25 th -75 th percentile), MET-hrs/day	19 (10-33)	15 (8-25)	18 (10-31)
Sedentary time, median (25 th -75 th percentile), hours	8 (6-12)	9 (6-12)	9 (6-12)
Age at CRC diagnosis, median (25 th -75 th percentile), years (n = 785)	60 (56-67)	65 (58-71)	61 (54-70)
CRC site (n = 785)			
Colon	378 (76%)	151 (76%)	71 (79%)
Rectum	118 (24%)	48 (24%)	19 (21%)
Tumor stage (n = 565)			
0	15 (4%)	7 (4%)	2 (3%)
I	86 (25%)	44 (28%)	19 (30%)
II	81 (24%)	36 (23%)	14 (22%)
III	70 (20%)	39 (25%)	15 (23%)
IV	90 (26%)	33 (21%)	14 (22%)
^a Data presented as N (%) for categorical variables, and median (25 th -75 th percentile) for continuous variables. The table includes participants without diabetes who were missing data from follow-ups 1-3 (n = 18,880).			
^b Includes Hispanic/Latino, Asian or Pacific Islander, American Indian or Alaska Native, participants of more than one race, and participants from other racial or ethnic groups			
^c Non to moderate alcohol consumption defined as alcohol intake ≤1 drink/day for women or ≤2 drink/day for men.			
Abbreviations: CRC – colorectal cancer; MET – metabolic equivalent			

eTable 3. Associations Between Diabetes and Colorectal Cancer Incidence Among the Full Analytic Sample, Stratified by Anatomic Site (n = 73,477) ^a

	Colorectal cancer incidence			Colon cancer incidence			Rectal cancer incidence		
	Person-years	Cases ^b	HR ^c (95% CI)	Person-years	Cases ^b	HR ^c (95% CI)	Person-years	Cases ^b	HR ^c (95% CI)
All participants (n = 73,477)									
No diabetes (ref)	629,145.2	496	1	628,199.0	378	1	625,907.3	118	1
Diabetes at baseline or follow-up ^d	266,812.3	289	1.14 (0.98-1.33)	266,433.6	222	1.12 (0.94-1.33)	265,334.2	67	1.21 (0.88-1.66)
Diabetes at baseline ^d	172,029.8	199	1.22 (1.03-1.46)	171,714.9	151	1.19 (0.97-1.45)	170,884.3	48	1.36 (0.95-1.94)
Diabetes during follow-up ^d	94,782.5	90	1.00 (0.79-1.25)	94,718.7	71	1.01 (0.78-1.30)	94,449.8	19	0.96 (0.58-1.57)
Females (n = 43,132)									
No diabetes (ref)	359,046.2	253	1	358,575.3	198	1	357,300.1	55	1
Diabetes at baseline or follow-up ^d	176,555.8	190	1.25 (1.03-1.53)	176,384.6	153	1.27 (1.02-1.59)	175,556.1	37	1.19 (0.77-1.84)
Diabetes at baseline ^d	113,689.2	127	1.31 (1.04-1.64)	113,547.0	101	1.31 (1.02-1.69)	112,936.3	26	1.30 (0.79-2.13)
Diabetes during follow-up ^d	62,866.6	63	1.17 (0.88-1.55)	62,837.6	52	1.21 (0.89-1.65)	62,619.8	11	0.99 (0.52-1.92)
Males (n = 30,345)									
No diabetes (ref)	270,099.0	243	1	269,623.7	180	1	268,607.3	63	1
Diabetes at baseline or follow-up ^d	90,256.5	99	0.96 (0.75-1.24)	90,049.0	69	0.88 (0.66-1.18)	89,778.1	30	1.24 (0.78-1.97)
Diabetes at baseline ^d	58,340.6	72	1.11 (0.84-1.47)	58,167.9	50	1.01 (0.72-1.40)	57,948.1	22	1.45 (0.86-2.44)
Diabetes during follow-up ^d	31,915.9	27	0.73 (0.49-1.09)	3,1881.1	19	0.67 (0.42-1.08)	31,830.0	8	0.90 (0.43-1.91)

^a Analyses include participants without diabetes who were missing data from follow-ups 1-3 (n = 18,880). Censoring of participants without diabetes who were missing data from follow-up 3 (n = 13,131) is not performed.

^b Cases with incident diabetes contribute follow-up time to the 'no-diabetes' and 'diabetes during follow-up' exposure groups.

^c Analyses adjusted for enrollment source, race, sex, health insurance status, CRC screening at enrollment, smoking status, education, income, alcohol intake, body mass index, and family history of colorectal cancer.

^d In total, 17 colorectal cancer cases developed cancer before diabetes (14 colon and 3 rectal cases), and consequently these cases' person-years before cancer diagnosis are counted in the reference group for this table.

Abbreviations: CI – confidence interval; CRC – colorectal cancer; HR – hazard ratio; ref - reference.

eTable 4. Associations Between Diabetes and Colorectal Cancer Incidence Stratified by Risk Factors for Colorectal Cancer (n = 54,597) ^a			
	Person-years	Cases ^b	HR ^c (95%CI)
Race			
African American	595,752.2	335	1.43 (1.13-1.81)
Non-Hispanic White	236,738.8	134	1.69 (1.15-2.47)
<i>P-interaction</i>			.33
Sex			
Male	300,057.8	182	1.27 (0.93-1.75)
Female	564,602.5	304	1.59 (1.24-2.04)
<i>P-interaction</i>			.33
Obesity ($\geq 30\text{kg/m}^2$)			
No	397,524.8	232	1.46 (1.11-1.92)
Yes	467,135.5	254	1.48 (1.12-1.95)
<i>P-interaction</i>			.83
Smoking status			
Never	354,847.5	202	1.10 (0.81-1.48)
Former	221,198.1	140	2.07 (1.41-3.06)
Current	288,614.7	144	1.62 (1.14-2.31)
<i>P-interaction</i>			.04
Household income (per year)			
< \$15,000	460,276.6	279	1.72 (1.32-2.24)
\geq \$50,000	90,217.1	55	1.51 (0.84-2.72)
<i>P-interaction</i>			.93
^a Participants without diabetes who did not attend follow-up 3 were censored at their age at the last follow-up where they participated. ^b Cases with incident diabetes contribute follow-up time to the 'no-diabetes' and 'diabetes' exposure groups. ^c Analyses adjusted for enrollment source, race, sex, health insurance status, CRC screening at enrollment, smoking status, education, income, alcohol intake, body mass index, and family history of colorectal cancer. Abbreviations: HR – hazard ratio; CI – confidence interval			

Table 5. Associations Between Diabetes and Colorectal Cancer Incidence, Stratified by Colonoscopy Use ^a						
	Participants who did not participate in colonoscopy during cohort follow-up 2 or 3 ^b			Participants screened for diabetes and by colonoscopy during cohort follow-up 2 or 3 ^c		
	Person-years	Cases ^d	HR ^e (95% CI)	Person-years	Cases ^d	HR ^e (95% CI)
No diabetes (ref)	77,810.3	24	1	198,843.5	133	1
Diabetes at enrollment or follow-up	38,328.3	31	2.07 (1.16-3.67)	141,116.5	141	1.18 (0.92-1.53)
Prevalent diabetes at enrollment	20,292.3	19	2.37 (1.22-4.60)	78,027.2	80	1.24 (0.93-1.67)
Incident diabetes during follow-up	18,036.0	12	1.77 (0.86-3.61)	63,089.4	61	1.12 (0.82-1.53)
^a Participants without diabetes who did not attend follow-up 3 were censored at their age at the last follow-up where they participated. ^b This analysis includes participants who completed cohort follow-up 2 or 3 interviews and reported never undergoing colonoscopy at their most recent study interview. ^c This analysis includes participants who completed cohort follow-up 2 or 3 interviews and reported undergoing colonoscopy. Participants considered screened for diabetes were those who self-reported a diabetes diagnosis or who self-reported ever having been screened by a physician for diabetes. ^d Participants with incident diabetes contribute follow-up time to the 'no-diabetes' and 'diabetes during follow-up' exposure groups. ^e Analyses adjusted for enrollment source, race, sex, health insurance status, CRC screening at enrollment, smoking status, education, income, alcohol intake, body mass index, and family history of colorectal cancer. Abbreviations: CI – confidence interval; CRC – colorectal cancer; HR – hazard ratio; ref – reference.						