Table S1 Patient and demographic characteristics by race

Characteristics	White (n=57,056), n (%)	Black (n=6,023), n (%)	Hispanic (n=3,738), n (%)	Asian (n=1,434), n (%)
Patient characteristics				
Age (years)				
18–49	9,287 (16.3)	1,251 (20.8)	896 (24.0)	310 (21.6)
50–64	22,134 (38.8)	2,596 (43.1)	1,574 (42.1)	607 (42.3)
65–79	19,098 (33.5)	1,739 (28.9)	1,022 (27.3)	395 (27.5)
≥80	6,537 (11.5)	437 (7.3)	246 (6.6)	122 (8.5)
Sex				
Female	21,723 (38.1)	2,506 (41.6)	1,325 (35.4)	522 (36.4)
Male	35,333 (61.9)	3,517 (58.4)	2,413 (64.6)	912 (63.6)
CCI				
0	45,025 (78.9)	4,688 (77.8)	2,979 (79.7)	1,155 (80.5)
1	9,394 (16.5)	1,031 (17.1)	611 (16.3)	220 (15.3)
2	1,996 (3.5)	196 (3.3)	110 (2.9)	34 (2.4)
3	641 (1.1)	108 (1.8)	38 (1.0)	25 (1.7)
Facility/demographic characteristics				
Facility type				
Academic	18,791 (34.3)	2,700 (47.3)	1,405 (40.5)	613 (45.8)
Community	30,407 (55.4)	2,268 (39.7)	1,647 (47.5)	570 (42.6)
Integrated network	5,661 (10.3)	745 (13.0)	413 (11.9)	156 (11.7)
Facility location				
East North Central	11,161 (20.3)	994 (17.4)	270 (7.8)	203 (15.2)
East South Central	3,661 (6.7)	475 (8.3)	14 (0.4)	22 (1.6)
Middle Atlantic	8,106 (14.8)	810 (14.2)	450 (13.0)	257 (19.2)
Mountain	2,513 (4.6)	61 (1.1)	295 (8.5)	131 (9.8)
New England	3,581 (6.5)	149 (2.6)	100 (2.9)	54 (4.0)
Pacific	5,637 (10.3)	226 (4.0)	940 (27.1)	210 (15.7)
South Atlantic	10,678 (19.5)	2,085 (36.5)	563 (16.2)	175 (13.1)
West North Central	5,859 (10.7)	245 (4.3)	60 (1.7)	127 (9.5)
West South Central	3,663 (6.7)	668 (11.7)	773 (22.3)	160 (11.9)
Distance from facility (miles)				
0–5	14,438 (25.5)	2,368 (39.7)	1,250 (33.6)	375 (26.4)
>5–10	10,942 (19.4)	1,507 (25.3)	981 (26.4)	238 (16.7)
>10–25	15,160 (26.8)	1,134 (19.0)	903 (24.3)	318 (22.4)
>25	15,973 (28.3)	953 (16.0)	583 (15.7)	490 (34.5)
Insurance				
Unknown	1,256 (2.2)	149 (2.5)	136 (3.6)	79 (5.5)
Medicaid	2,773 (4.9)	784 (13.0)	562 (15.0)	147 (10.3)
Medicare	23,734 (41.6)	2,171 (36.0)	1,094 (29.3)	412 (28.7)
Not insured	2,047 (3.6)	507 (8.4)	519 (13.9)	76 (5.3)
Other government	882 (1.5)	114 (1.9)	32 (0.9)	94 (6.6)
Private insurance	26,364 (46.2)	2,298 (38.2)	1,395 (37.3)	626 (43.7)
Zip code population density				
Not metropolitan	12,700 (22.9)	693 (11.8)	271 (7.4)	346 (24.7)
Metropolitan	42,671 (77.1)	5,204 (88.2)	3,403 (92.6)	1,056 (75.3)
Median income of zip code				
<$38,000	8,357 (14.8)	2,574 (43.1)	1,020 (27.5)	339 (23.9)
$38,000–$47,999	14,098 (25.0)	1,425 (23.9)	950 (25.6)	287 (20.2)
$48,000–$62,999	15,775 (27.9)	1,152 (19.3)	978 (26.3)	365 (25.7)
≥$63,000	18,256 (32.3)	817 (13.7)	765 (20.6)	429 (30.2)
Proportion of zip code without high school diploma (%)				
<7.0	14,427 (25.5)	490 (8.2)	334 (9.0)	316 (22.2)
7.0–12.9	19,904 (35.2)	1,172 (19.6)	636 (17.1)	423 (29.8)
13.0–20.9	14,715 (26.0)	2,146 (35.9)	873 (23.5)	354 (24.9)
≥21.0	7,474 (13.2)	2,165 (36.2)	1,873 (50.4)	328 (23.1)
Year of diagnosis				
2004	3,260 (5.7)	314 (5.2)	190 (5.1)	71 (5.0)
2005	3,662 (6.4)	346 (5.7)	206 (5.5)	85 (5.9)
2006	3,892 (6.8)	390 (6.5)	206 (5.5)	91 (6.3)
2007	4,371 (7.7)	460 (7.6)	242 (6.5)	104 (7.3)
2008	5,044 (8.8)	528 (8.8)	342 (9.1)	124 (8.6)
2009	5,410 (9.5)	557 (9.2)	363 (9.7)	149 (10.4)
2010	5,754 (10.1)	360 (10.5)	362 (9.7)	132 (9.2)
2011	5,794 (10.2)	633 (10.5)	403 (10.8)	136 (9.5)
2012	6,224 (10.9)	655 (10.9)	414 (11.1)	157 (10.9)
2013	6,517 (11.4)	742 (12.3)	500 (13.4)	187 (13.0)
2014	7,128 (12.5)	768 (12.8)	510 (13.6)	198 (13.8)

CCI, Charlson-Deyo Comorbidity Index.

Table S2 Multivariate analysis—likelihood of not receiving surgery, chemo, or radiation in stage II–III rectal adenocarcinoma

Characteristics	No surgery		No chemo		No radiation	
	HR (95% CI)	P value	HR (95% CI)	P value	HR (95% CI)	P value
Patient characteristics						
Age (years)						
18–49	Reference		Reference		Reference	
50–64	0.885 (0.833–0.940)	6.55E-5	0.858 (0.794–0.926)	8.83E-5	0.887 (0.818–0.962)	0.00372
65–79	0.664 (0.615–0.717)	<0.001	0.568 (0.518–0.623)	<0.001	0.617 (0.559–0.681)	<0.001
≥80	0.271 (0.248–0.295)	<0.001	0.180 (0.163–0.200)	<0.001	0.273 (0.245–0.304)	<0.001
Sex						
Female	Reference		Reference		Reference	
Male	0.953 (0.916–0.991)	0.0158	1.099 (1.049–1.150)	5.74E-5	1.053 (1.003–1.106)	0.0379
Race						
White	Reference		Reference		Reference	
Hispanic	0.991 (0.908–1.083)	0.850	0.874 (0.789–0.968)	0.00991	0.854 (0.766–0.952)	0.00453
Black	0.729 (0.681–0.780)	<0.001	0.902 (0.826–0.985)	0.0220	0.879 (0.803–0.962)	0.00522
Asian/Pacific Islander	1.086 (0.970–1.216)	0.153	0.999 (0.885–1.129)	0.990	1.207 (1.045–1.393)	0.0102
Other	0.885 (0.833–0.940)	0.015	0.800 (0.687–0.932)	0.00407	0.763 (0.651–0.893)	0.000777
CCI						
0	Reference		Reference		Reference	
1	1.245 (1.181–1.313)	<0.001	0.838 (0.791–0.889)	3.75E-9	0.812 (0.763–0.863)	<0.001
2	1.001 (0.904–1.107)	0.990	0.682 (0.611–0.760)	<0.001	0.723 (0.644–0.813)	4.95E-8
3	0.889 (0.754–1.049)	0.164	0.513 (0.432–0.609)	<0.001	0.610 (0.508–0.734)	1.50E-7
Facility/demographic characteristics						
Facility type						
Academic	Reference		Reference		Reference	
Community	1.005 (0.962–1.051)	0.814	1.128 (1.071–1.189)	5.86E-6	1.160 (1.097–1.226)	1.69E-7
Integrated network	1.201 (1.117–1.291)	8.09E-7	1.280 (1.173–1.395)	2.38E-8	1.186 (1.087–1.295)	0.000135
Facility location						
East North Central	Reference		Reference		Reference	
East South Central	0.833 (0.760–0.912)	7.80E-5	0.716 (0.641–0.799)	2.95E-9	0.790 (0.705–0.886)	5.72E-5
Middle Atlantic	0.766 (0.715–0.819)	<0.001	0.641 (0.591–0.695)	<0.001	0.874 (0.803–0.952)	0.00187
Mountain	0.932 (0.839–1.035)	0.186	0.675 (0.598–0.763)	2.79E-10	0.759 (0.670–0.861)	1.74E-5
New England	0.956 (0.871–1.049)	0.341	0.851 (0.762–0.950)	0.00403	1.160 (1.024–1.314)	0.0198
Pacific	0.884 (0.820–0.954)	0.00145	0.360 (0.332–0.391)	<0.001	0.621 (0.568–0.678)	<0.001
South Atlantic	0.905 (0.848–0.965)	0.00218	1.020 (0.940–1.106)	0.641	0.921 (0.850–0.998)	0.0441
West North Central	1.153 (1.058–1.256)	0.00117	0.880 (0.798–0.971)	0.0112	1.246 (1.117–1.390)	7.94E-5
West South Central	0.665 (0.615–0.719)	<0.001	0.724 (0.652–0.804)	1.70E-9	0.795 (0.714–0.886)	3.21E-5
Distance from facility (miles)						
0–5	Reference		Reference		Reference	
>5–10	1.066 (1.010–1.126)	0.0215	1.046 (0.980–1.116)	0.178	1.101 (1.027–1.182)	0.00715
>10–25	1.134 (1.075–1.197)	3.85E-6	1.084 (1.016–1.156)	0.0143	1.079 (1.007–1.156)	0.0314
>25	1.507 (1.412–1.609)	<0.001	0.815 (0.758–0.876)	2.68E-8	0.761 (0.705–0.821)	<0.001
Insurance						
Private insurance	Reference		Reference		Reference	
Unknown	0.171 (0.153–0.190)	<0.001	0.911 (0.776–1.069)	0.252	1.007 (0.846–1.199)	0.936
Medicaid	0.628 (0.580–0.680)	<0.001	0.842 (0.760–0.933)	0.00102	0.924 (0.828–1.032)	0.161
Medicare	0.784 (0.736–0.835)	<0.001	0.869 (0.808–0.934)	0.000143	0.873 (0.808–0.943)	0.000571
Not insured	0.584 (0.534–0.639)	<0.001	1.078 (0.945–1.230)	0.265	1.020 (0.893–1.165)	0.772
Other government	0.296 (0.260–0.336)	<0.001	0.963 (0.791–1.172)	0.705	2.588 (1.921–3.488)	4.14E-10
Zip code population density						
Not metropolitan	Reference		Reference		Reference	
Metropolitan	1.121 (1.054–1.192)	0.000271	0.821 (0.793–0.884)	1.67E-7	0.776 (0.718–0.839)	1.66E-10
Median income of zip code						
<$38,000	Reference		Reference		Reference	
$38,000–$47,999	1.115 (1.047–1.187)	0.000669	0.946 (0.877–1.022)	0.158	0.925 (0.853–1.004)	0.0607
$48,000–$62,999	1.069 (0.999–1.145)	0.0545	0.939 (0.864–1.021)	0.140	0.933 (0.854–1.020)	0.127
≥$63,000	1.056 (0.975–1.143)	0.179	0.768 (0.699–0.844)	4.40E-8	0.869 (0.785–0.962)	0.00677
Proportion of zip code without high school diploma (%)						
<7.0	Reference		Reference		Reference	
7.0–12.9	0.962 (0.908–1.020)	0.191	0.978 (0.914–1.046)	0.514	1.009 (0.939–1.085)	0.799
13.0–20.9	0.886 (0.826–0.949)	0.000576	0.853 (0.786–0.924)	0.000107	0.952 (0.874–1.037)	0.263
≥21.0	0.814 (0.750–0.884)	1.03E-6	0.754 (0.685–0.830)	7.43E-9	0.968 (0.872–1.073)	0.532
Year of diagnosis						
2004	Reference		Reference		Reference	
2005	0.864 (0.775–0.964)	0.00866	1.112 (0.987–1.252)	0.0814	1.058 (0.921–1.215)	0.424
2006	0.900 (0.807–1.003)	0.0566	1.062 (0.944–1.193)	0.317	1.027 (0.897–1.176)	0.702
2007	0.932 (0.839–1.036)	0.195	1.187 (1.058–1.332)	0.00354	1.125 (0.985–1.285)	0.0836
2008	1.005 (0.907–1.115)	0.917	1.062 (0.951–1.186)	0.288	0.918 (0.809–1.041)	0.184
2009	0.956 (0.864–1.059)	0.392	1.129 (1.012–1.260)	0.0302	0.902 (0.797–1.022)	0.105
2010	1.063 (0.960–1.177)	0.239	1.302 (1.166–1.453)	2.71E-6	0.956 (0.845–1.082)	0.479
2011	1.015 (0.918–1.123)	0.773	1.479 (1.323–1.654)	<0.001	1.049 (0.926–1.188)	0.450
2012	0.909 (0.824–1.004)	0.0593	1.674 (1.496–1.873)	<0.001	1.113 (0.983–1.260)	0.0919
2013	0.926 (0.839–1.021)	0.122	1.931 (1.724–2.163)	<0.001	1.173 (1.036–1.328)	0.0116
2014	0.885 (0.803–0.974)	0.0128	2.037 (1.820–2.280)	<0.001	1.080 (0.957–1.220)	0.213

HR, hazard ratio; CI, confidence interval; CCI, Charlson-Deyo Comorbidity Index.