

Supplementary Online Content

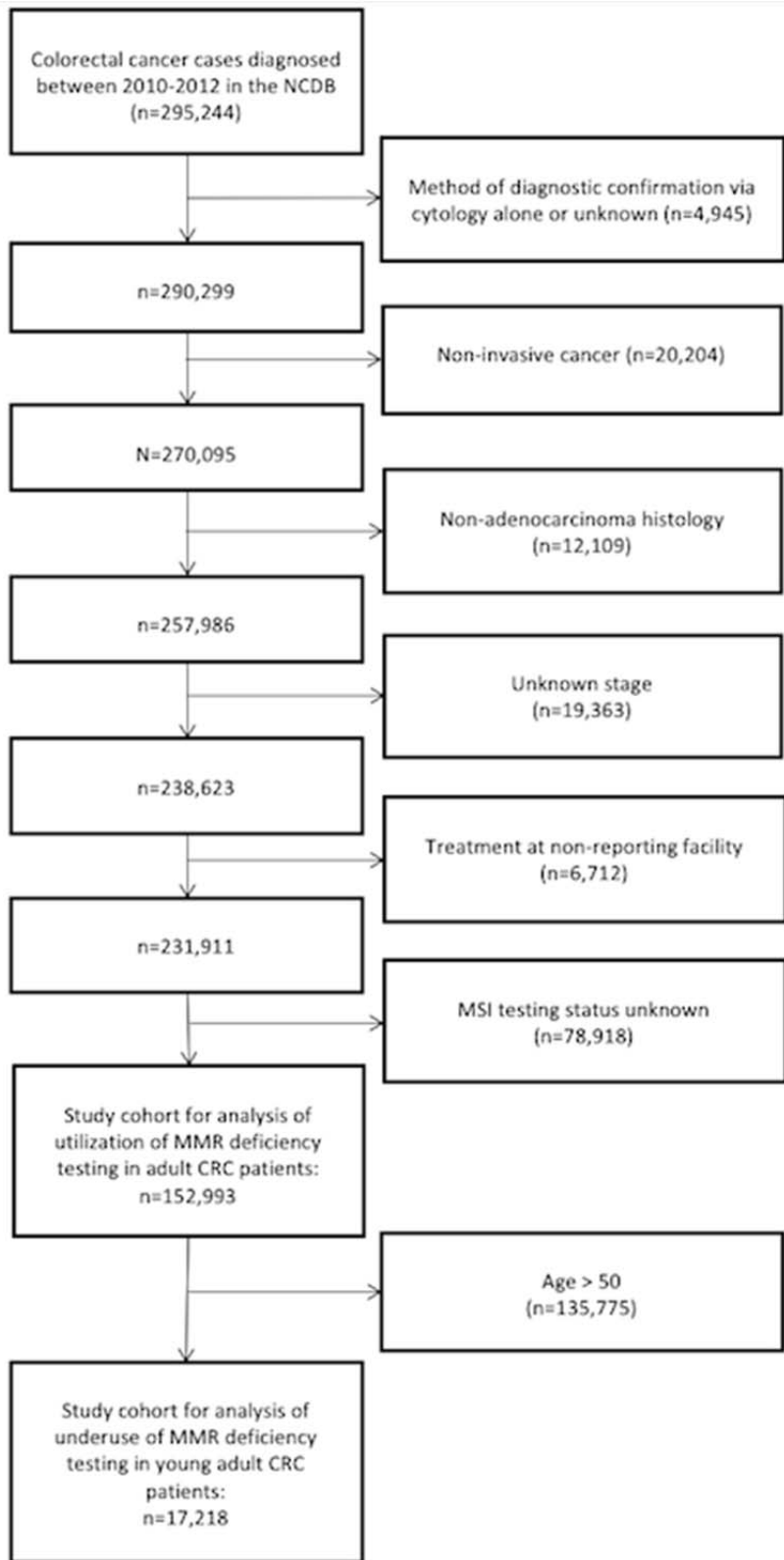
Shaikh T, Handorf EA, Meyer JE, Hall MJ, Esnaola NF. Mismatch repair deficiency testing in patients with colorectal cancer and nonadherence to testing guidelines in young adults. *JAMA Oncol*. Published online November 9, 2017.
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eFigure. Study Cohorts for Analyses of Utilization of MMR Deficiency Testing in adult CRC Patients and Underuse of MMR Deficiency Testing in Young Adult CRC Patients

eTable. Coding of MMR Deficiency Testing According to Patient, Facility, Tumor, and Treatment Characteristics for All Adult Patients and Younger Adults with CRC

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

eFigure. Study Cohorts for Analyses of Utilization of MMR Deficiency Testing in adult CRC Patients and Underuse of MMR Deficiency Testing in Young Adult CRC Patients.



eTable. Coding of MMR Deficiency Testing According to Patient, Facility, Tumor, and Treatment Characteristics for All Adult Patients and Younger Adults with CRC

Characteristic (Missing, Yes/No Testing)	All Patients					Patients < 50 Years Old				
	Unknown		Coded		p-value	Unknown		Coded		p-value
	(n=78,918)	(34%)	(n=152,993)	(66%)		(n=8,738)	(43%)	(n=17,218)	(57%)	
Age										
< 30	420	(0.5%)	824	(0.5%)	<0.001	420	(4.8%)	824	(4.8%)	0.212
30 - 39	1724	(2.2%)	3557	(2.3%)		1724	(19.7%)	3557	(20.7%)	
40 - 49	6594	(8.4%)	12837	(8.4%)		6594	(75.5%)	12837	(74.6%)	
50 - 59	15586	(19.7%)	29158	(19.1%)		-	-	-	-	
60 - 69	20023	(25.4%)	36766	(24.0%)		-	-	-	-	
70+	34571	(43.8%)	69851	(45.7%)		-	-	-	-	
Gender										
Male	41273	(52.3%)	78579	(51.4%)	<0.001	4720	(54.0%)	9162	(53.2%)	0.219
Female	37645	(47.7%)	74414	(48.6%)		4018	(46.0%)	8056	(46.8%)	
Ethnicity (n=4061/7115; n=406/710)										
Hispanic	70056	(88.8%)	137805	(90.1%)		7476	(85.6%)	14948	(86.8%)	0.039
Non-Hispanic	4801	(6.1%)	8073	(5.3%)		856	(9.8%)	1560	(9.1%)	

Race (n=683/1199; n=117/161)

White	65526	(83.0%)	127573	(83.4%)	0.001	6803	(77.9%)	13431	(78.0%)	0.041
African American	9559	(12.1%)	17836	(11.7%)		1349	(15.4%)	2573	(14.9%)	
Other	3150	(4.0%)	6385	(4.2%)		469	(5.4%)	1053	(6.1%)	

Charlson/Deyo Score

0	56800	(72.0%)	107248	(70.1%)	<0.001	7733	(88.5%)	15136	(87.9%)	0.371
1	16262	(20.6%)	33119	(21.6%)		851	(9.7%)	1756	(10.2%)	
2+	5856	(7.4%)	12626	(8.3%)		154	(1.8%)	326	(1.9%)	

**% of adults not graduating from high school
(n=17467/37183; n=83/171)**

29% or more	15562	(19.7%)	26082	(17.0%)	<0.001	1846	(21.1%)	3179	(18.5%)	<0.001
20% - 28.9%	21537	(27.3%)	39262	(25.7%)		2346	(26.8%)	4346	(25.2%)	
14%-19.9%	24352	(30.9%)	50466	(33.0%)		2573	(29.4%)	5453	(31.7%)	
Less than 14%	16741	(21.2%)	35715	(23.3%)		1890	(21.6%)	4069	(23.6%)	

**Median Household Income (n=758/1537;
n=86/177)**

Less than \$38,000	15722	(19.9%)	26522	(17.3%)	<0.001	1730	(19.8%)	2915	(16.9%)	<0.001
\$38,000 - \$47,999	19558	(24.8%)	35508	(23.2%)		2026	(23.2%)	3784	(22.0%)	
\$48,000 - \$62,999	20721	(26.3%)	40763	(26.6%)		2271	(26.0%)	4462	(25.9%)	
\$63,000 +	22159	(28.1%)	48663	(31.8%)		2625	(30.0%)	5880	(34.2%)	

Insurance Status (n=1874/2098; n=367/266)

Not Insured	3642	(4.6%)	5966	(3.9%)	<0.001	893	(10.2%)	1540	(8.9%)	0.001
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Private Insurance	27245	(34.5%)	53591	(35.0%)		5823	(66.6%)	12055	(70.0%)	
Medicaid	4490	(5.7%)	8721	(5.7%)		1144	(13.1%)	2323	(13.5%)	
Medicare	40824	(51.7%)	81276	(53.1%)		386	(4.4%)	814	(4.7%)	
Other Government	843	(1.1%)	1341	(0.9%)		125	(1.4%)	220	(1.3%)	
Hospital Location (n=2098/4510; n=234/542)										
Metropolitan	63526	(80.5%)	125177	(81.8%)	<0.001	7138	(81.7%)	14382	(83.5%)	<0.001
Non-Metropolitan	13294	(16.8%)	23306	(15.2%)		1366	(15.6%)	2294	(13.3%)	
Facility Type										
Academic/Research Program	24123	(30.6%)	44713	(29.2%)	<0.001	979	(11.2%)	1861	(10.8%)	0.001
Comprehensive Community Cancer Program	44062	(55.8%)	86778	(56.7%)		4245	(48.6%)	8782	(51.0%)	
Community Cancer Program/Other	10733	(13.6%)	21502	(14.1%)		3514	(40.2%)	6575	(38.2%)	
Facility Location										
New England	3205	(4.1%)	9108	(6.0%)	<0.001	276	(3.2%)	948	(5.5%)	<0.001
Middle Atlantic	9817	(12.4%)	25648	(16.8%)		1026	(11.7%)	2861	(16.6%)	
South Atlantic	17740	(22.5%)	31837	(20.8%)		1966	(22.5%)	3773	(21.9%)	
East North Central	13221	(16.8%)	29043	(19.0%)		1379	(15.8%)	2862	(16.6%)	
East South Central	7523	(9.5%)	8637	(5.6%)		823	(9.4%)	1092	(6.3%)	
West North Central	5822	(7.4%)	12408	(8.1%)		625	(7.2%)	1224	(7.1%)	
West South Central	9858	(12.5%)	11423	(7.5%)		1360	(15.6%)	1450	(8.4%)	
Mountain	3777	(4.8%)	6430	(4.2%)		423	(4.8%)	793	(4.6%)	
Pacific	7955	(10.1%)	18459	(12.1%)		860	(9.8%)	2215	(12.9%)	

Treatment Year

2010	26986	(34.2%)	50206	(32.8%)	<0.001	3023	(34.6%)	5611	(32.6%)	<0.001
2011	26927	(34.1%)	50971	(33.3%)		2912	(33.3%)	5746	(33.4%)	
2012	25005	(31.7%)	51816	(33.9%)		2803	(32.1%)	5861	(34.0%)	

First Cancer Diagnosis

Yes	65755	(83.3%)	126128	(82.4%)	<0.001	8210	(94.0%)	16158	(93.8%)	0.718
No	13163	(16.7%)	26865	(17.6%)		528	(6.0%)	1060	(6.2%)	

Stage

1	18857	(23.9%)	37958	(24.8%)	<0.001	1543	(17.7%)	3091	(18.0%)	<0.001
2	20423	(25.9%)	43035	(28.1%)		1730	(19.8%)	3874	(22.5%)	
3	23294	(29.5%)	43982	(28.7%)		3011	(34.5%)	5948	(34.5%)	
4	16344	(20.7%)	28018	(18.3%)		2454	(28.1%)	4305	(25.0%)	

Tumor Location (n=4445/6763; n=678/974)

Proximal	31386	(39.8%)	65223	(42.6%)	<0.001	2040	(23.3%)	4512	(26.2%)	<0.001
Distal	19299	(24.5%)	39304	(25.7%)		2425	(27.8%)	5389	(31.3%)	
Rectosigmoid/Rectal	23788	(30.1%)	41703	(27.3%)		3595	(41.1%)	6343	(36.8%)	

Histology

Non-Mucinous Adenocarcinoma	70777	(89.7%)	137123	(89.6%)		7665	(87.7%)	15151	(88.0%)	0.521
Mucinous Adenocarcinoma	8141	(10.3%)	15870	(10.4%)		1073	(12.3%)	2067	(12.0%)	

Tumor Grade

1	7345	(9.3%)	15228	(10.0%)	<0.001	741	(8.5%)	1537	(8.9%)	<0.001
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	2	49915	(63.2%)	97487	(63.7%)		5416	(62.0%)	10922	(63.4%)	
	3/4	13490	(17.1%)	26871	(17.6%)		1494	(17.1%)	3162	(18.4%)	
	Unknown	8168	(10.3%)	13407	(8.8%)		1087	(12.4%)	1597	(9.3%)	
Definitive Surgery											
	Yes	65223	(82.6%)	129796	(84.8%)	<0.001	7009	(80.2%)	14603	(84.8%)	<0.001
	No	13647	(17.3%)	23178	(15.1%)		1726	(19.8%)	2615	(15.2%)	
Number of Lymph Nodes Dissected (n=1700/1099; n=332/134)											
	<12	24349	(30.9%)	43967	(28.7%)	<0.001	2612	(29.9%)	4375	(25.4%)	<0.001
	≥12	52869	(67.0%)	107927	(70.5%)		5794	(66.3%)	12709	(73.8%)	
Chemotherapy (n=2513/4287; n=215/443)											
	No	39406	(49.9%)	83101	(54.3%)	<0.001	2286	(26.2%)	4918	(28.6%)	<0.001
	Yes	36999	(46.9%)	65605	(42.9%)		6237	(71.4%)	11857	(68.9%)	
Colectomy											
	No	43748	(55.4%)	80603	(52.7%)	<0.001	5608	(64.2%)	10367	(60.2%)	<0.001
	Yes	35170	(44.6%)	72390	(47.3%)		3130	(35.8%)	6851	(39.8%)	

CRC, colorectal cancer; LNs, lymph nodes; *, in patients who underwent colectomy.