

Supplemental Table 1a-d. The success of propensity scoring balancing of patient characteristics, co-morbidities, and medical procedures for different tobacco treatment program intervention levels (models A-C) and randomization groups (model D).

A. High intervention versus no intervention

	Unweighted			Weighted		
	High intervention (n=209)	No intervention (n=287)	p-value	High intervention	No intervention	p-value
Age (mean)	54.4	51.6	0.03	52.1	52.6	0.71
Sex						
• Female	90 (43.1%)	136 (47.4%)	0.34	45.8%	45.1%	0.87
• Male	119 (56.9%)	151 (52.6%)		54.2%	54.9%	
Race						
• White	119 (56.9%)	160 (55.7%)	0.79	57.8%	57.3%	0.92
• Non-White	90 (43.1%)	127 (44.3%)		42.2%	42.7%	
Insurance						
• Insured	189 (90.4%)	257 (89.5%)	0.75	91.1%	90.3%	0.76
• Uninsured	20 (9.6%)	30 (10.5%)		8.9%	9.7%	
Veteran						
• Yes	19 (9.1%)	18 (6.3%)	0.24	6.7%	7.4%	0.80
• No	190 (90.9%)	269 (93.7%)		93.3%	92.6%	
Log transformed social vulnerability index (SVI)	0.32	0.28	0.01	0.30	0.30	0.99
Years smoked (mean)	34.5	30.7	0.01	31.7	32.0	0.84
First purchase years						
• <15 years	39 (18.7%)	36 (12.7%)	0.28	14.5%	14.8%	0.99
• 15-17 years	58 (27.9%)	78 (27.5%)		27.5%	27.7%	
• 18-21 years	80 (38.5%)	124 (43.7%)		42.7%	42.1%	
• ≥21 years	31 (14.9%)	46 (16.2%)		15.3%	15.4%	
Diagnosed Medical Conditions						
Log transformed length of hospital stay	1.1	1.2	0.32	1.1	1.1	0.74
Log transformed Charlson comorbidity	0.7	0.7	0.88	0.7	0.6	0.48

score						
Alcohol Abuse						
• Yes	17 (8.5%)	49 (17.6%)	0.01	11.5%	13.8%	0.46
• No	183 (91.5%)	230 (82.4%)		88.5%	86.2%	
Cardiac Arrhythmia						
• Yes	25 (12.5%)	49 (17.6%)	0.13	16.0%	14.8%	0.71
• No	175 (87.5%)	230 (82.4%)		84.0%	85.2%	
Congestive Heart Failure						
• Yes	33 (16.5%)	48 (17.2%)	0.84	14.7%	15.1%	0.89
• No	167 (83.5%)	231 (82.8%)		85.3%	84.9%	
Chronic obstructive pulmonary disease						
• Yes	61 (30.5%)	71 (25.5%)	0.22	25.1%	26.2%	0.80
• No	139 (69.5%)	208 (74.5%)		74.9%	73.8%	
Coagulopathy						
• Yes	8 (4.0%)	15 (5.4%)	0.49	4.7%	4.6%	0.96
• No	192 (96.0%)	264 (94.6%)		95.3%	95.4%	
Deficiency Anemia						
• Yes	6 (3.0%)	8 (2.9%)	0.93	1.9%	2.6%	0.62
• No	194 (97.0%)	271 (97.1%)		98.1%	97.4%	
Depression						
• Yes	21 (10.5%)	42 (15.0%)	0.15	12.5%	12.6%	0.98
• No	179 (89.5%)	237 (85.0%)		87.5%	87.4%	
Diabetes						
• Yes	44 (22.0%)	59 (21.1%)	0.82	21.8%	21.3%	0.89
• No	156 (78.0%)	220 (78.9%)		78.2%	78.7%	
Drug Abuse						
• Yes	18 (9.0%)	54 (19.4%)	0.01	14.1%	14.6%	0.88
• No	182 (91.0%)	225 (80.6%)		85.9%	85.4%	
Fluid/electrolyte disorders						
• Yes	53 (26.5%)	76 (27.2%)	0.86	24.4%	25.7%	0.76

• No	147 (73.5%)	203 (72.8%)		75.6%	74.3%	
Hypertension						
• Yes	116 (58.0%)	147 (52.7%)	0.25	53.6%	54.5%	0.84
• No	84 (42.0%)	132 (47.3%)		46.4%	45.5%	
Hypothyroidism						
• Yes	11 (5.5%)	18 (6.5%)	0.67	5.4%	5.0%	0.86
• No	189 (94.5%)	261 (93.5%)		94.6%	95.0%	
Liver disease						
• Yes	9 (4.5%)	28 (10.0%)	0.03	6.5%	7.6%	0.63
• No	191 (95.5%)	251 (90.0%)		93.5%	92.4%	
Obesity						
• Yes	13 (6.5%)	32 (11.5%)	0.07	11.4%	9.7%	0.58
• No	187 (93.5%)	247 (88.5%)		88.6%	90.3%	
Neurological Disorders						
• Yes	13 (6.5%)	33 (11.8%)	0.05	11.2%	9.9%	0.65
• No	187 (93.5%)	246 (88.2%)		88.8%	90.1%	
Pulmonary circulation disorder						
• Yes	4 (2.0%)	10 (3.6%)	0.31	2.7%	2.6%	0.94
• No	196 (98.0%)	269 (96.4%)		97.3%	97.4%	
Peripheral vascular disorders						
• Yes	18 (9.0%)	25 (9.0%)	0.99	6.5%	8.1%	0.53
• No	182 (91.0%)	254 (91.0%)		93.5%	91.9%	
Renal failure						
• Yes	17 (8.5%)	26 (9.3%)	0.7571	7.5%	8.1%	0.81
• No	183 (91.5%)	253 (90.7%)		92.5%	91.9%	
Tumor						
• Yes	9 (4.5%)	6 (2.2%)	0.15	2.7%	3.0%	0.85
• No	191 (95.5%)	273 (97.8%)		97.3%	97.0%	
Vascular disorders						
• Yes	8 (4.0%)	14 (5.0%)	0.60	5.3%	4.4%	0.64
• No	192 (96.0%)	265 (95.0%)		94.7%	95.6%	

Weight Loss						
• Yes	18 (9.0%)	19 (6.8%)	0.38	6.4%	7.2%	0.73
• No	182 (91.0%)	260 (93.2%)		93.6%	92.8%	
Pneumonia						
• Yes	9 (4.3%)	9 (3.1%)	0.49	2.8%	3.6%	0.64
• No	200 (95.7%)	278 (96.9%)		97.2%	96.4%	

B. Medium intervention versus no intervention

	Unweighted			Weighted		
	Medium intervention (n=489)	No intervention (n=287)	p-value	Medium intervention	No intervention	p-value
Age (mean)	54.7	51.6	0.01	53.5	53.6	0.94
Sex						
• Female	224 (45.8%)	136 (47.4%)	0.67	46.1%	46.8%	0.86
• Male	265 (54.2%)	151 (52.6%)		53.9%	53.2%	
Race						
• White	291 (59.5%)	160 (55.7%)	0.31	59.0%	58.2%	0.82
• Non-White	198 (40.5%)	127 (44.3%)		41.0%	41.8%	
Insurance						
• Insured	441 (90.2%)	257 (89.5%)	0.78	90.2%	90.3%	0.95
• Uninsured	48 (9.8%)	30 (10.5%)		9.8%	9.7%	
Veteran						
• Yes	43 (8.8%)	18 (6.3%)	0.21	8.0%	7.3%	0.73
• No	446 (91.2%)	269 (93.7%)		92.0%	92.7%	
Log transformed social vulnerability index (SVI)	0.3	0.3	0.13	0.3	0.3	0.80
Years smoked (mean)	34.2	30.7	0.01	33.5	32.1	0.26
First purchase years						
• <15 years	77 (15.8%)	36 (12.7%)	0.14	15.0%	15.2%	0.99
• 15-17 years	143 (29.4%)	78 (27.5%)		29.1%	28.1%	
• 18-21 years	173 (35.5%)	124 (43.7%)		38.4%	38.9%	
• ≥21 years	94 (19.3%)	46 (16.2%)		17.6%	17.8%	
Diagnosed Medical Conditions						
Log transformed length of hospital stay	1.0	1.2	0.01	1.0	1.0	0.90
Log transformed Charlson comorbidity score	0.7	0.7	0.54	0.7	0.7	0.91

Alcohol Abuse • Yes • No	47 (10.0%) 424 (90.0%)	49 (17.6%) 230 (82.4%)	0.01	11.7% 88.3%	11.6% 88.4%	0.98
Cardiac Arrhythmia • Yes • No	71 (15.1%) 400 (84.9%)	49 (17.6%) 230 (82.4%)	0.37	15.6% 84.4%	16.7% 83.3%	0.70
Congestive Heart Failure • Yes • No	66 (14.0%) 405 (86.0%)	48 (17.2%) 231 (82.8%)	0.24	15.1% 84.9%	16.4% 83.6%	0.62
Chronic obstructive pulmonary disease • Yes • No	142 (30.2%) 329 (69.8%)	71 (25.5%) 208 (74.5%)	0.17	28.9% 71.1%	28.6% 71.4%	0.93
Coagulopathy • Yes • No	18 (3.8%) 453 (96.2%)	15 (5.4%) 264 (94.6%)	0.32	4.2% 95.8%	4.0% 96.0%	0.87
Deficiency Anemia • Yes • No	16 (3.4%) 455 (96.6%)	8 (2.9%) 271 (97.1%)	0.69	3.0% 97.0%	2.5% 97.5%	0.71
Depression • Yes • No	66 (14.0%) 405 (96.0%)	42 (15.1%) 237 (84.9%)	0.69	14.2% 85.8%	14.8% 85.2%	0.82
Diabetes • Yes • No	126 (26.7%) 345 (73.3%)	59 (21.1%) 22 (78.9%)	0.0853	24.4% 75.6%	25.0% 75.0%	0.86
Drug Abuse • Yes • No	48 (10.2%) 423 (89.8%)	54 (19.4%) 225 (80.6%)	0.01	12.4% 87.6%	13.1% 86.9%	0.78
Fluid/electrolyte disorders • Yes • No	141 (29.9%) 330 (70.1%)	76 (27.2%) 203 (72.8%)	0.43	28.5% 71.5%	28.7% 71.3%	0.96

Hypertension • Yes • No	265 (56.3%) 206 (43.7%)	147 (52.7%) 132 (47.3%)	0.34	54.2% 45.8%	54.3% 45.7%	1.00
Hypothyroidism • Yes • No	25 (5.3%) 446 (94.7%)	18 (6.5%) 261 (93.5%)	0.51	5.8% 94.2%	6.3% 93.7%	0.79
Liver disease • Yes • No	29 (6.2%) 442 (93.8%)	28 (10.0%) 251 (90.0%)	0.05	7.4% 92.6%	6.7% 93.3%	0.73
Obesity • Yes • No	45 (9.5%) 426 (90.5%)	32 (11.5%) 247 (88.5%)	0.40	10.6% 89.4%	11.0% 89.0%	0.85
Neurological Disorders • Yes • No	39 (8.3%) 432 (91.7%)	33 (11.8%) 246 (88.2%)	0.11	10.0% 90.0%	10.3% 89.7%	0.92
Pulmonary circulation disorder • Yes • No	19 (4.0%) 452 (96.0%)	10 (3.6%) 269 (96.4%)	0.76	4.0% 96.0%	4.4% 95.6%	0.77
Peripheral vascular disorders • Yes • No	41 (8.7%) 430 (91.3%)	25 (9.0%) 254 (91.0%)	0.90	8.7% 91.3%	9.0% 91.0%	0.89
Renal failure • Yes • No	44 (9.3%) 427 (90.7%)	26 (9.3%) 253 (90.7%)	0.99	9.2% 90.8%	9.4% 90.6%	0.93
Tumor • Yes • No	23 (4.9%) 448 (95.1%)	6 (2.1%) 273 (97.9%)	0.06	3.9% 96.1%	2.8% 97.2%	0.41
Vascular disorders • Yes • No	23 (4.9%) 448 (95.1%)	14 (5.0%) 265 (95.0%)	0.93	5.1% 94.9%	5.1% 94.9%	0.97

Weight Loss						
• Yes	24 (5.1%)	19 (6.8%)	0.33	5.4%	4.8%	0.72
• No	447 (94.9%)	260 (93.2%)		94.6%	95.2%	
Pneumonia						
• Yes	13 (2.7%)	9 (3.1%)	0.70	2.9%	2.8%	0.93
• No	476 (97.3%)	278 (96.9%)		97.1%	97.2%	

C. Any intervention versus no intervention

	Unweighted			Weighted		
	Any intervention (n=698)	No intervention (n=287)	p-value	Any intervention	No intervention	p-value
Age (mean)	54.6	51.6	0.01	53.8	53.8	0.93
Sex						
• Female	314 (45.0%)	136 (47.4%)	0.49	45.4%	44.8%	0.85
• Male	384 (55.0%)	151 (52.6%)		54.6%	55.2%	
Race						
• White	410 (58.7%)	160 (55.7%)	0.39	58.8%	58.0%	0.81
• Non-White	288 (41.3%)	127 (44.3%)		41.2%	42.0%	
Insurance						
• Insured	630 (90.3%)	257 (89.5%)	0.73	90.4%	90.7%	0.86
• Uninsured	68 (9.7%)	30 (10.5%)		9.6%	9.3%	
Veteran						
• Yes	62 (8.9%)	18 (6.3%)	0.17	8.2%	7.7%	0.76
• No	636 (91.1%)	269 (93.7%)		91.8%	92.3%	
Log transformed social vulnerability index (SVI)	1.0	1.2	0.01	1.1	1.0	0.67
Years smoked (mean)	34.3	30.7	0.01	33.6	32.4	0.29
First purchase years						
• <15 years	116 (16.7%)	36 (12.7%)	0.15	15.7%	15.0%	0.99
• 15-17 years	201 (28.9%)	78 (27.5%)		28.6%	29.5%	
• 18-21 years	253 (36.4%)	124 (43.7%)		38.6%	38.5%	
• ≥21 years	125 (18.0%)	46 (16.2%)		17.1%	17.0%	
Diagnosed Medical Conditions						
Log transformed length of hospital stay	1.0	1.2	0.01	1.1	1.0	0.67
Log transformed Charlson comorbidity score	0.7	0.7	0.69	0.7	0.7	0.91

Alcohol Abuse • Yes • No	64 (9.5%) 607 (90.5%)	49 (17.6%) 230 (82.4%)	0.01	11.6% 88.4%	10.7% 89.3%	0.69
Cardiac Arrhythmia • Yes • No	96 (14.3%) 575 (85.7%)	49 (17.6%) 230 (82.4%)	0.20	15.0% 85.0%	16.0% 84.0%	0.68
Congestive Heart Failure • Yes • No	99 (14.8%) 572 (85.2%)	48 (17.2%) 231 (82.8%)	0.34	15.5% 84.5%	16.2% 83.8%	0.78
Chronic obstructive pulmonary disease • Yes • No	203 (30.3%) 468 (36.7%)	71 (25.5%) 208 (74.5%)	0.14	29.2% 70.8%	27.7% 72.3%	0.61
Coagulopathy • Yes • No	26 (3.9%) 645 (96.1%)	15 (5.4%) 264 (94.6%)	0.30	4.2% 95.8%	4.0% 96.0%	0.85
Deficiency Anemia • Yes • No	22 (3.3%) 649 (96.7%)	8 (2.9%) 271 (97.1%)	0.74	3.0% 97.0%	2.5% 97.5%	0.69
Depression • Yes • No	87 (13.0%) 584 (87.0%)	42 (15.0%) 237 (85.0%)	0.39	13.2% 86.8%	13.1% 86.9%	0.98
Diabetes • Yes • No	170 (25.3%) 501 (74.7%)	59 (21.2%) 220 (78.8%)	0.17	24.3% 75.7%	25.3% 74.7%	0.72
Drug Abuse • Yes • No	66 (9.8%) 605 (90.2%)	54 (19.4%) 225 (80.6%)	0.01	11.7% 88.3%	12.1% 87.9%	0.88
Fluid/electrolyte disorders • Yes • No	194 (28.9%) 477 (71.1%)	76 (27.2%) 203 (72.8%)	0.60	28.0% 72.0%	26.9% 73.1%	0.71

Hypertension • Yes • No	381 (56.8%) 290 (43.2%)	147 (52.7%) 132 (47.3%)	0.25	55.5% 44.5%	55.8% 44.2%	0.91
Hypothyroidism • Yes • No	36 (5.4%) 635 (94.6%)	18 (6.5%) 261 (93.5%)	0.51	5.6% 94.4%	5.8% 94.2%	0.89
Liver disease • Yes • No	38 (5.7%) 633 (94.3%)	28 (10.0%) 251 (90.0%)	0.01	6.7% 93.3%	6.0% 94.0%	0.66
Obesity • Yes • No	58 (8.6%) 613 (91.4%)	32 (11.5%) 247 (88.5%)	0.18	9.6% 90.4%	10.4% 89.6%	0.68
Neurological Disorders • Yes • No	52 (7.7%) 619 (92.3%)	33 (11.8%) 246 (88.2%)	0.04	9.0% 91.0%	9.5% 90.5%	0.80
Pulmonary circulation disorder • Yes • No	23 (3.4%) 648 (96.6%)	10 (3.6%) 269 (96.4%)	0.90	3.5% 96.5%	3.7% 96.3%	0.89
Peripheral vascular disorders • Yes • No	59 (8.8%) 612 (91.2%)	25 (9.0%) 254 (91.0%)	0.93	8.8% 91.2%	8.9% 91.1%	0.93
Renal failure • Yes • No	61 (9.1%) 610 (90.9%)	26 (9.3%) 253 (90.7%)	0.91	8.9% 91.1%	9.0% 91.0%	0.97
Tumor • Yes • No	32 (4.8%) 639 (95.2%)	6 (2.1%) 273 (97.9%)	0.06	3.9% 96.1%	4.3% 95.7%	0.76
Vascular disorders • Yes • No	31 (4.6%) 640 (95.4%)	14 (5.0%) 265 (95.0%)	0.79	4.9% 95.1%	4.8% 95.2%	0.97

Weight Loss						
• Yes	42 (6.3%)	19 (6.8%)	0.75	6.1%	5.2%	0.56
• No	629 (93.7%)	260 (93.2%)		93.9%	94.8%	
Pneumonia						
• Yes	22 (3.1%)	9 (3.1%)	0.99	3.3%	3.1%	0.89
• No	676 (96.9%)	278 (96.9%)		96.7%	96.9%	

D. Enhanced versus basic care conditions

	Unweighted			Weighted		
	Enhanced Care (n=732)	Basic Care (n=253)	p-value	Enhanced Care	Basic Care	p-value*
Age (mean)	53.8	53.5	0.72	54.4	53.9	0.66
Sex						
• Female	340 (46.4%)	110 (43.5%)	0.41	47.8%	46.6%	0.78
• Male	392 (53.6%)	143 (56.5%)				
Race						
• White	431 (58.9%)	139 (54.9%)	0.27	62.8%	57.9%	0.20
• Non-White	301 (41.1%)	114 (45.1%)				
Insurance						
• Insured	658 (89.9%)	229 (90.5%)	0.78	90.3%	90.5%	0.94
• Uninsured	74 (10.1%)	24 (9.5%)				
Veteran						
• Yes	66 (9.0%)	14 (5.5%)	0.08	13.5%	7.7%	0.03
• No	666 (91.0%)	239 (94.5%)				
Log transformed social vulnerability index (SVI)	0.3	0.3	1.00	0.3	0.3	0.96
Years smoked (mean)	33.5	32.6	0.44	33.9	33.5	0.75
First purchase years						
• <15 years	119 (16.3%)	33 (13.2%)	0.58	19.6%	16.0%	0.46
• 15-17 years	204 (28.0%)	75 (30.0%)				
• 18-21 years	276 (37.9%)	101 (40.4%)				
• ≥21 years	130 (17.8%)	41 (16.4%)				
Diagnosed Medical Conditions						
Log transformed length of hospital stay	1.1	1.0	0.56	1.1	1.0	0.24
Log transformed Charlson comorbidity score	0.7	0.7	0.98	0.7	0.7	0.96

Alcohol Abuse • Yes • No	92 (13.0%) 616 (87.0%)	21 (8.7%) 221 (91.3%)	0.07	18.2% 81.8%	10.6% 89.4%	0.01
Cardiac Arrhythmia • Yes • No	108 (15.2%) 600 (84.8%)	37 (15.3%) 205 (84.7%)	0.99	16.2% 83.8%	15.7% 84.3%	0.86
Congestive Heart Failure • Yes • No	113 (16.0%) 595 (84.0%)	34 (14.0%) 208 (86.0%)	0.48	17.8% 82.2%	16.1% 83.9%	0.57
Chronic obstructive pulmonary disease • Yes • No	200 (28.2%) 508 (71.8%)	74 (30.6%) 168 (69.4%)	0.49	27.9% 72.1%	28.2% 71.8%	0.93
Coagulopathy • Yes • No	32 (4.5%) 676 (95.5%)	9 (3.7%) 233 (96.3%)	0.60	6.1% 93.9%	3.8% 96.2%	0.21
Deficiency Anemia • Yes • No	26 (3.7%) 682 (96.3%)	4 (1.7%) 238 (98.3%)	0.12	5.9% 94.1%	3.2% 96.8%	0.13
Depression • Yes • No	96 (13.6%) 612 (86.4%)	33 (13.6%) 209 (86.4%)	0.98	12.3% 87.7%	15.0% 85.0%	0.29
Diabetes • Yes • No	175 (24.7%) 533 (75.3%)	54 (22.3%) 188 (77.7%)	0.45	26.5% 73.5%	24.8% 75.2%	0.63
Drug Abuse • Yes • No	89 (12.6%) 619 (87.4%)	31 (12.8%) 211 (87.2%)	0.92	12.0% 88.0%	12.1% 87.9%	0.98
Fluid/electrolyte disorders • Yes • No	200 (28.3%) 508 (71.7%)	70 (28.9%) 172 (71.1%)	0.84	28.7% 71.3%	26.5% 73.5%	0.55

Hypertension • Yes • No	398 (56.2%) 310 (43.8%)	130 (53.7%) 112 (46.3%)	0.5000	57.0% 43.0%	56.7% 43.3%	0.93
Hypothyroidism • Yes • No	37 (5.2%) 671 (94.8%)	17 (7.0%) 225 (93.0%)	0.30	4.2% 95.8%	4.0% 96.0%	0.90
Liver disease • Yes • No	48 (6.8%) 660 (93.2%)	18 (7.4%) 224 (92.6%)	0.73	5.9% 94.1%	7.1% 92.9%	0.51
Obesity • Yes • No	67 (9.5%) 641 (90.5%)	23 (9.5%) 219 (90.5%)	0.99	9.1% 90.9%	9.9% 90.1%	0.73
Neurological Disorders • Yes • No	68 (9.6%) 640 (90.4%)	17 (7.0%) 225 (93.0%)	0.22	11.7% 88.3%	9.8% 90.2%	0.45
Pulmonary circulation disorder • Yes • No	26 (3.7%) 682 (96.3%)	7 (2.9%) 235 (97.1%)	0.57	5.5% 94.5%	4.1% 95.9%	0.42
Peripheral vascular disorders • Yes • No	62 (8.8%) 646 (91.2%)	22 (9.1%) 220 (90.9%)	0.87	7.8% 92.2%	9.5% 90.5%	0.43
Renal failure • Yes • No	66 (9.3%) 642 (90.7%)	21 (8.7%) 221 (91.3%)	0.76	9.1% 90.9%	9.7% 90.3%	0.78
Tumor • Yes • No	27 (3.8%) 681 (96.2%)	11 (4.5%) 231 (95.5%)	0.62	3.3% 96.7%	3.6% 96.4%	0.82
Vascular disorders • Yes • No	35 (4.9%) 673 (95.1%)	10 (4.1%) 232 (95.9%)	0.61	5.5% 94.5%	5.4% 94.6%	0.93

Weight Loss						
• Yes	46 (6.5%)	15 (6.2%)	0.87	6.4%	6.4%	0.98
• No	662 (93.5%)	227 (93.8%)		93.6%	93.6%	
Pneumonia						
• Yes	27 (3.7%)	4 (1.6%)	0.10	6.0%	3.1%	0.10
• No	705 (96.3%)	249 (98.4%)		94.0%	96.9%	

*covariates with **bolded** p-values were added to propensity score weighted logistic regression model