

Supplementary Online Content

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

eAppendix. Inclusion criteria and codes from the PEDSF-file

Variables used for checking enrollment:

ghoMMM not equal to 0 - no enrollment with an HMO the actual month

monMMM = 3 - enrolled in part A & B the actual month

planYY_MM = ("H", "R", "S", "E", "X") – enrolled in part D the actual month

where MMM and YY_MM represents calendar months of registration.

Stage

Stage=0 aj3sr1 = 00 or dajccstg1=00, 01 or 02

Stage=1 aj3sr1 = (10, 11, 12, 13, 18 or 19) or dajccstg1 = (10, 11, 12, 13, 14, 15, 16, 17,
18 or 19)

Stage=2 aj3sr1 = (20, 21, 22, 23 or 29) or dajccstg1= (30, 32, 33 or 34)

Stage=3 aj3sr1 = (30, 31, 32, 33 or 39) or dajccstg1 = (50, 51, 52, 53, 54)

Stage=4 aj3sr1 = (40, 41, 42 or 49) or dajccstg1 = (70, 71, 72, 73 or 74)

Variables for further selection:

beh1='3' & Stage >0 - selection of only invasive cancers (and cancers with complete staging)

dxconf1= ('1','2','4') - selection of microscopically confirmed cases

Stage < 4 – exclusion of metastatic cancers

agedx1 >=66 - first diagnosis at age 66 or later

eTable 1. Codes used to define the outcome and the covariates.

Description	Code source	Codes
<i>Outcomes</i>		
Death	PEDSF-file	Definition; death=1 if med_dodm is missing and Medicare death of death (med_dodm, med_dodd, med_dody) equals end of follow-up (otherwise death=0)
Cancer specific death	PEDSF-file	The variable vsrtdx1 = 1 and Death (defined as above) =1
<i>Treatment</i>		
Statin	String search of the GNN variable in the PDE file	combination or single therapies including any of the following; 'SIMVASTATIN', 'ATORVASTATIN', 'FLUVASTATIN', 'LOVASTATIN', 'PITAVASTATIN', 'PRAVASTATIN', 'ROSUVASTATIN'
<i>Comorbidities¹</i>		
Tobacco	ICD-9	305.1, 649.00, 649.01, 649.02, 649.03, 649.04, 989.84
	HCPCS	99406, 99407
Obesity	ICD-9	278.0, V85.3x, V85.4x
Depression	ICD-9	296.2x, 296.3x, 296.5x, 296.6x, 296.89, 300.4, 309.1, 311
Hyperlipidemia	ICD-9	272.0, 272.1, 272.2, 272.3, 272.4
Hypertension	ICD-9	362.11, 401.x, 402.x, 403.x, 404.x, 405.x, 437.2
Anemia	ICD-9	280.x, 281.x, 282.x, 283.x, 284.x, 285.x
Cardiovascular disease		Any of the index variables 1-6 included in the Charlson Klabunde index
<i>Preventive visits²</i>		
Preventive visit and yearly wellness exam	HCPCS	99387, 99397, 99401, 99402, 99403, 99404, 99405, 99406, 99407, 99408, 99409, G0402, G0403, G0404, G0405, G0438, G0439
Bone mass measurement	HCPCS	76977, 77078, 77079, 76070, 76071, 77080, 76075, 76076, 77081, G0130
Cervical and vaginal cancer screening	ICD-9	V72.31, V76.2, V76.47, V76.49, V15.89
	HCPCS	G0101, G0123, G0124, G0141, G0143, G0144,

		G0145, G0147, G0148, P3000, P3001, Q0091
Cardiovascular disease screening	ICD-9	V81.0, V81.1, V81.2
	HCPCS	80061, 82465, 83718, 84478
Diabetes screening	ICD-9	V77.1
	HCPCS	82947, 82950, 82951
Glaucoma tests	ICD-9	V80.1
	HCPCS	G0117, G0118
Abdominal aortic aneurysm screening	HCPCS	G0389
Nutrition therapy services	HCPCS	97802, 97803, 97804, G0270, G0271
Pneumococcal shot	HCPCS	4040F, 90732, 90669, G0009, G8864
Influenza shot	ICD-9	99.52
	HCPCS	90655, 90656, 90657, 90658, 90660, 90659, 4037F, G0008, G8482, G8636, G9141, G9142, Q2035, Q2036, Q2037, Q2038, Q2039
Mammography screening	HCPCS	76092, 77052, 77057, G0202
	Revenue center	0403
Colorectal cancer screening	ICD-9	45.22, 45.23, 45.25, 45.24
	HCPCS	82270, 82272, 82274, G0328, G0107, 45378, 45380, 45381, 45382, 45383, 45384, 45385, 45386, 45387, 45391, 45392, G0105, G0121, 45330, 45331, 45333, 45334, 45335, 45338, 45339, 45340, 45341, 45342
Prostate cancer screening	ICD-9	89.34
	HCPCS	84152, 84153, 84154, G0102, G0103, S0605
<i>Treatments</i>		
Colon surgery	ICD-9	45.72, 45.73, 45.74, 45.75, 45.76, 45.8, 17.3, 17.31, 17.32, 17.33, 17.34, 17.35, 17.36, 17.37, 17.38, 17.39
	HCPCS	44140, 44141, 44143, 44144, 44145, 44146, 44147, 44150, 44151, 44152, 44153, 44155, 44156, 44157, 44158, 44160, 44204, 44205, 44206, 44207, 44208, 44210, 44211, 44212

	Betos	P1B
Rectal surgery	ICD-9	48.3, 48.40, 48.41, 48.42, 48.43, 48.49, 48.5, 48.50, 48.51, 48.52, 48.59, 48.6, 48.61, 48.62, 48.63, 48.64, 48.65, 48.69
	HCPCS	45110, 45395, 45111, 45112, 45113, 45114, 45116, 45119, 45120, 45121, 45123, 45126, 45160, 45170, 45397
Bladder surgery	ICD-9	57.6, 57.71, 57.79
	HCPCS	51550, 51565, 51570, 51575, 51580, 51585, 51590, 51595, 51596
Mastectomy	ICD-9	85.4, 85.4, 85.41, 85.42, 85.43, 85.44, 85.45, 85.46, 85.47, 85.48
	HCPCS	19180, 19182, 19200, 19220, 19240, 19303, 19304, 19305, 19306, 19307
Breast conservative surgery	ICD-9	85.2, 85.2, 85.20, 85.21, 85.22, 85.23, 85.25
	HCPCS	19120, 19125, 19126, 19160, 19162, 19301, 19302
Prostatectomy	ICD-9	60.5
	HCPCS	55866, 55810, 55812, 55815, 55840, 55842, 55845
TURP /B (transurethral resection of prostate/bladder) / BCG (Bacillus Calmette-Guerin instillation)	HCPCS	51720, 52224, 52234, 52235, 52240
Surgery		Defined as any of the included surgical strategies listed above.
Chemotherapy ³	HCPCS	J9000-J9999 ⁴ , Q0083-Q0085, J8520, J8521, J8530, J8540, J8560, J8597, J8610, J8999, 96401-96549
	ICD-9	9925, V581, V662, V672
	Revenue center	0331, 0332, 0335
Radiotherapy	ICD-9	92.2, 92.2, 92.20, 92.21, 92.22, 92.23, 92.24, 92.25, 92.26, 92.27, 92.29, 92.3, 92.3, 92.30, 92.31, 92.32, 92.33, 92.34, 92.35, 92.36, 92.37, 92.38, 92.39, 92.4, 92.4, 92.41, V58.0, V66.1, V67.1

	HCPCS	77371-77373, 77401-77499, 77650-77699, G017', G0251, G0339, G0340
	Betos	P7A
	Revenue center	0330, 0333, 0339

The x in a code represents any number.

¹ Extracted according to codes available from <https://www.ccwdata.org/web/guest/condition-categories> : but instead of “at least 1 inpatient, or 2 outpatient or carrier claims required for a positive entry” we used the “remove.ruleout.dxcodes.macro.txt” that requires that all outpatient claims appear at least twice and are more than 30 days apart. The macro is available at <https://healthcaredelivery.cancer.gov/seermedicare/program/comorbidity.html>

² Relevant preventive visits and screening available to beneficiaries in Medicare according to : <https://www.medicare.gov/coverage/preventive-and-screening-services.html>

³To identify oral capecitabine in the DME file we used the following National Drug Codes: 00004110020, 00004110150, 00004110116, 00004110051, 00004110013, 00004110022, 00004110113, 00004110151.

⁴Excluding the following codes from this sequence: J9003, J9165, J9175, J9202, J9209, J9212- J9226, J9240, J9295, J9381, J9395.

eTable 2. Parameter estimates from regression model for statin treatment initiation

Variable	Month 0-5, During the grace period for both non-initiators and initiators		Month 6 to end of follow-up, Used only for non-initiators	
	Coefficient	Standard error	Coefficient	Standard error
Baseline variables				
Intercept	-10.524	4.010	-10.267	2.823
Month	-0.163	0.068	0.047	0.015
Month square	0.019	0.014	-0.002	0.000*
Stage 2	-0.049	0.096	-0.133	0.069
Stage 3	-0.159	0.121	-0.075	0.084
Sex, female	-0.009	0.133	0.004	0.098
Race, black	-0.200	0.125	0.090	0.081
Race, other	0.303	0.125	0.09	0.095
Diagnosis year 2008	-0.327	0.089	-0.127	0.059
Diagnosis year 2009	-0.390	0.093	-0.179	0.071
Charlson score 1	-0.303	0.113	-0.117	0.068
Charlson score 2	-0.406	0.171	-0.212	0.104
Charlson score 3	-0.307	0.237	-0.218	0.152
Charlson score 4	-0.362	0.316	-0.406	0.213
Charlson score >4	0.056	0.364	-0.418	0.239
CVD indication for statin	-0.344	0.131	-0.001	0.087
Married	-0.071	0.118	0.134	0.087
Separated	-1.191	0.721	0.371	0.283
Divorced	-0.074	0.160	0.072	0.115
Widowed	0.046	0.130	0.050	0.097
Unknown marriage status	-0.247	0.166	0.189	0.111
Tobacco	-0.056	0.242	0.318	0.153
Obesity	0.116	0.226	0.293	0.154
Depression	0.237	0.159	-0.144	0.124
Hyperlipidemia	0.145	0.082	0.055	0.056
Hypertension	-0.214	0.082	-0.026	0.056
Anemia	0.016	0.107	-0.123	0.077
Age at diagnosis	0.186	0.104	0.141	0.073
Age square	-0.001	0.001	-0.001	0.001
Preventive score	-0.028	0.060	-0.039	0.041
Preventive score square	-0.006	0.009	0.003	0.006
Site colorectal	-0.360	0.133	-0.355	0.094
Site breast	-0.208	0.161	-0.331	0.117
Site bladder	-0.221	0.169	-0.282	0.126
Time-varying variables				

Charlson score 1	0.362	0.107	0.338	0.065
Charlson score 2	0.654	0.142	0.469	0.083
Charlson score 3	0.673	0.186	0.544	0.108
Charlson score 4	0.716	0.241	0.603	0.138
Charlson score >4	0.509	0.289	0.911	0.147
Charlson unknown	-8.891	164.0	-1.403	1.003
Chemotherapy	-0.355	0.229	-0.434	0.218
Surgery	-0.613	0.106	-0.231	0.181
Radiotherapy	-0.152	0.127	-0.282	0.172
Tobacco	0.634	0.208	0.794	0.178
Obesity	0.278	0.251	0.023	0.237
Depression	-0.266	0.229	-0.052	0.156
Hyperlipidemia	1.729	0.083	1.713	0.058
Hypertension	0.663	0.083	0.810	0.057
Anemia	0.030	0.107	-0.182	0.081
CVD indication for statins	1.023	0.109	0.680	0.066

Summary statistics of the weights; mean 1.13, median 1.05, minimum 1, maximum 6.88.

*rounded from 0.0004

eTable 3. Construction of inverse probability weights

Time point	Main analysis weights	
	Statins arm	No statins arm
Grace period, month(j) $0 \leq j < m$	1	$1 / (1 - p_{\text{statin}})$
End of grace period, month $j = m = 5$	$1 / p_{\text{statin}}$	$1 / (1 - p_{\text{statin}})$
After grace period, month $j > m(5)$	1	$1 / (1 - p_{\text{statin}})$

p_{statin} is the probability of initiating statins at each month given baseline and time varying comorbidities