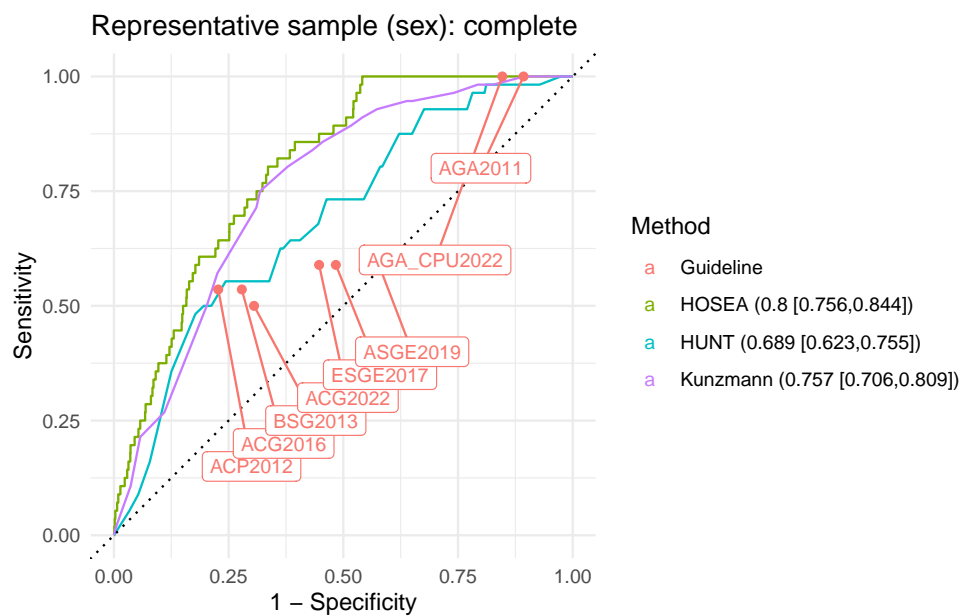
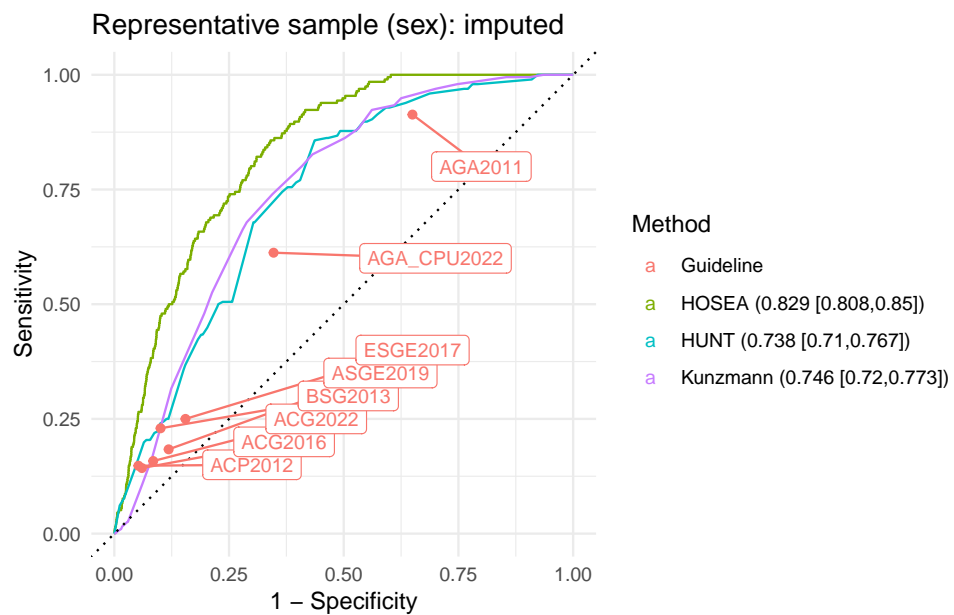


HOSEA Aim I – Report on Risks

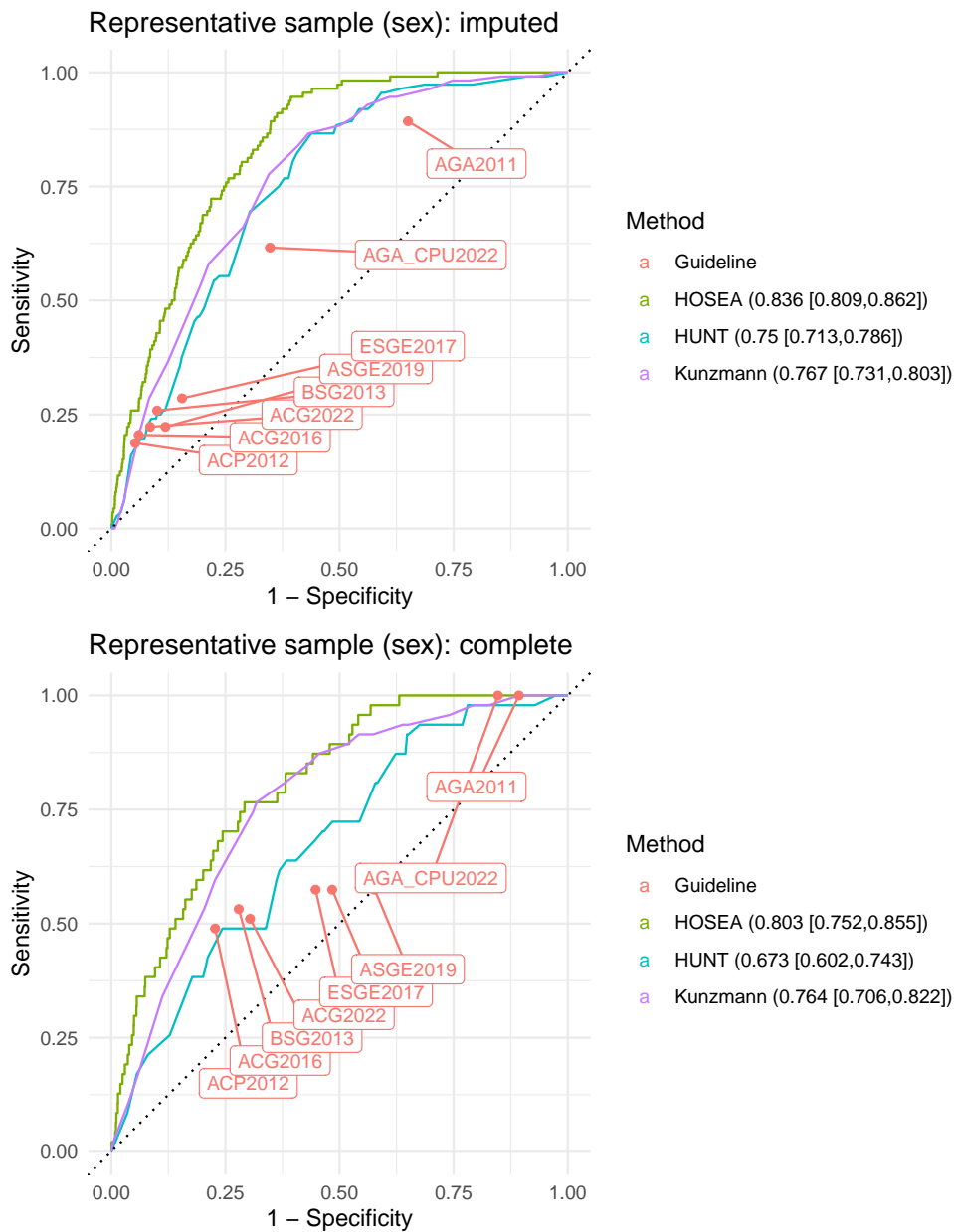
Simon Fontaine

August 17, 2022

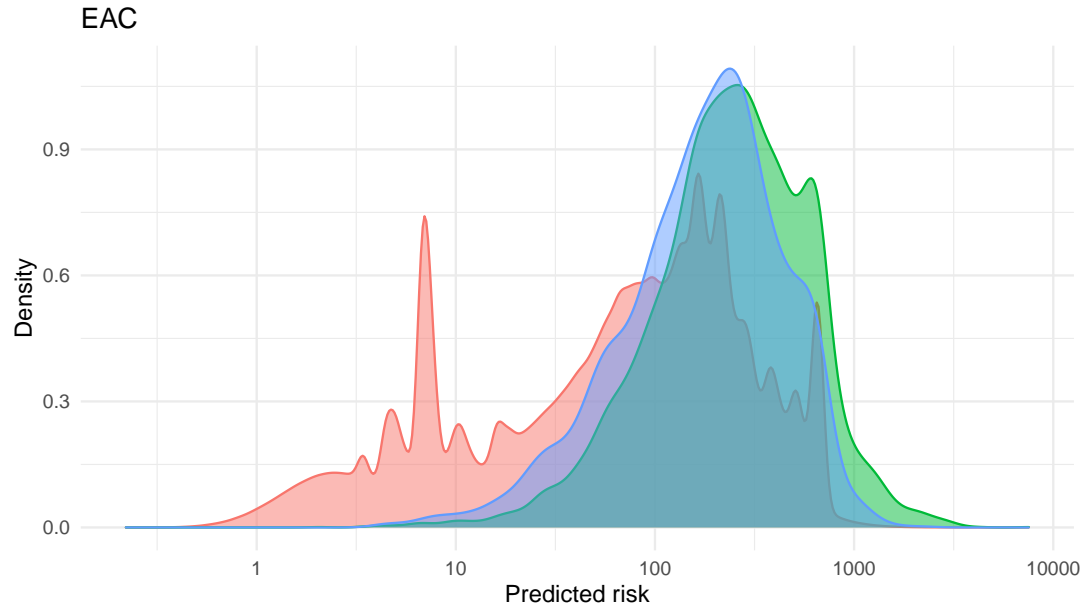
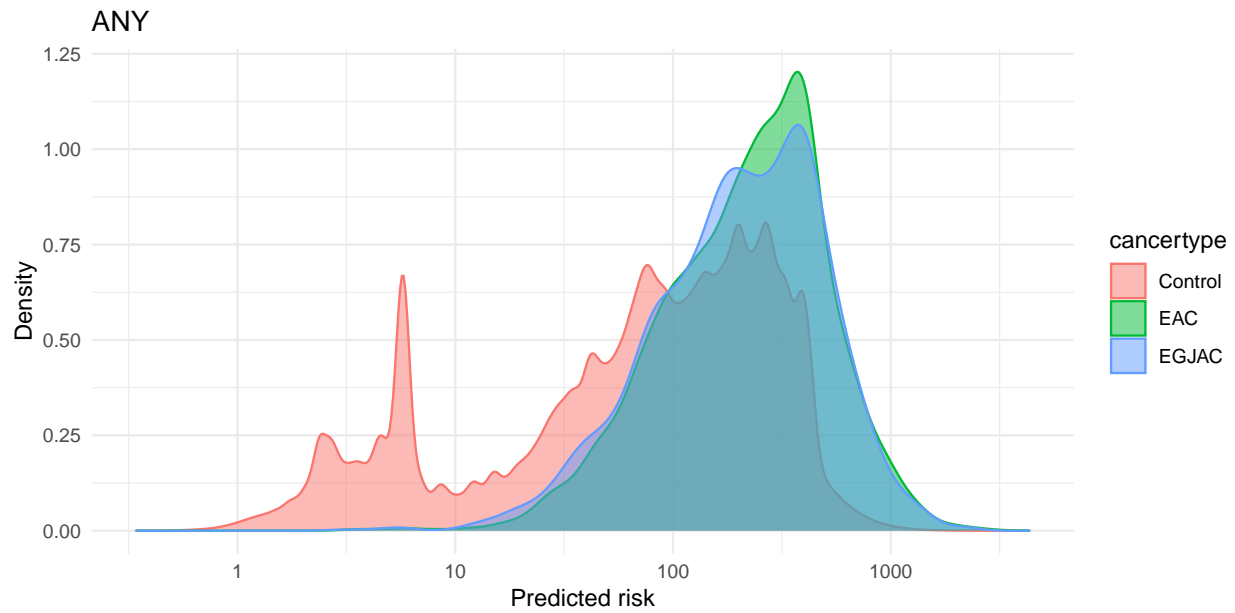
Comparison ANY

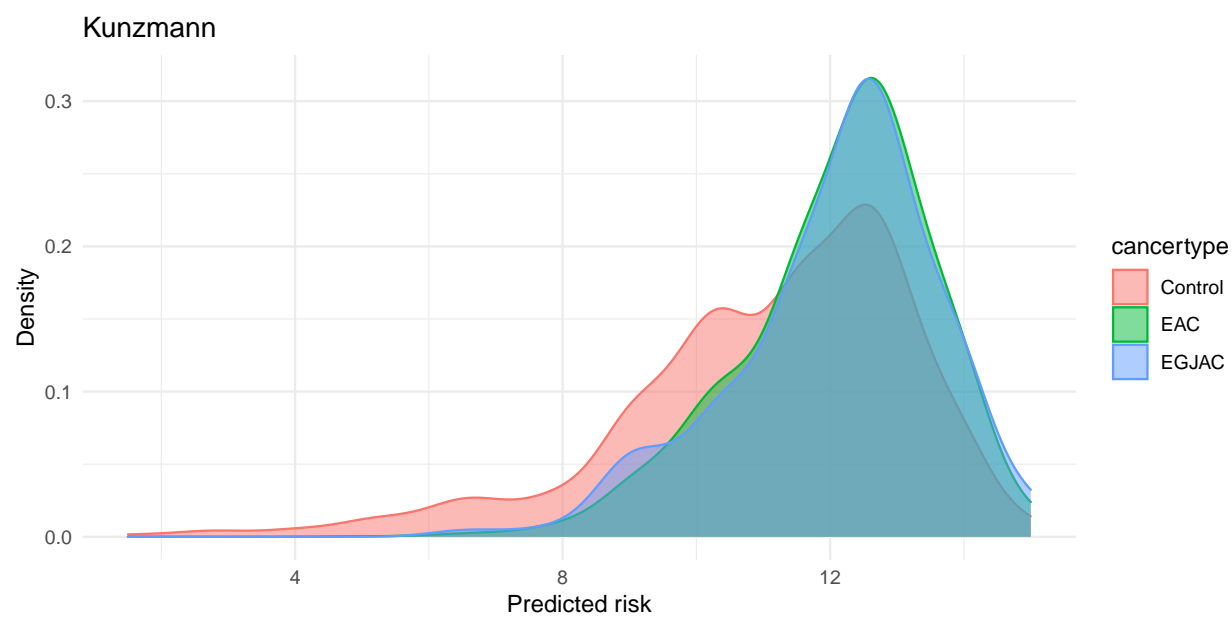
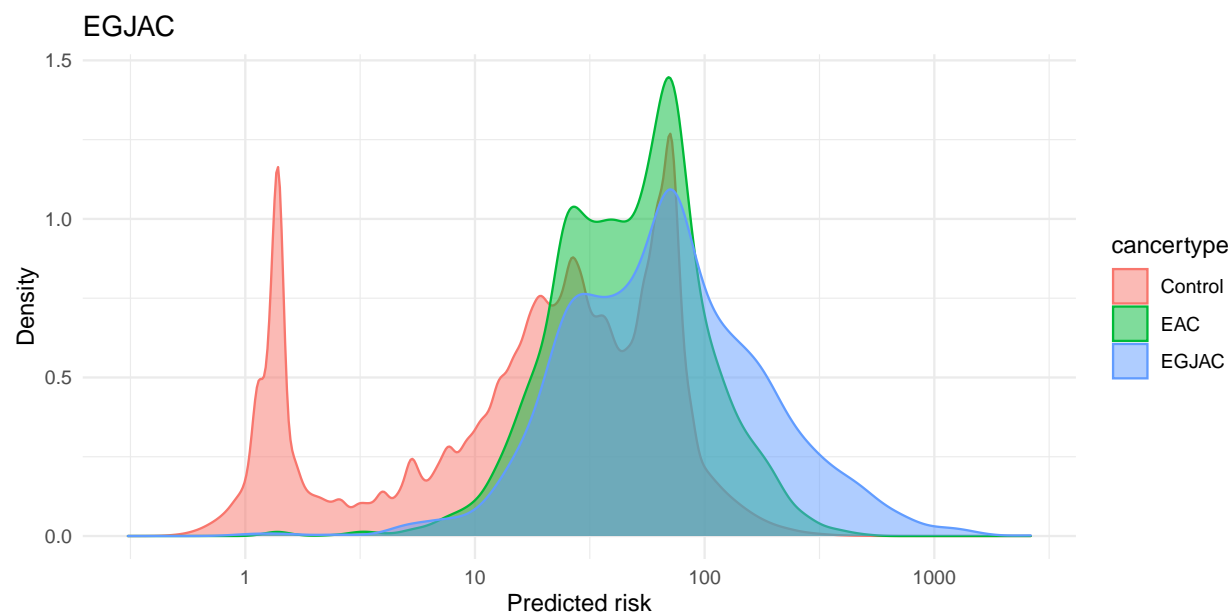


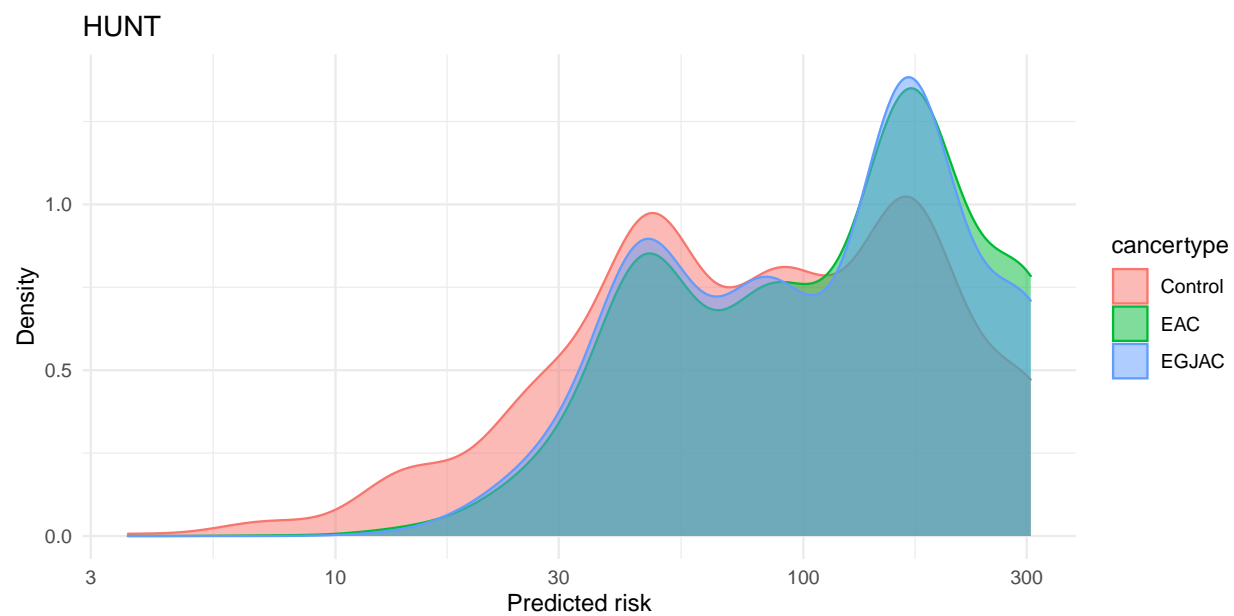
Comparison EAC



Risk distribution







ANY Thresholds

Threshold	TPR	PPV	Det. prev.	Threshold	TPR	PPV	Det. prev.
5	99.86	0.13	86.24	210	45.03	0.34	14.88
10	99.51	0.14	79.20	220	41.84	0.34	13.53
15	99.19	0.14	76.68	230	39.35	0.35	12.34
20	99.05	0.15	74.69	240	36.96	0.36	11.25
25	98.74	0.15	72.82	250	34.85	0.38	10.28
30	98.46	0.15	70.91	260	32.82	0.39	9.40
35	97.93	0.16	68.92	270	31.52	0.41	8.62
40	97.26	0.16	66.88	280	29.52	0.41	7.91
45	96.77	0.17	64.81	290	27.87	0.43	7.26
50	95.82	0.17	62.74	300	26.04	0.43	6.67
55	94.66	0.17	60.67	325	22.01	0.45	5.43
60	93.86	0.18	58.59	350	18.67	0.46	4.46
65	92.80	0.18	56.51	375	16.15	0.49	3.66
70	91.54	0.19	54.44	400	14.04	0.51	3.03
75	89.93	0.19	52.41	425	12.57	0.55	2.52
80	88.77	0.20	50.40	450	10.74	0.57	2.10
85	87.40	0.20	48.42	475	9.23	0.58	1.76
90	86.03	0.21	46.47	500	8.11	0.61	1.47
95	84.35	0.21	44.57	600	4.32	0.64	0.75
100	82.91	0.22	42.70	700	2.81	0.79	0.39
105	80.84	0.22	40.87	800	1.76	0.90	0.22
110	79.26	0.23	39.08	900	1.02	0.92	0.12
115	77.89	0.23	37.35	1000	0.49	0.79	0.07
120	76.06	0.24	35.67	1100	0.28	0.74	0.04
125	74.34	0.24	34.03	1200	0.18	0.73	0.03
130	72.27	0.25	32.44	1300	0.07	0.50	0.02
135	69.95	0.25	30.91	1400	0.07	0.81	0.01
140	68.30	0.26	29.46	1500	0.07	1.18	0.01
145	66.34	0.26	28.06	1600	0.04	0.90	0.00
150	64.41	0.27	26.71	1700	0.04	1.33	0.00
155	62.97	0.27	25.44	1800	0.04	2.00	0.00
160	61.21	0.28	24.21	1900	0.04	2.94	0.00
165	59.39	0.29	23.05	2000	0.04	4.00	0.00
170	57.63	0.29	21.94	3000	0.00	0.00	0.00
175	55.70	0.30	20.88	4000	0.00		0.00
180	53.88	0.30	19.89	5000	0.00		0.00
185	52.61	0.31	18.93	6000	0.00		0.00
190	50.97	0.31	18.02	7000	0.00		0.00
195	49.49	0.32	17.17	8000	0.00		0.00
200	47.81	0.32	16.36	10000	0.00		0.00

EAC Thresholds

Threshold	TPR	PPV	Det. prev.	Threshold	TPR	PPV	Det. prev.
5	99.65	0.13	82.06	210	29.94	0.41	8.12
10	99.05	0.14	75.94	220	27.72	0.42	7.24
15	98.41	0.15	72.68	230	25.53	0.44	6.47
20	97.60	0.15	69.72	240	23.52	0.45	5.79
25	96.65	0.16	66.87	250	21.15	0.45	5.18
30	95.52	0.16	64.09	260	19.56	0.46	4.65
35	94.17	0.17	61.37	270	18.26	0.48	4.18
40	92.69	0.17	58.70	280	17.20	0.50	3.76
45	91.35	0.18	56.08	290	15.75	0.51	3.39
50	89.62	0.18	53.50	300	14.30	0.52	3.06
55	87.96	0.19	51.01	325	12.04	0.56	2.38
60	86.30	0.20	48.54	350	9.96	0.59	1.87
65	84.36	0.20	46.15	375	8.02	0.60	1.47
70	82.94	0.21	43.83	400	6.64	0.63	1.17
75	80.86	0.21	41.57	425	5.58	0.66	0.93
80	79.24	0.22	39.37	450	4.27	0.63	0.75
85	77.01	0.23	37.23	475	3.71	0.68	0.60
90	74.89	0.23	35.18	500	2.75	0.63	0.49
95	72.21	0.24	33.19	600	1.20	0.61	0.22
100	69.95	0.25	31.29	700	0.85	0.91	0.10
105	67.55	0.25	29.46	800	0.42	0.91	0.05
110	65.22	0.26	27.73	900	0.18	0.70	0.03
115	62.99	0.27	26.06	1000	0.11	0.73	0.02
120	60.49	0.27	24.50	1100	0.04	0.42	0.01
125	58.40	0.28	23.02	1200	0.04	0.61	0.01
130	56.00	0.29	21.64	1300	0.00	0.00	0.00
135	53.67	0.29	20.31	1400	0.00	0.00	0.00
140	51.69	0.30	19.07	1500	0.00	0.00	0.00
145	49.68	0.31	17.91	1600	0.00	0.00	0.00
150	47.88	0.31	16.81	1700	0.00	0.00	0.00
155	45.87	0.32	15.80	1800	0.00	0.00	0.00
160	44.53	0.33	14.83	1900	0.00	0.00	0.00
165	42.16	0.33	13.94	2000	0.00	0.00	0.00
170	40.22	0.34	13.10	3000	0.00	0.00	0.00
175	38.95	0.35	12.33	4000	0.00	0.00	0.00
180	37.75	0.36	11.60	5000	0.00	0.00	0.00
185	36.48	0.37	10.93	6000	0.00	0.00	0.00
190	35.45	0.38	10.30	7000	0.00	0.00	0.00
195	34.25	0.39	9.70	8000	0.00	0.00	0.00
200	32.27	0.39	9.14	10000	0.00	0.00	0.00

EGJAC Thresholds

Threshold	TPR	PPV	Det. prev.	Threshold	TPR	PPV	Det. prev.
5	99.39	0.13	80.54	210	0.00	0.00	0.00
10	99.04	0.14	77.35	220	0.00	0.00	0.00
15	97.83	0.15	72.34	230	0.00		0.00
20	95.26	0.16	64.80	240	0.00		0.00
25	89.02	0.18	55.36	250	0.00		0.00
30	80.54	0.20	44.87	260	0.00		0.00
35	69.53	0.22	34.55	270	0.00		0.00
40	58.13	0.25	25.80	280	0.00		0.00
45	48.11	0.27	19.27	290	0.00		0.00
50	38.28	0.29	14.62	300	0.00		0.00
55	31.68	0.31	11.26	325	0.00		0.00
60	26.05	0.33	8.76	350	0.00		0.00
65	21.70	0.35	6.81	375	0.00		0.00
70	17.64	0.37	5.26	400	0.00		0.00
75	13.86	0.38	4.02	425	0.00		0.00
80	10.91	0.39	3.02	450	0.00		0.00
85	7.95	0.38	2.26	475	0.00		0.00
90	6.41	0.42	1.66	500	0.00		0.00
95	4.78	0.43	1.20	600	0.00		0.00
100	3.53	0.44	0.87	700	0.00		0.00
105	2.46	0.43	0.62	800	0.00		0.00
110	1.96	0.49	0.44	900	0.00		0.00
115	1.43	0.51	0.31	1000	0.00		0.00
120	1.00	0.50	0.22	1100	0.00		0.00
125	0.86	0.60	0.16	1200	0.00		0.00
130	0.57	0.56	0.11	1300	0.00		0.00
135	0.46	0.65	0.08	1400	0.00		0.00
140	0.36	0.70	0.06	1500	0.00		0.00
145	0.21	0.62	0.04	1600	0.00		0.00
150	0.14	0.56	0.03	1700	0.00		0.00
155	0.11	0.60	0.02	1800	0.00		0.00
160	0.11	0.87	0.01	1900	0.00		0.00
165	0.07	0.81	0.01	2000	0.00		0.00
170	0.04	0.62	0.01	3000	0.00		0.00
175	0.04	1.03	0.00	4000	0.00		0.00
180	0.04	1.59	0.00	5000	0.00		0.00
185	0.04	2.50	0.00	6000	0.00		0.00
190	0.00	0.00	0.00	7000	0.00		0.00
195	0.00	0.00	0.00	8000	0.00		0.00
200	0.00	0.00	0.00	10000	0.00		0.00

HUNT and Kunzmann Thresholds

HUNT	TPR	PPV	Det. prev.
0	100.00	0.23	100.00
0.5	100.00	0.23	100.00
1	100.00	0.23	100.00
1.5	100.00	0.23	99.83
2	100.00	0.23	99.83
2.5	100.00	0.23	99.56
3	100.00	0.23	99.27
3.5	100.00	0.23	99.27
4	100.00	0.23	98.74
4.5	100.00	0.23	98.68
5	99.97	0.23	97.81
5.5	99.97	0.24	97.12
6	99.94	0.24	96.47
6.5	99.70	0.24	94.52
7	99.55	0.24	93.35
7.5	99.40	0.25	92.55
8	98.74	0.25	90.22
8.5	98.44	0.25	89.51
9	94.81	0.26	82.05
9.5	92.89	0.27	78.84
10	88.96	0.29	70.91
10.5	80.82	0.31	59.54
11	79.44	0.31	58.32
11.5	63.66	0.34	42.72
12	56.99	0.34	38.16
12.5	33.91	0.37	21.16
13	19.21	0.40	11.02
13.5	12.09	0.40	6.85
14	1.77	0.45	0.91
14.5	1.77	0.45	0.91
15	0.00		0.00

Kunzmann	TPR	PPV	Det. prev.
0	100.00	0.23	100.00
10	99.97	0.23	98.76
20	99.55	0.24	94.11
30	97.66	0.26	87.52
40	92.71	0.26	81.18
50	76.65	0.26	66.56
60	72.33	0.29	57.85
70	72.33	0.29	57.85
80	70.53	0.29	55.61
90	58.25	0.29	46.50
100	57.38	0.31	42.16
110	57.29	0.32	41.64
120	51.14	0.33	35.71
130	51.14	0.33	35.71
140	51.14	0.33	35.71
150	49.13	0.33	33.69
160	49.10	0.33	33.62
170	37.27	0.36	23.76
180	22.66	0.35	15.05
190	22.66	0.35	15.05
200	22.66	0.35	15.05
210	17.35	0.38	10.38
220	17.35	0.38	10.38
230	17.35	0.38	10.38
240	17.35	0.38	10.38
250	17.35	0.38	10.38
260	17.35	0.38	10.38
270	17.35	0.38	10.38
280	17.35	0.38	10.38
290	17.35	0.38	10.38
300	11.58	0.41	6.52
310	0.00		0.00
320	0.00		0.00

Feature distribution comparison

All test cases, imputed			
	Control	EAC	EGJAC
n	2564222.00	2143.00	706.00
smoke_current	0.43	0.48	0.47
smoke_former	0.42	0.42	0.46
smoke_ever	0.77	0.85	0.87
male	0.92	0.99	0.99
gerd	0.23	0.34	0.27
white	0.80	0.93	0.89
black	0.17	0.05	0.09
asian	0.01	0.00	0.01
hawaiianpacific	0.01	0.01	0.01
indianalaskan	0.01	0.01	0.01
bmi	29.30	29.63	29.66
bmi_0_25	0.22	0.21	0.22
bmi_25_30	0.38	0.38	0.35
bmi_30_35	0.25	0.25	0.26
bmi_35_100	0.15	0.16	0.16
bmi_0_30	0.61	0.59	0.57
bmi_30_100	0.39	0.41	0.43
age	59.59	66.34	66.74
age_0_25	0.28	0.03	0.04
age_25_30	0.08	0.06	0.06
age_30_35	0.10	0.15	0.13
age_35_100	0.41	0.50	0.53
age_0_50	0.28	0.03	0.04
age_50_60	0.18	0.21	0.19
age_60_70	0.25	0.48	0.45
age_70_100	0.29	0.28	0.32

All test cases, imputed			
	Control	EAC	EGJAC
n	2564222.00	2143.00	706.00
smoke_current	0.43	0.48	0.47
smoke_former	0.42	0.42	0.46
smoke_ever	0.77	0.85	0.87
male	0.92	0.99	0.99
gerd	0.23	0.34	0.27
white	0.80	0.93	0.89
black	0.17	0.05	0.09
asian	0.01	0.00	0.01
hawaiianpacific	0.01	0.01	0.01
indianalaskan	0.01	0.01	0.01
bmi	29.30	29.63	29.66
bmi_0_25	0.22	0.21	0.22
bmi_25_30	0.38	0.38	0.35
bmi_30_35	0.25	0.25	0.26
bmi_35_100	0.15	0.16	0.16
bmi_0_30	0.61	0.59	0.57
bmi_30_100	0.39	0.41	0.43
age	59.59	66.34	66.74
age_0_25	0.28	0.03	0.04
age_25_30	0.08	0.06	0.06
age_30_35	0.10	0.15	0.13
age_35_100	0.41	0.50	0.53
age_0_50	0.28	0.03	0.04
age_50_60	0.18	0.21	0.19
age_60_70	0.25	0.48	0.45
age_70_100	0.29	0.28	0.32

Representative sample, imputed			
	Control	EAC	EGJAC
n	431242.00	152.00	44.00
smoke_current	0.44	0.48	0.57
smoke_former	0.39	0.41	0.43
smoke_ever	0.74	0.87	0.89
male	0.50	0.92	0.80
gerd	0.22	0.32	0.25
white	0.75	0.89	0.91
black	0.21	0.05	0.09
asian	0.02	0.01	0.00
hawaiianpacific	0.01	0.04	0.00
indianalaskan	0.01	0.01	0.00
bmi	29.35	29.29	29.94
bmi_0_25	0.24	0.21	0.18
bmi_25_30	0.36	0.41	0.36
bmi_30_35	0.24	0.24	0.32
bmi_35_100	0.16	0.14	0.14
bmi_0_30	0.60	0.62	0.55
bmi_30_100	0.40	0.38	0.45
age	53.49	65.68	62.93
age_0_25	0.42	0.06	0.07
age_25_30	0.09	0.05	0.09
age_30_35	0.11	0.16	0.30
age_35_100	0.27	0.47	0.30
age_0_50	0.42	0.06	0.07
age_50_60	0.20	0.21	0.39
age_60_70	0.19	0.49	0.32
age_70_100	0.19	0.24	0.23

Representative sample, complete cases			
	Control	EAC	EGJAC
n	45860.00	42.00	14.00
smoke_current	0.44	0.55	0.86
smoke_former	0.37	0.43	0.14
smoke_ever	0.81	0.98	1.00
male	0.50	0.88	0.93
gerd	0.59	0.57	0.64
white	0.74	1.00	0.71
black	0.23	0.00	0.29
asian	0.01	0.00	0.00
hawaiianpacific	0.01	0.00	0.00
indianalaskan	0.01	0.00	0.07
bmi	29.78	28.49	28.52
bmi_0_25	0.23	0.21	0.21
bmi_25_30	0.33	0.48	0.43
bmi_30_35	0.25	0.24	0.21
bmi_35_100	0.19	0.07	0.14
bmi_0_30	0.56	0.69	0.64
bmi_30_100	0.44	0.31	0.36
age	57.53	65.21	65.43
age_0_25	0.30	0.02	0.00
age_25_30	0.13	0.10	0.14
age_30_35	0.15	0.17	0.14
age_35_100	0.29	0.38	0.43
age_0_50	0.30	0.02	0.00
age_50_60	0.28	0.26	0.29
age_60_70	0.24	0.45	0.50
age_70_100	0.19	0.26	0.21