The Role of Behavioral Health Diagnoses in Adverse Selection
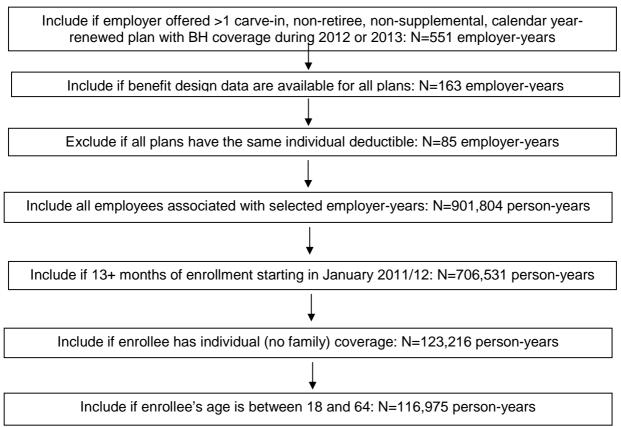
Online Supplement

Sample Selection

For the individual subscriber cohort, we restricted the sample to individuals with 13 months of continuous enrollment (either January 2011-January 2012 or January 2012-January 2013). We included only individuals who did not have any dependents enrolled during this period and excluded subscribers under 18 or over 64 during any of the 13 months.
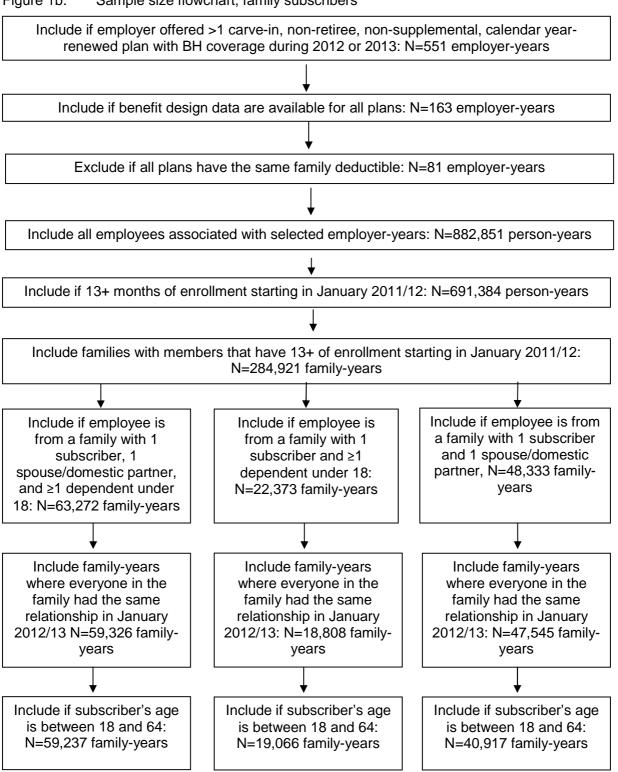
For the family subscriber cohort, we included only family units where all family members had 13 months of continuous enrollment. For the first family type, a couple with children, we further limited family units to those with one primary subscriber between the ages of 18 and 64, one spouse or domestic partner (who could be of the same gender as the primary subscriber), and at least one child (dependent under 26 years of age) The final sample size was 59,237 family-years. Another family type included one subscriber and at least one child under 26 years of age. A third family type included one primary subscriber between the ages of 18 and 64 and one spouse or domestic partner.

Figure 1a.   Sample size flowchart, individual subscribers

| Include if employer offered >1 carve-in, non-retiree, non-supplemental, calendar year-renewed plan with BH coverage during 2012 or 2013: N=551 employer-years |

| Include if benefit design data are available for all plans: N=163 employer-years |

| Exclude if all plans have the same individual deductible: N=85 employer-years |

| Include all employees associated with selected employer-years: N=901,804 person-years |

| Include if 13+ months of enrollment starting in January 2011/12: N=706,531 person-years |

| Include if enrollee has individual (no family) coverage: N=123,216 person-years |

| Include if enrollee's age is between 18 and 64: N=116,975 person-years |

Note: We used employers that offered more than one non-retiree, non-supplemental, calendar-renewed, carved-in BH plans. We included only employers for which linked benefit design data were available for all plans offered. In order to examine which factors are associated with selecting the plan with the lowest deductible, we also excluded employers where all of the plans offered had the same deductible.

Figure 1b.   Sample size flowchart, family subscribers

Appendix Table 1. Estimates of the effects of having any behavioral health diagnosis on selecting the lowest-deductible plan for individual subscribers

	Odds Ratio	p	95% Confidence Intervals	
Any Behavioral Health Diagnosis	1.20	.05	1.00	1.45
Male	.90	.70	.53	1.54
Age Group				
18-24	1.03	.92	.64	1.69
25-34	1.09	.74	.68	1.76
35-44	.99	.90	.77	1.29
45-54	.95	.50	.79	1.14
55-64	Reference	-	-	-

Note: Models for individual subscribers also controlled for gender of the subscriber, year of plan selection, and state of residence. N=116,965.

Appendix Table 2. Estimates of the effects of the number of behavioral health diagnoses on selecting the lowest-deductible plan for individual subscribers

	Odds Ratio	p	95% Confidence Intervals	
Number of Behavioral Health Diagnoses	1.12	.02	1.02	1.23
Male	.90	.70	.52	1.54
Age Group				
18-24	1.04	.92	.64	1.69
25-34	1.09	.74	.68	1.76
35-44	.99	.90	.77	1.29
45-54	.95	.49	.79	1.14
55-64	Reference	-	-	-

Note: Models for individual subscribers also controlled for gender of the subscriber, year of plan selection, and state of residence. N=116,965.

Appendix Table 3. Estimates of the effects of having behavioral health diagnoses on selecting the lowest-deductible plan for individual subscribers

	Odds Ratio	p	95% Confidence Intervals	
Male	.90	.70	.52	1.54
Age Group of the Subscriber				
18-24	1.04	.87	.64	1.69
25-34	1.09	.72	.68	1.76
35-44	.99	.96	.77	1.29
45-54	.95	.55	.79	1.14
55-64	Reference	-	-	-
Adjustment disorders	1.12	.23	.93	1.35
Post-Traumatic Stress disorders	1.05	.75	.79	1.37
Generalized Anxiety Disorders	1.08	.26	.95	1.24
Obsessive Compulsive Disorders	1.04	.85	.69	1.57
Panic disorders	.90	.29	.75	1.09
Phobia disorders	.85	.43	.56	1.28
Cognitive disorders (e.g. Dementia)	1.52	.12	.90	2.58
Attention Deficit Hyperactivity Disorders	1.18	.27	.87	1.57
Bipolar disorders	1.19	.28	.88	1.60
Depression disorders	1.20	.03	1.02	1.40
Personality disorders	.86	.60	.49	1.49
Psychotic disorders (e.g. schizophrenia)	1.23	.41	.76	1.99
Alcohol use disorders	1.09	.51	.85	1.39
Drug use disorders	1.17	.50	.74	1.87
Other psychiatric disorders	1.07	.53	.87	1.32

Note: Models for individual subscribers also controlled for gender of the subscriber, year of plan selection and state of residence. N=116,965.

Appendix Table 4. Estimates of the effects of having any behavioral health diagnosis on selecting the lowest-deductible plan for a family with one subscriber and one spouse/domestic partner, and one or more dependents[†]

	Odds Ratio	p	95% Confidence Intervals	
Any Behavioral Health Diagnosis	1.11	.13	.97	1.27
Age Group of the Subscriber				
18-24	0.77	.57	.31	1.91
25-34	1.02	.92	.64	1.64
35-44	1.18	.27	.88	1.57
45-54	1.11	.28	.93	1.29
55-64	Reference	-	-	-
Couple Types				
Married Couple - Different Gender	Reference	-	-	-
Married Couple - Same Gender	.64	.29	.28	1.46
Domestic Partnership - Different Gender	1.17	0.72	.49	2.78
Domestic Partnership - Same Gender	1.15	0.79	.41	3.21
Number of dependents ages 5 or younger	1.07	.19	.97	1.19
Number of dependents ages 6-11	.94	.33	.83	1.06
Number of dependents ages 12-17	.92	.19	.80	1.04
Number of dependents ages 18-26	.96	.37	.88	1.05
Number of dependents ages 27 or older	.67	.15	.40	1.15

[†]This family unit consists of a primary subscriber and another adult enrollee, both ages 18-64, and a dependent under the age of 18. Models for family units also controlled for gender of the subscriber, year of plan selection, and state of residence. N=59,233.

Appendix Table 5. Estimates of the effects of the number of behavioral health diagnoses on selecting the lowest-deductible plan for a family with one subscriber and one spouse/domestic partner, and one or more dependents[†]

	Odds Ratio	p	95% Confidence Intervals	
Number of Behavioral Diagnoses in Family Unit	1.05	.11	.99	1.11
Age Group of the Subscriber				
18-24	0.77	.73	.33	2.17
25-34	1.02	.76	.66	1.76
35-44	1.18	.22	.90	1.60
45-54	1.10	.22	.94	1.30
55-64	Reference	-	-	-
Couple Type				
Married Couple - Different Gender	Reference	-	-	-
Married Couple - Same Gender	.63	.28	.28	1.44
Domestic Partnership - Different Gender	1.17	.72	.49	2.78
Domestic Partnership - Same Gender	1.14	.80	.40	3.22
Number of dependents ages 5 or younger	1.07	.19	.97	1.19
Number of dependents ages 6-11	.94	.33	.83	1.06
Number of dependents ages 12-17	.92	.19	.80	1.04
Number of dependents ages 18-26	.96	.36	.88	1.05
Number of dependents ages 27 or older	.67	.15	.40	1.15

[†]This family unit consists of a primary subscriber and another adult enrollee, both ages 18-64, and a dependent under the age of 18. Models for family units also controlled for gender of the subscriber, year of plan selection, and state of residence. N=59,233.

Appendix Table 6. Estimates of the effects of having behavioral health diagnoses on selecting the lowest-deductible plan for a family with one subscriber and one spouse/domestic partner, and one or more dependents[†]

	Odds Ratio	p	95% Confidence Intervals	
Age Group				
18-24	.76	.56	.31	1.89
25-34	1.02	.93	.64	1.64
35-44	1.18	.27	.88	1.57
45-54	1.09	.28	.93	1.29
55-64	Reference	-	-	-
Couple Type				
Married Couple - Different Gender	Reference	-	-	-
Married Couple - Same Gender	.63	.28	.28	1.45
Domestic Partnership - Different Gender	1.18	.71	.49	2.80
Domestic Partnership - Same Gender	1.13	.82	.40	3.19
Number of dependents ages 5 or younger	1.07	.19	.97	1.19
Number of dependents ages 6-11	.94	.33	.83	1.06
Number of dependents ages 12-17	.92	.19	.80	1.04
Number of dependents ages 18-26	.96	.35	.88	1.05
Number of dependents ages 27 or older	.68	.15	.40	1.15
Behavioral Health Diagnosis				
Adjustment disorders	1.08	.24	.95	1.24
Post-Traumatic Stress disorders	.96	.76	.77	1.22
Generalized Anxiety Disorders	1.10	.22	.94	1.30
Obsessive Compulsive Disorders	1.27	.07	.98	1.64
Panic disorders	1.12	.34	.89	1.41
Phobia disorders	.71	.10	.47	1.07
Cognitive disorders (e.g. Dementia)	1.19	.38	.81	1.74
Attention Deficit Hyperactivity Disorders	1.07	.28	.94	1.22
Other childhood disorders	1.06	.55	.87	1.31
Pervasive developmental disorders	.90	.54	.64	1.27
Bipolar disorders	1.16	.27	.89	1.52
Depression disorders	.98	.62	.89	1.07
Personality disorders	.90	.65	.56	1.43

Psychotic disorders (e.g. schizophrenia)	.96	.86	.60	1.52
Alcohol use disorders	1.05	.73	.80	1.37
Drug use disorders	1.01	.93	.77	1.33
Other psychiatric disorders	1.04	.65	.89	1.21

[†]This family unit consists of a primary subscriber and another adult enrollee, both ages 18-64, and a dependent under the age of 18. Models for family units also controlled for gender of the subscriber, year of plan selection, and state of residence. N=59,233.

Appendix Table 7. Estimates of the effects of having any behavioral health diagnosis on selecting the lowest-deductible plan for a family with one subscriber, one spouse/domestic partner, and no dependents[†]

	Odds Ratio	p	95% Confidence Intervals	
Any Behavioral Health Diagnosis	1.12	.20	.94	1.34
Age Group				
18-24	.89	.66	.52	1.52
25-34	1.33	.42	.66	2.65
35-44	1.09	.62	.77	1.56
45-54	1.06	.59	.86	1.31
55-64	Reference	-	-	-
Couple Types				
Married Couple – Different Gender	Reference	-	-	-
Married Couple - Same Gender	1.02	.95	.62	1.65
Domestic Partnership - Different Gender	.82	.51	.46	1.47
Domestic Partnership - Same Gender	1.16	.55	.72	1.86

[†]This family unit consists of a primary subscriber and another adult enrollee, both ages 18-64, and no dependents under the age of 18. Models for family units also controlled for gender of the subscriber, year of plan selection, and state of residence. N=40,877.

Appendix Table 8. Estimates of the effects of the number of behavioral health diagnoses on selecting the lowest-deductible plan for a family with one subscriber and one spouse/domestic partner, and no dependents[†]

	Odds Ratio	p	95% Confidence Intervals	
Number of Behavioral Diagnoses in Family Unit	1.05	.28	.96	1.15
Age Group of the Subscriber				
18-24	.89	.66	.52	1.52
25-34	1.33	.42	.67	2.65
35-44	1.10	.61	.77	1.56
45-54	1.06	.58	.86	1.31
55-64	Reference	-	-	-
Couple Type				
Married Couple - Different Gender	Reference	-	-	-
Married Couple - Same Gender	1.01	.96	.62	1.66
Domestic Partnership - Different Gender	.82	.51	.46	1.47
Domestic Partnership - Same Gender	1.16	.54	.72	1.86

[†]This family unit consists of a primary subscriber and another adult enrollee, both ages 18-64, and no dependents under the age of 18. Models for family units also controlled for gender of the subscriber, year of plan selection, and state of residence. N=40,877.

Appendix Table 9. Estimates of the effects of having behavioral health diagnoses on selecting the lowest-deductible plan for a family with one subscriber and one spouse/domestic partner, and no dependents [†]

	Odds Ratio	p	95% Confidence Intervals	
Age Group of the Subscriber				
18-24	.76	.56	.31	1.89
25-34	1.02	.93	.64	1.64
35-44	1.18	.27	.88	1.57
45-54	1.09	.28	.93	1.29
55-64	Reference	-	-	-
Couple Type				
Married Couple - Different Gender	Reference	-	-	-
Married Couple - Same Gender	.63	.28	.28	1.45
Domestic Partnership - Different Gender	1.18	.71	.49	2.80
Domestic Partnership - Same Gender	1.13	.82	.40	3.19
Behavioral Health Diagnosis				
Adjustment disorders	1.25	.03	1.02	1.54
Post-Traumatic Stress disorders	1.09	.57	.82	1.44
Generalized Anxiety Disorders	1.06	.48	.91	1.23
Obsessive Compulsive Disorders	1.09	.70	.69	1.74
Panic disorders	1.22	.30	.84	1.76
Phobia disorders	0.67	.19	.36	1.22
Cognitive disorders (e.g. Dementia)	1.14	.57	.72	1.82
Attention Deficit Hyperactivity Disorders	1.08	.55	.83	1.41
Other childhood disorders	1.09	.64	.77	1.54
Pervasive developmental disorders	1.01	.94	.88	1.15
Bipolar disorders	.97	.92	.55	1.70
Depression disorders	.87	.54	.55	1.37
Personality disorders	.87	.38	.63	1.19
Psychotic disorders (e.g. schizophrenia)	1.29	.19	.88	1.87
Alcohol use disorders	.92	.48	.73	1.16
Drug use disorders	1.25	.03	1.02	1.54
Other psychiatric disorders	1.09	.57	.82	1.44

[†]This family unit consists of a primary subscriber and another adult enrollee, both ages 18-64, and no dependents under the age of 18. Models for family units also controlled for gender of the subscriber, year of plan selection, and state of residence. N=40,877.

Appendix Table 10. Estimates of the effects of having any behavioral health diagnosis on selecting the lowest-deductible plan for a family with one subscriber and one or more dependents[†]

	Odds Ratio	p	95% Confidence Intervals	
Any Behavioral Health Diagnosis	1.25	<0.001	1.10	1.43
Age Group of the Subscriber				
18-24	.95	.88	.46	1.93
25-34	.92	.77	.53	1.60
35-44	1.00	.99	.66	1.53
45-54	1.11	.52	.81	1.54
55-64	Reference	-	-	-
Number of dependents ages 5 or younger	1.10	.42	.87	1.41
Number of dependents ages 6-11	.97	.78	.78	1.20
Number of dependents ages 12-17	.91	.33	.74	1.10
Number of dependents ages 18-26	.89	.22	.75	1.07
Number of dependents ages 27 or older	1.09	.84	.49	2.45

[†]This family unit consists of a primary subscriber, age 18-64, and one or more dependents under the age of 18. Models for family units also controlled for gender of the subscriber, year of plan selection, and state of residence. N=19,040.

Appendix Table 11. Estimates of the effects of the number of behavioral health diagnoses on selecting the lowest-deductible plan for a family with one subscriber and one or more dependents[†]

	Odds Ratio	p	95% Confidence Intervals	
Number of Behavioral Diagnoses in Family Unit	1.09	.01	1.02	1.17
Age Group of the Subscriber				
18-24	.94	.87	.46	1.92
25-34	.92	.76	.53	1.60
35-44	1.00	.99	.66	1.53
45-54	1.11	.52	.81	1.53
55-64	Reference	-	-	-
Number of dependents ages 5 or younger	1.10	.43	.87	1.40
Number of dependents ages 6-11	.97	.78	.78	1.20
Number of dependents ages 12-17	.91	.33	.74	1.10
Number of dependents ages 18-26	.89	.22	.75	1.07
Number of dependents ages 27 or older	1.10	.82	.48	2.50

[†]A family unit consists of a primary subscriber, age 18-64, and one or more dependents under the age of 18. Models for family units also controlled for gender of the subscriber, year of plan selection, and state of residence. N=19,040.

Appendix Table 12. Estimates of the effects of having behavioral health diagnoses on selecting the lowest-deductible plan for a family with one subscriber and one or more dependents[†]

	Odds Ratio	p	95% Confidence Intervals	
Age Group of the Subscriber				
18-24	.95	.88	.47	1.92
25-34	.92	.78	.53	1.60
35-44	1.01	.98	.66	1.53
45-54	1.12	.51	.81	1.54
55-64	Reference	-	-	-
Number of dependents ages 5 or younger	1.10	.42	.87	1.40
Number of dependents ages 6-11	.97	.76	.78	1.20
Number of dependents ages 12-17	.91	.32	.74	1.10
Number of dependents ages 18-26	.90	.24	.75	1.08
Number of dependents ages 27 or older	1.07	.87	.48	2.39
Behavioral Health Diagnosis				
Adjustment disorders	1.32	<0.001	1.10	1.59
Post-Traumatic Stress disorders	.87	.49	.58	1.29
Generalized Anxiety Disorders	1.29	.02	1.05	1.60
Obsessive Compulsive Disorders	1.31	.41	.69	2.47
Panic disorders	1.20	.41	.78	1.84
Phobia disorders	.57	.10	.29	1.12
Cognitive disorders (e.g. Dementia)	1.72	.17	.80	3.73
Attention Deficit Hyperactivity Disorders	1.15	.23	.92	1.43
Other childhood disorders	.97	.81	.76	1.24
Pervasive developmental disorders	.85	.58	.49	1.49
Bipolar disorders	.78	.20	.53	1.14
Depression disorders	1.11	.25	.93	1.32
Personality disorders	.92	.90	.24	3.48
Psychotic disorders (e.g. schizophrenia)	1.02	.95	.58	1.80
Alcohol use disorders	.63	.09	.37	1.07
Drug use disorders	1.02	.93	.58	1.80
Other psychiatric disorders	.96	.72	.76	1.21

[†]A family unit consists of a primary subscriber, age 18-64, and one or more dependents under the age of 18. Models for family units also controlled for gender of the subscriber, year of plan selection, and state of residence. N=19,040.