

(online only) Table S1. Characteristics of Stage II-III rectal cancer patients by density level of radiation oncologists

Categories	No RO	RO Q1 (low)	RO Q2	RO Q3	RO Q4 (high)	χ^2 p-value
	N=7467 (27.8) N (%)	N=5609 (20.9) N (%)	N=5993 (22.3) N (%)	N=5254 (19.6) N (%)	N=2522 (9.4) N (%)	
Radiation Therapy						
No RT within 180 days of diagnosis	2056 (27.53)	1832 (32.66)	1889 (31.52)	1663 (31.65)	729 (28.91)	< 0.0001
have RT within 180 days of diagnosis	5411 (72.47)	3777 (67.34)	4104 (68.48)	3591 (68.35)	1793 (71.09)	
Travel Distance						
0-12.49 miles	1696 (22.71)	2970 (52.95)	3253 (54.28)	3081 (58.64)	1302 (51.63)	< 0.0001
12.5-49.9 miles	3563 (47.72)	2100 (37.44)	2274 (37.94)	1814 (34.53)	881 (34.93)	
50-249 miles	2064 (27.64)	477 (8.5)	402 (6.71)	310 (5.9)	299 (11.86)	
≥250 miles	144 (1.93)	62 (1.11)	64 (1.07)	49 (0.93)	40 (1.59)	
Age Group						
18-50	1655 (22.16)	1334 (23.78)	1429 (23.84)	1306 (24.86)	593 (23.51)	0.022
51-64	3030 (40.58)	2269 (40.45)	2423 (40.43)	2052 (39.06)	1005 (39.85)	
65-70	1325 (17.74)	916 (16.33)	950 (15.85)	834 (15.87)	435 (17.25)	
71-75	828 (11.09)	602 (10.73)	636 (10.61)	588 (11.19)	287 (11.38)	
76-80	629 (8.42)	488 (8.7)	555 (9.26)	474 (9.02)	202 (8.01)	
Gender						
Male	4568 (61.18)	3368 (60.05)	3662 (61.1)	3074 (58.51)	1499 (59.44)	0.018
Female	2899 (38.82)	2241 (39.95)	2331 (38.9)	2180 (41.49)	1023 (40.56)	
Race/Ethnicity						
Non-Hispanic white	6072 (81.32)	3920 (69.89)	4300 (71.75)	3713 (70.67)	1934 (76.69)	< 0.0001
Hispanic	235 (3.15)	437 (7.79)	429 (7.16)	273 (5.2)	113 (4.48)	
Black	343 (4.59)	543 (9.68)	563 (9.39)	600 (11.42)	211 (8.37)	
Others	213 (2.85)	355 (6.33)	345 (5.76)	259 (4.93)	114 (4.52)	
Missing	604 (8.09)	354 (6.31)	356 (5.94)	409 (7.78)	150 (5.95)	
Insurance						
Uninsured, self-pay	212 (2.84)	198 (3.53)	157 (2.62)	179 (3.41)	90 (3.57)	< 0.0001
Uninsured, charity	119 (1.59)	111 (1.98)	137 (2.29)	66 (1.26)	26 (1.03)	
Medicaid	440 (5.89)	334 (5.95)	358 (5.97)	344 (6.55)	162 (6.42)	
Younger Medicare	379 (5.08)	233 (4.15)	263 (4.39)	212 (4.04)	107 (4.24)	
Older Medicare	2321 (31.08)	1630 (29.06)	1720 (28.7)	1519 (28.91)	749 (29.7)	
Private	3898 (52.2)	3036 (54.13)	3295 (54.98)	2841 (54.07)	1343 (53.25)	
Missing	98 (1.31)	67 (1.19)	63 (1.05)	93 (1.77)	45 (1.78)	
Diagnosis Year						
2007	1926 (25.79)	1477 (26.33)	1599 (26.68)	1446 (27.52)	665 (26.37)	0.17
2008	1928 (25.82)	1458 (25.99)	1474 (24.6)	1271 (24.19)	614 (24.35)	
2009	1815 (24.31)	1316 (23.46)	1509 (25.18)	1244 (23.68)	635 (25.18)	
2010	1798 (24.08)	1358 (24.21)	1411 (23.54)	1293 (24.61)	608 (24.11)	
Stage						
Stage II	3078 (41.22)	2410 (42.97)	2460 (41.05)	2222 (42.29)	1032 (40.92)	0.15
Stage III	4389 (58.78)	3199 (57.03)	3533 (58.95)	3032 (57.71)	1490 (59.08)	
Rural/Urban						
Rural	3328 (44.57)	558 (9.95)	598 (9.98)	451 (8.58)	452 (17.92)	< 0.0001
Urban	4032 (54)	4948 (88.22)	5289 (88.25)	4700 (89.46)	2019 (80.06)	
Unknown	107 (1.43)	103 (1.84)	106 (1.77)	103 (1.96)	51 (2.02)	
Region						
Northeast	1556 (20.84)	945 (16.85)	809 (13.5)	1185 (22.55)	556 (22.05)	< 0.0001
Midwest	2326 (31.15)	1409 (25.12)	1439 (24.01)	1358 (25.85)	833 (33.03)	
South	2663 (35.66)	2315 (41.27)	2495 (41.63)	1891 (35.99)	762 (30.21)	
West	922 (12.35)	940 (16.76)	1250 (20.86)	820 (15.61)	371 (14.71)	
Median Income-Quartile 2000						
<\$30,000	1332 (17.84)	710 (12.66)	787 (13.13)	654 (12.45)	278 (11.02)	< 0.0001
\$30,000- \$34,999	1901 (25.46)	892 (15.9)	1012 (16.89)	821 (15.63)	455 (18.04)	
\$35,000- \$45,999	2052 (27.48)	1528 (27.24)	1744 (29.1)	1417 (26.97)	687 (27.24)	
\$46,000+	2083 (27.9)	2411 (42.98)	2367 (39.5)	2300 (43.78)	1079 (42.78)	
Missing	99 (1.33)	68 (1.21)	83 (1.38)	62 (1.18)	23 (0.91)	
Facility Type						
Community Cancer Program	1190 (15.94)	601 (10.71)	444 (7.41)	439 (8.36)	265 (10.51)	< 0.0001
Comprehensive Community Cancer Program	3522 (47.17)	2944 (52.49)	2872 (47.92)	2373 (45.17)	1097 (43.5)	
Academic Comprehensive Cancer	1391 (18.63)	1217 (21.7)	1449 (24.18)	1240 (23.6)	555 (22.01)	

	Program						
	NCI Program/Network	702 (9.4)	507 (9.04)	472 (7.88)	443 (8.43)	393 (15.58)	
	Other	662 (8.87)	340 (6.06)	756 (12.61)	759 (14.45)	212 (8.41)	
Charlson Comorbidity Score							
	0	5662 (75.83)	4367 (77.86)	4616 (77.02)	3990 (75.94)	1941 (76.96)	0.10
	1	1364 (18.27)	908 (16.19)	1007 (16.8)	934 (17.78)	438 (17.37)	
	2+	441 (5.91)	334 (5.95)	370 (6.17)	330 (6.28)	143 (5.67)	
Diagnosed at reporting facilities							
	Yes	3339 (44.72)	3183 (56.75)	3587 (59.85)	3067 (58.37)	1431 (56.74)	< 0.0001
	No	4128 (55.28)	2426 (43.25)	2406 (40.15)	2187 (41.63)	1091 (43.26)	

*RO, Radiation Oncologist; RT, Radiation Therapy; NCI, National Cancer Institute

(Online Only) Table S2. Characteristics of Stage II-III rectal cancer patients by travel distance and by diagnosis location
(A) Overall

Categories	Travel 0-12.49 miles N=12302 (45.8) N (%)	Travel 12.5-49.9 miles N=10632 (39.6) N (%)	Travel 50-249 miles N=3552(13.2) N (%)	Travel ≥250 miles N=359 (1.3) N (%)	χ ² p-value
Radiation Therapy					
No RT within 180 days of diagnosis	4022 (32.69)	3082 (28.99)	959 (27)	106 (29.53)	< 0.0001
have RT within 180 days of diagnosis	8280 (67.31)	7550 (71.01)	2593 (73)	253 (70.47)	
Density of Radiation Oncologist (RO)					
no RO	1696 (13.79)	3563 (33.51)	2064 (58.11)	144 (40.11)	< 0.0001
RO_Q1 (low)	2970 (24.14)	2100 (19.75)	477 (13.43)	62 (17.27)	
RO_Q2	3253 (26.44)	2274 (21.39)	402 (11.32)	64 (17.83)	
RO_Q3	3081 (25.04)	1814 (17.06)	310 (8.73)	49 (13.65)	
RO_Q4(high)	1302 (10.58)	881 (8.29)	299 (8.42)	40 (11.14)	
Age Group					
18-50	2714 (22.06)	2662 (25.04)	860 (24.21)	81 (22.56)	< 0.0001
51-64	4820 (39.18)	4381 (41.21)	1427 (40.17)	151 (42.06)	
65-70	2039 (16.57)	1692 (15.91)	656 (18.47)	73 (20.33)	
71-75	1441 (11.71)	1122 (10.55)	344 (9.68)	34 (9.47)	
76-80	1288 (10.47)	775 (7.29)	265 (7.46)	20 (5.57)	
Gender					
Male	7206 (58.58)	6574 (61.83)	2166 (60.98)	225 (62.67)	< 0.0001
Female	5096 (41.42)	4058 (38.17)	1386 (39.02)	134 (37.33)	
Race/Ethnicity					
Non-Hispanic white	8530 (69.34)	8252 (77.61)	2867 (80.72)	290 (80.78)	< 0.0001
Hispanic	869 (7.06)	488 (4.59)	114 (3.21)	16 (4.46)	
Black	1410 (11.46)	654 (6.15)	183 (5.15)	13 (3.62)	
Others	743 (6.04)	414 (3.89)	112 (3.15)	17 (4.74)	
Missing	750 (6.1)	824 (7.75)	276 (7.77)	23 (6.41)	
Insurance					
Uninsured, self-pay	404 (3.28)	328 (3.09)	98 (2.76)	6 (1.67)	< 0.0001
Uninsured, charity	206 (1.67)	187 (1.76)	65 (1.83)	1 (0.28)	
Medicaid	832 (6.76)	586 (5.51)	213 (6)	7 (1.95)	
Younger Medicare	557 (4.53)	427 (4.02)	200 (5.63)	10 (2.79)	
Older Medicare	3789 (30.8)	2952 (27.77)	1089 (30.66)	109 (30.36)	
Private	6373 (51.8)	6006 (56.49)	1824 (51.35)	210 (58.5)	
Missing	141 (1.15)	146 (1.37)	63 (1.77)	16 (4.46)	
Diagnosis Year					
2007	3331 (27.08)	2744 (25.81)	931 (26.21)	107 (29.81)	0.017
2008	3159 (25.68)	2640 (24.83)	857 (24.13)	89 (24.79)	
2009	2971 (24.15)	2576 (24.23)	889 (25.03)	83 (23.12)	
2010	2841 (23.09)	2672 (25.13)	875 (24.63)	80 (22.28)	
Stage					
Stage II	5200 (42.27)	4321 (40.64)	1520 (42.79)	161 (44.85)	0.021
Stage III	7102 (57.73)	6311 (59.36)	2032 (57.21)	198 (55.15)	
Rural/Urban					
Rural	534 (4.34)	2277 (21.42)	2413 (67.93)	163 (45.4)	< 0.0001
Urban	11541 (93.81)	8171 (76.85)	1087 (30.6)	189 (52.65)	
Unknown	227 (1.85)	184 (1.73)	52 (1.46)	7 (1.95)	
Region					
Northeast	2778 (22.58)	1868 (17.57)	386 (10.87)	19 (5.29)	< 0.0001

	Midwest	3296 (26.79)	2875 (27.04)	1113 (31.33)	81 (22.56)	
	South	4101 (33.34)	4360 (41.01)	1512 (42.57)	153 (42.62)	
	West	2127 (17.29)	1529 (14.38)	541 (15.23)	106 (29.53)	
Median Income-Quartile 2000						
	<\$30,000	1567 (12.74)	1052 (9.89)	1067 (30.04)	75 (20.89)	< 0.0001
	\$30,000- \$34,999	1947 (15.83)	1891 (17.79)	1149 (32.35)	94 (26.18)	
	\$35,000- \$45,999	3504 (28.48)	2979 (28.02)	863 (24.3)	82 (22.84)	
	\$46,000+	5132 (41.72)	4581 (43.09)	429 (12.08)	98 (27.3)	
	Missing	152 (1.24)	129 (1.21)	44 (1.24)	10 (2.79)	
Facility Type						
	Community Cancer Program	1593 (12.95)	1176 (11.06)	152 (4.28)	18 (5.01)	< 0.0001
	Comprehensive Community Cancer Program	6023 (48.96)	5085 (47.83)	1580 (44.48)	120 (33.43)	
	Academic Comprehensive Cancer Program	2687 (21.84)	2275 (21.4)	834 (23.48)	56 (15.6)	
	NCI Program/Network	582 (4.73)	1004 (9.44)	777 (21.88)	154 (42.9)	
	Other	1417 (11.52)	1092 (10.27)	209 (5.88)	11 (3.06)	
Charlson Comorbidity Score						
	0	9354 (76.04)	8225 (77.36)	2702 (76.07)	295 (82.17)	0.003
	1	2139 (17.39)	1818 (17.1)	645 (18.16)	49 (13.65)	
	2+	809 (6.58)	589 (5.54)	205 (5.77)	15 (4.18)	
Diagnosis location						
	Diagnosed elsewhere	4097 (33.3)	5281 (49.67)	2571 (72.38)	289 (80.5)	< 0.0001
	Diagnosed at reporting facility	8205 (66.7)	5351 (50.33)	981 (27.62)	70 (19.5)	

* RT, Radiation Therapy; NCI, National Cancer Institute

(B) Among patients diagnosed at reporting facility

Categories	Travel 0-12.49 miles	Travel 12.5-49.9 miles	Travel 50-249 miles	Travel ≥250 miles	χ ² p-value
	N=8205 (56.2) N (%)	N=5351 (36.6) N (%)	N=981(6.7) N (%)	N=70(0.9) N (%)	
Radiation Therapy					
No RT within 180 days of diagnosis	2881 (35.11)	1831 (34.22)	371 (37.82)	36 (51.43)	0.004
Have RT within 180 days of diagnosis	5324 (64.89)	3520 (65.78)	610 (62.18)	34 (48.57)	
Density of Radiation Oncologist (RO)					
no RO	1170 (14.26)	1593 (29.77)	549 (55.96)	27 (38.57)	< 0.0001
RO_Q1 (low)	1952 (23.79)	1072 (20.03)	147 (14.98)	12 (17.14)	
RO_Q2	2178 (26.54)	1259 (23.53)	135 (13.76)	15 (21.43)	
RO_Q3	2018 (24.59)	968 (18.09)	72 (7.34)	9 (12.86)	
RO_Q4(high)	887 (10.81)	459 (8.58)	78 (7.95)	7 (10)	
Age Group					
18-50	1738 (21.18)	1277 (23.86)	212 (21.61)	9 (12.86)	< 0.0001
51-64	3164 (38.56)	2228 (41.64)	375 (38.23)	34 (48.57)	
65-70	1387 (16.9)	843 (15.75)	199 (20.29)	15 (21.43)	
71-75	1002 (12.21)	593 (11.08)	106 (10.81)	6 (8.57)	
76-80	914 (11.14)	410 (7.66)	89 (9.07)	6 (8.57)	
Gender					
Male	4796 (58.45)	3258 (60.89)	607 (61.88)	42 (60)	0.016
Female	3409 (41.55)	2093 (39.11)	374 (38.12)	28 (40)	
Race/Ethnicity					
Non-Hispanic white	5754 (70.13)	4171 (77.95)	766 (78.08)	50 (71.43)	< 0.0001
Hispanic	538 (6.56)	243 (4.54)	37 (3.77)	4 (5.71)	
Black	970 (11.82)	351 (6.56)	67 (6.83)	6 (8.57)	
Others	435 (5.3)	187 (3.49)	35 (3.57)	4 (5.71)	
Missing	508 (6.19)	399 (7.46)	76 (7.75)	6 (8.57)	
Insurance					
Uninsured, self-pay	315 (3.84)	200 (3.74)	38 (3.87)	1 (1.43)	< 0.0001
Uninsured, charity	162 (1.97)	122 (2.28)	27 (2.75)	0 (0)	
Medicaid	590 (7.19)	298 (5.57)	47 (4.79)	4 (5.71)	
Younger Medicare	370 (4.51)	226 (4.22)	62 (6.32)	2 (2.86)	
Older Medicare	2636 (32.13)	1533 (28.65)	337 (34.35)	23 (32.86)	
Private	4047 (49.32)	2901 (54.21)	452 (46.08)	37 (52.86)	
Missing	85 (1.04)	71 (1.33)	18 (1.83)	3 (4.29)	
Diagnosis Year					
2007	2289 (27.9)	1401 (26.18)	257 (26.2)	22 (31.43)	0.019
2008	2124 (25.89)	1322 (24.71)	221 (22.53)	17 (24.29)	
2009	1944 (23.69)	1313 (24.54)	246 (25.08)	15 (21.43)	
2010	1848 (22.52)	1315 (24.57)	257 (26.2)	16 (22.86)	
Stage					
Stage II	3545 (43.21)	2246 (41.97)	413 (42.1)	24 (34.29)	0.24
Stage III	4660 (56.79)	3105 (58.03)	568 (57.9)	46 (65.71)	
Rural/Urban					
Rural	420 (5.12)	1185 (22.15)	682 (69.52)	34 (48.57)	< 0.0001
Urban	7639 (93.1)	4095 (76.53)	283 (28.85)	35 (50)	
Unknown	146 (1.78)	71 (1.33)	16 (1.63)	1 (1.43)	
Region					
Northeast	1885 (22.97)	780 (14.58)	104 (10.6)	3 (4.29)	< 0.0001
Midwest	2361 (28.78)	1513 (28.28)	284 (28.95)	13 (18.57)	
South	2652 (32.32)	2287 (42.74)	423 (43.12)	33 (47.14)	
West	1307 (15.93)	771 (14.41)	170 (17.33)	21 (30)	
Median Income-Quartile 2000					
<\$30,000	1089 (13.27)	575 (10.75)	328 (33.44)	16 (22.86)	< 0.0001
\$30,000- \$34,999	1324 (16.14)	985 (18.41)	309 (31.5)	17 (24.29)	

	\$35,000- \$45,999	2372 (28.91)	1542 (28.82)	207 (21.1)	12 (17.14)	
	\$46,000+	3307 (40.3)	2196 (41.04)	120 (12.23)	21 (30)	
	Missing	113 (1.38)	53 (0.99)	17 (1.73)	4 (5.71)	
Facility Type						
	Community Cancer Program	1189 (14.49)	719 (13.44)	47 (4.79)	4 (5.71)	< 0.0001
	Comprehensive Community Cancer Program	4104 (50.02)	2799 (52.31)	580 (59.12)	34 (48.57)	
	Academic Comprehensive Cancer Program	1775 (21.63)	1075 (20.09)	188 (19.16)	9 (12.86)	
	NCI Program/Network	242 (2.95)	192 (3.59)	105 (10.7)	17 (24.29)	
	Other	895 (10.91)	566 (10.58)	61 (6.22)	6 (8.57)	
Charlson Comorbidity Score						
	0	6079 (74.09)	3996 (74.68)	739 (75.33)	54 (77.14)	0.59
	1	1503 (18.32)	992 (18.54)	176 (17.94)	10 (14.29)	
	2+	623 (7.59)	363 (6.78)	66 (6.73)	6 (8.57)	

* RT, Radiation Therapy; NCI, National Cancer Institute

(C) Among patients diagnosed elsewhere

Categories	Travel 0-12.49 miles	Travel 12.5-49.9 miles	Travel 50-249 miles	Travel ≥250 miles	χ ² p-value
	N=4097 (33.5) N (%)	N=5281 (43.2) N (%)	N=2571 (21) N (%)	N=289 (2.4) N (%)	
Radiation Therapy					
No RT within 180 days of diagnosis	1141 (27.85)	1251 (23.69)	588 (22.87)	70 (24.22)	< 0.0001
Have RT within 180 days of diagnosis	2956 (72.15)	4030 (76.31)	1983 (77.13)	219 (75.78)	
Density of Radiation Oncologist (RO)					
no RO	526 (12.84)	1970 (37.3)	1515 (58.93)	117 (40.48)	< 0.0001
RO_Q1 (low)	1018 (24.85)	1028 (19.47)	330 (12.84)	50 (17.3)	
RO_Q2	1075 (26.24)	1015 (19.22)	267 (10.39)	49 (16.96)	
RO_Q3	1063 (25.95)	846 (16.02)	238 (9.26)	40 (13.84)	
RO_Q4(high)	415 (10.13)	422 (7.99)	221 (8.6)	33 (11.42)	
Age Group					
18-50	976 (23.82)	1385 (26.23)	648 (25.2)	72 (24.91)	0.0004
51-64	1656 (40.42)	2153 (40.77)	1052 (40.92)	117 (40.48)	
65-70	652 (15.91)	849 (16.08)	457 (17.78)	58 (20.07)	
71-75	439 (10.72)	529 (10.02)	238 (9.26)	28 (9.69)	
76-80	374 (9.13)	365 (6.91)	176 (6.85)	14 (4.84)	
Gender					
Male	2410 (58.82)	3316 (62.79)	1559 (60.64)	183 (63.32)	0.0011
Female	1687 (41.18)	1965 (37.21)	1012 (39.36)	106 (36.68)	
Race/Ethnicity					
Non-Hispanic white	2776 (67.76)	4081 (77.28)	2101 (81.72)	240 (83.04)	< 0.0001
Hispanic	331 (8.08)	245 (4.64)	77 (2.99)	12 (4.15)	
Black	440 (10.74)	303 (5.74)	116 (4.51)	7 (2.42)	
Others	308 (7.52)	227 (4.3)	77 (2.99)	13 (4.5)	
Missing	242 (5.91)	425 (8.05)	200 (7.78)	17 (5.88)	
Insurance					
Uninsured, self-pay	89 (2.17)	128 (2.42)	60 (2.33)	5 (1.73)	< 0.0001
Uninsured, charity	44 (1.07)	65 (1.23)	38 (1.48)	1 (0.35)	
Medicaid	242 (5.91)	288 (5.45)	166 (6.46)	3 (1.04)	
Younger Medicare	187 (4.56)	201 (3.81)	138 (5.37)	8 (2.77)	
Older Medicare	1153 (28.14)	1419 (26.87)	752 (29.25)	86 (29.76)	
Private	2326 (56.77)	3105 (58.8)	1372 (53.36)	173 (59.86)	
Missing	56 (1.37)	75 (1.42)	45 (1.75)	13 (4.5)	
Diagnosis Year					
2007	1042 (25.43)	1343 (25.43)	674 (26.22)	85 (29.41)	0.58
2008	1035 (25.26)	1318 (24.96)	636 (24.74)	72 (24.91)	
2009	1027 (25.07)	1263 (23.92)	643 (25.01)	68 (23.53)	
2010	993 (24.24)	1357 (25.7)	618 (24.04)	64 (22.15)	
Stage					
Stage II	1655 (40.4)	2075 (39.29)	1107 (43.06)	137 (47.4)	0.0013
Stage III	2442 (59.6)	3206 (60.71)	1464 (56.94)	152 (52.6)	
Rural/Urban					
Rural	114 (2.78)	1092 (20.68)	1731 (67.33)	129 (44.64)	< 0.0001
Urban	3902 (95.24)	4076 (77.18)	804 (31.27)	154 (53.29)	
Unknown	81 (1.98)	113 (2.14)	36 (1.4)	6 (2.08)	
Region					
Northeast	893 (21.8)	1088 (20.6)	282 (10.97)	16 (5.54)	< 0.0001
Midwest	935 (22.82)	1362 (25.79)	829 (32.24)	68 (23.53)	
South	1449 (35.37)	2073 (39.25)	1089 (42.36)	120 (41.52)	
West	820 (20.01)	758 (14.35)	371 (14.43)	85 (29.41)	
Median Income-Quartile 2000					
<\$30,000	478 (11.67)	477 (9.03)	739 (28.74)	59 (20.42)	< 0.0001
\$30,000- \$34,999	623 (15.21)	906 (17.16)	840 (32.67)	77 (26.64)	

	\$35,000- \$45,999	1132 (27.63)	1437 (27.21)	656 (25.52)	70 (24.22)	
	\$46,000+	1825 (44.54)	2385 (45.16)	309 (12.02)	77 (26.64)	
	Missing	39 (0.95)	76 (1.44)	27 (1.05)	6 (2.08)	
Facility Type						
	Community Cancer Program	404 (9.86)	457 (8.65)	105 (4.08)	14 (4.84)	< 0.0001
	Comprehensive Community Cancer Program	1919 (46.84)	2286 (43.29)	1000 (38.9)	86 (29.76)	
	Academic Comprehensive Cancer Program	912 (22.26)	1200 (22.72)	646 (25.13)	47 (16.26)	
	NCI Program/Network	340 (8.3)	812 (15.38)	672 (26.14)	137 (47.4)	
	Other	522 (12.74)	526 (9.96)	148 (5.76)	5 (1.73)	
Charlson Comorbidity Score						
	0	3275 (79.94)	4229 (80.08)	1963 (76.35)	241 (83.39)	0.002
	1	636 (15.52)	826 (15.64)	469 (18.24)	39 (13.49)	
	2+	186 (4.54)	226 (4.28)	139 (5.41)	9 (3.11)	

* RT, Radiation Therapy; NCI, National Cancer Institute

(Online Only) Table S3. The likelihood of receipt of radiation therapy among stage II-III rectal cancer patients by diagnosis location

Categories	Diagnosed at reporting facility		Diagnosed elsewhere	
	OR(95% CI)	p value	OR(95% CI)	p value
Travel distance				
0-12.49 miles	1		1	
12.5-49.9 miles	0.95(0.87-1.03)	0.1917	1.12(1.02-1.24)	0.0192
50-249 miles	0.76(0.65-0.88)	0.0004	1.05(0.91-1.21)	0.5067
≥250 miles	0.45(0.28-0.74)	0.0013	1.03(0.76-1.38)	0.8606
Density of Radiation Oncologist (RO)				
No RO	0.91(0.78-1.06)	0.2327	1.21(1.01-1.45)	0.0405
RO Q1 (low)	0.83(0.7-0.98)	0.0245	0.99(0.82-1.21)	0.9417
RO Q2	0.89(0.76-1.05)	0.1722	1.02(0.84-1.24)	0.8364
RO Q3	0.9(0.76-1.06)	0.1969	0.92(0.76-1.12)	0.4176
RO Q4 (high)	1		1	
Age Group, yrs				
18-50	1		1	
51-64	0.81(0.73-0.89)	<.0001	0.97(0.87-1.08)	0.5734
65-70	0.63(0.53-0.74)	<.0001	0.78(0.65-0.95)	0.0142
71-75	0.48(0.4-0.57)	<.0001	0.63(0.51-0.77)	<.0001
76-80	0.35(0.29-0.41)	<.0001	0.53(0.42-0.67)	<.0001
Race/Ethnicity				
Non-Hispanic white	1		1	
Hispanic	0.82(0.69-0.96)	0.0148	0.85(0.71-1.01)	0.0631
Black	0.74(0.65-0.83)	<.0001	0.91(0.77-1.08)	0.2942
Others	0.84(0.71-1)	0.0452	0.86(0.72-1.03)	0.1046
Missing	1.04(0.88-1.21)	0.6657	0.87(0.73-1.03)	0.103
Gender				
Male	1		1	
Female	0.78(0.73-0.84)	<.0001	0.83(0.77-0.91)	<.0001
Insurance				
Private	1		1	
Uninsured, self-pay	1.12(0.92-1.37)	0.2476	1.48(1.07-2.04)	0.0186
Uninsured, charity-waive	1.11(0.85-1.44)	0.4416	1.28(0.85-1.91)	0.2323
Medicaid	0.98(0.85-1.14)	0.8306	1.26(1.03-1.54)	0.0268
Younger Medicare	0.93(0.78-1.11)	0.4126	0.93(0.76-1.14)	0.4869
Older Medicare	1.07(0.93-1.23)	0.3711	1.12(0.94-1.34)	0.2129
Missing	0.86(0.63-1.17)	0.3332	1.26(0.88-1.8)	0.1996
Stage				
Stage II	1		1	
Stage III	1.07(0.99-1.14)	0.0785	0.9(0.83-0.98)	0.019
Charlson Comorbidity Score				
0	1		1	
1	0.84(0.77-0.91)	<.0001	0.82(0.73-0.93)	0.0013
2+	0.64(0.56-0.73)	<.0001	0.65(0.54-0.78)	<.0001
Diagnosis Year				
2007	1		1	
2008	0.99(0.9-1.09)	0.7894	0.98(0.86-1.1)	0.7029
2009	1.04(0.95-1.15)	0.3769	1.04(0.92-1.18)	0.5442
2010	1.04(0.94-1.15)	0.4245	1.07(0.95-1.2)	0.2942
Median Income-Quartile 2000				
<\$30,000	1.07(0.96-1.21)	0.228	0.99(0.86-1.14)	0.88

	\$30,000- \$34,999	1.13(1.01-1.26)	0.0261	1.15(1.02-1.3)	0.0274
	\$35,000- \$45,999	1.07(0.98-1.17)	0.1303	1.11(1-1.23)	0.0562
	\$46,000+	1		1	
	Missing	1.18(0.85-1.63)	0.3202	1.24(0.83-1.85)	0.2939
Facility Type					
	Community Cancer Program	1		1	
	Comprehensive Community Cancer Program	1.26(1.1-1.43)	0.0006	0.95(0.79-1.14)	0.5941
	Academic comprehensive Cancer Program	1.04(0.89-1.2)	0.64	0.98(0.8-1.2)	0.8398
	NCI Program/Network	1.57(1.22-2.01)	0.0005	1.1(0.89-1.37)	0.373
	Other	1.32(1.1-1.58)	0.0032	1.09(0.86-1.37)	0.4921
Region					
	Northeast	1		1	
	Midwest	1.19(1.05-1.35)	0.0064	1.45(1.25-1.69)	<.0001
	South	0.94(0.83-1.07)	0.3696	1.05(0.92-1.2)	0.4678
	West	0.97(0.84-1.13)	0.7037	1.08(0.91-1.27)	0.3815

(Online Only) Table S4. Characteristics of Stage II-III rectal cancer patients reported by the NCDB and the SEER18*, 2007-2010

Characteristic	NCDB, pre-exclusion cohort	SEER18
	N=35854 N (%)	N=12908 N (%)
Race/Ethnicity		
Non-Hispanic White	26007 (72.5)	8878 (68.8)
Hispanic	2173 (6.1)	1387 (10.8)
Black	3349 (9.3)	1196 (9.3)
Other/Unknown	4325 (12.1)	1447 (11.2)
Age, years		
18-50	8137 (22.7)	2878 (22.3)
51-64	14239 (39.7)	5177 (40.1)
65-70	5952 (16.6)	2133 (16.5)
71-75	4071 (11.4)	1459 (11.3)
76-80	3455 (9.6)	1261 (9.8)
Sex		
Male	21858 (61.0)	7865 (60.9)
Female	13996 (39.0)	5043 (39.1)
Cancer Stage		
II	15435 (43.0)	5555 (43.0)
III	20419 (57.0)	7353 (57.0)
Diagnosis Year		
2007	9247 (25.8)	3214 (24.9)
2008	8997 (25.1)	3113 (24.1)
2009	8811 (24.6)	3232 (25.0)
2010	8799 (24.5)	3349 (26.0)

*SEER18: Surveillance, Epidemiology, and End Results 18; NCDB, National Cancer Data Base