

## Supplemental Appendix

**Supplement Table 1: Unadjusted Differences in Outcomes by ADRD and Proxy Status**

% in top score	Non-Proxy		Proxy	
	ADRD	Non-ADRD	ADRD	Non-ADRD
Overall rating of Care	39.3	42.6	30.7	36.7
Overall rating of Plan	41.8	38.8	34.1	39.5
Getting Needed Care	37	49.5	41.5	43.8
Getting Appointments and Care Quickly	24	24.2	20.1	18.9
Customer Service	15.9	22.9	14.6	19.4
Care Coordination	22.2	29.5	21.3	26.9
Getting Needed Prescriptions	59.4	69.3	60.3	65.8

**Supplement Table 2: Unadjusted Differences in Outcomes by ADRD Status- continuous variables**

Mean Score	Non-ADRD	ADRD
Overall rating of Care	8.5	8.2
Overall rating of plan	8.5	8.4
Needed care index	84.2	80.5
Timely care index	72.8	73.1
Needed information index	82.5	77.6
Coordinated care index	81.9	77.5
Get needed drugs index	93	90.9

**Supplement Table 3: Primary results including additional diagnoses from encounter claims**

Percentage Point Difference for ADRD (95% CI)	Primary Results: Hospital, NH, and HH only	Hospital, NH, HH, and Encounter	Encounter Only	Primary Analysis Excluding anyone with NH use
<b>Proxy Response</b>				
Overall Rating of Care	-2.7 (-6.6 to 1.3)	-4.0* (-7.6 to -0.5)	-6.0* (-11.0 to -1.0)	-3.9 (-12.0 to 4.2)
Overall Rating of Plan	-3.8 (-7.8 to 0.2)	-2.9 (-6.5 to -0.8)	-6.3* (-11.5 to -1.1)	-5.5 (-13.8 to 2.8)
Getting Needed Care Index	-4.2* (-8.4 to 0.1)	-5.1** (-8.9 to -1.3)	-5.8* (-11.2 to -0.4)	-0.3 (-8.8 to 8.2)
Getting Appointments and Care Quickly Index	-0.1 (-2.4 to 4.3)	1.3 (-1.7 to 4.3)	2.3 (-1.9 to 6.6)	-2.7 (-9.5 to 4.1)
Customer Service Index	-3.5* (-6.9 to -0.2)	-2.9 (-6.0 to 0.2)	-3.7 (-8.1 to 0.7)	-3.9 (-11.0 to 3.2)
Care Coordination Index	-0.1 (-4.6 to 2.5)	-1.2 (-4.4 to 0.2)	1.4 (-3.1 to 6.0)	-2.3 (-9.6 to 5.0)
Getting Needed Prescription Index	-2.4 (-6.3 to 2.5)	-2.6 (-6.2 to 0.1)	-1.6 (-6.6 - 3.5)	5.8 (-2.2 to 13.8)
<b>Non-Proxy Response</b>				
Overall Rating of Care	1.8 (-1.6 to 4.7)	0.9 (0.2 to 4.0)	-0.7 (-5.0 to 3.7)	4.4 (-2.5 to 11.3)
Overall Rating of Plan	3.8* (0.5 to 7.2)	2.2 (-0.9 to 5.3)	0.6 (-3.7 to 4.9)	5.3 (-1.5 to 12.1)
Getting Needed Care Index	-9.0** (-12.5 to -5.5)	-7.5** (-10.6 to -4.3)	-8.3** (-12.7 to -3.9)	-14.4** (-21.4 to -7.4)
Getting Appointments and Care Quickly Index	1.4 (-1.6 to 4.3)	0.5 (-2.2 to 3.1)	-0.7 (-4.4 to 3.0)	4.4 (-1.5 to 10.3)
Customer Service Index	-8.5** (-11.5 to -5.4)	-7.2** (-9.9 to -4.5)	-5.2** (-8.9 to -1.4)	-6.6* (-12.8 to -0.5)
Care Coordination Index	0.1 (-3.0 to 3.1)	-0.8 (-3.6 to 1.9)	-4.2* (-8.1 to -0.3)	-5.9 (-12.2 to 0.3)
Getting Needed Prescription Index	-4.2* (-7.4 to -0.9)	-4.1** (-7.0 to 1.2)	-2.3 (-6.4 to 1.8)	2.3 (-4.2 - 8.8)

**Notes:** The first column include the primary results from our analysis which classifies ADRD on the basis of diagnoses in the hospital, nursing home, and home health settings. The second column additionally adds ADRD diagnoses from 2015 MA encounter data which includes outpatient sites of care. The third column only includes diagnoses that were recorded in the MA encounter data. The forth column excludes all residents that had a nursing home stay (including those who had an ADRD diagnosis in a nursing home setting) from the analysis.

**Supplement Table 4: Primary results using IPW to account for proxy status**

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	Percentage point difference for ADRD from Non-ADRD, weighting for proxy status
Outcome	
Percent in the Top Score Category	
Overall Rating of Care	-0.5 (-1.9 to 1.9)
Overall Rating of Plan	-0.6 (-2.7 to 1.4)
Getting Needed Care	-5.0*** (-7.1 to -2.8)
Getting Appointments and Care Quickly	-0.0 (-1.7 to 1.7)
Customer Service	-3.8*** (-5.5 to -2.1)
Care Coordination	-1.9* (-3.7 to -0.0)
Getting Needed Prescriptions	-2.2* (-4.3 to -0.1)

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**Notes:** Each regression model is weighed using inverse probability of proxy status weights calculated from a logit regression model which adjusts for proxy status.

**Supplement Table 5:** Care Experiences for Patients with ADRD in Dual Special Needs Plans and Non-Special Needs Plans, by Proxy Response

Outcome	Proxy Responses			
	No SNP		Dual SNP	
Overall Rating of Care	35.4	(32.1, 38.9)	35.4	(31.0, 39.9)
Overall Rating of Plan	35.5	(32.1, 38.9)	39.9	(35.4, 44.3)
Getting Needed Care Index	42	(38.5, 45.5)	36.9	(32.3, 41.5)
Getting Appointments and Care Quickly Index	19.3	(16.5, 22.1)	20	(16.4, 23.7)
Customer Service Index	16.7	(13.9, 19.5)	14.9	(11.2, 18.5)
Care Coordination Index	25.5	(22.4, 28.6)	22.9	(18.8, 26.9)
Getting Needed Prescription Index	64.4	(51.0, 68.1)	61.2	(56.8, 65.6)
	Non-Proxy Response			
	No SNP		Dual SNP	
Overall Rating of Care	42.8	(39.6, 46.0)	43.7	(37.9, 49.6)
Overall Rating of Plan	42.7	(39.6, 45.9)	36.7***	(31.1, 42.3)
Getting Needed Care Index	39.5	(36.3, 42.8)	39.6	(33.8, 45.4)
Getting Appointments and Care Quickly Index	25.1	(22.2, 27.9)	27.7	(22.8, 32.8)
Customer Service Index	15.6	(12.9, 18.4)	15.5	(10.5, 20.3)
Care Coordination Index	28.9	(25.9, 31.9)	22.4	(17.1, 27.8)
Getting Needed Prescription Index	64.1	(61.1, 67.1)	57.6	(52.2, 63.0)

**Notes:** All data in this table are from enrollees who were classified as having ADRD. The top section of the table is for enrollees who had a proxy respond for them, and the bottom section of the table is for beneficiaries who did not use a proxy. All means are adjusted marginal means from a linear regression model adjusting for gender, race/ethnicity, rurality, education, reason for eligibility, plan premium, plan rating, plan type (HMO, PPO, Other), plan national or local status, plan health system affiliation, and county fixed effects. 95% CI are in parentheses. Aside from disenrollment, all outcomes are binary variables of whether the beneficiary reported in the top scoring category of each index (100). \* denotes <0.05 \*\* <0.01 \*\*\* <0.001

**Supplemental Table 6a: Full Regression Coefficients for Primary Analysis, Proxy Responses**

VARIABLES	Overall Rating of Care	Overall Rating of Plan	Getting Needed Care	Getting Appointments and Care Quickly	Customer Service	Care Coordination	Getting Needed Prescriptions
ADRD	-0.027 (-0.066 - 0.013)	-0.038 (-0.078 - 0.002)	-0.042* (-0.084 - 0.001)	0.010 (-0.024 - 0.043)	-0.035* (-0.069 - 0.002)	-0.010 (-0.046 - 0.025)	-0.024 (-0.063 - 0.016)
Dual	0.002 (-0.034 - 0.037)	0.058** (0.021 - 0.094)	-0.017 (-0.055 - 0.021)	0.013 (-0.017 - 0.043)	0.007 (-0.023 - 0.038)	-0.018 (-0.050 - 0.015)	-0.049** (-0.085 - 0.014)
race= Black	0.023 (-0.026 - 0.072)	0.032 (-0.018 - 0.082)	0.026 (-0.026 - 0.078)	0.037 (-0.005 - 0.078)	-0.028 (-0.070 - 0.014)	0.060** (0.016 - 0.104)	-0.001 (-0.050 - 0.048)
race= other/unknown	0.020 (-0.090 - 0.129)	0.037 (-0.075 - 0.149)	-0.015 (-0.131 - 0.101)	-0.091 (-0.184 - 0.002)	0.013 (-0.081 - 0.108)	-0.003 (-0.103 - 0.096)	-0.063 (-0.173 - 0.046)
Race=Asian	-0.040 (-0.111 - 0.031)	-0.053 (-0.126 - 0.019)	-0.094* (-0.169 - 0.018)	-0.062* (-0.122 - 0.002)	-0.042 (-0.104 - 0.019)	-0.052 (-0.116 - 0.012)	-0.096** (-0.168 - 0.025)
Race=Hispanic	0.073** (0.026 - 0.120)	0.120** (0.073 - 0.168)	-0.019 (-0.069 - 0.031)	0.001 (-0.039 - 0.041)	0.007 (-0.034 - 0.047)	0.003 (-0.040 - 0.045)	-0.026 (-0.073 - 0.021)
Race=NA/AI	-0.131 (-0.387 - 0.125)	0.047 (-0.214 - 0.309)	0.015 (-0.256 - 0.287)	0.083 (-0.134 - 0.299)	-0.029 (-0.250 - 0.192)	0.205 (-0.027 - 0.436)	0.042 (-0.215 - 0.298)
Female	-0.036** (-0.062 - 0.011)	-0.031* (-0.057 - 0.005)	0.008 (-0.019 - 0.034)	0.009 (-0.012 - 0.031)	-0.016 (-0.038 - 0.006)	0.006 (-0.017 - 0.029)	0.007 (-0.018 - 0.032)
2-2.5 stars	-0.012 (-0.123 - 0.098)	0.016 (-0.096 - 0.129)	-0.062 (-0.179 - 0.055)	0.061 (-0.032 - 0.155)	-0.043 (-0.138 - 0.052)	0.049 (-0.051 - 0.149)	0.009 (-0.102 - 0.119)
3-3.5 stars	0.003 (-0.062 - 0.069)	0.005 (-0.062 - 0.072)	-0.045 (-0.114 - 0.025)	0.041 (-0.015 - 0.096)	-0.038 (-0.094 - 0.019)	0.034 (-0.026 - 0.093)	-0.015 (-0.081 - 0.051)
4-4.5 stars	0.028 (-0.037 - 0.093)	0.080* (0.013 - 0.146)	0.003 (-0.066 - 0.072)	0.051 (-0.004 - 0.106)	0.005 (-0.051 - 0.061)	0.029 (-0.030 - 0.087)	0.030 (-0.035 - 0.095)
5 stars	0.079 (-0.011 - 0.169)	0.175** (0.084 - 0.267)	0.046 (-0.049 - 0.141)	0.091* (0.015 - 0.167)	0.014 (-0.063 - 0.091)	0.065 (-0.016 - 0.147)	0.038 (-0.052 - 0.128)
Any hospital use	-0.014 (-0.044 - 0.016)	0.019 (-0.011 - 0.049)	0.006 (-0.025 - 0.037)	-0.010 (-0.035 - 0.015)	0.002 (-0.023 - 0.028)	-0.003 (-0.030 - 0.024)	0.025 (-0.004 - 0.055)
Any MDS use	-0.010 (-0.040 - 0.020)	-0.021 (-0.052 - 0.010)	0.001 (-0.031 - 0.033)	-0.017 (-0.043 - 0.009)	-0.019 (-0.045 - 0.008)	-0.025 (-0.053 - 0.002)	-0.046** (-0.076 - 0.015)
Any HH use	-0.041** (-0.068 - 0.014)	-0.014 (-0.042 - 0.014)	-0.043** (-0.072 - 0.015)	-0.016 (-0.039 - 0.007)	0.025* (0.002 - 0.049)	-0.011 (-0.036 - 0.013)	0.022 (-0.005 - 0.049)
Dual SNP	-0.041	0.034	0.077	-0.040	0.062	0.047	0.009

	(-0.129 - 0.047)	(-0.056 - 0.124)	(-0.017 - 0.171)	(-0.115 - 0.035)	(-0.014 - 0.138)	(-0.033 - 0.127)	(-0.079 - 0.098)
CSNP	0.004 (-0.043 - 0.050)	0.059* (0.012 - 0.106)	-0.016 (-0.066 - 0.033)	-0.003 (-0.042 - 0.037)	0.022 (-0.019 - 0.062)	0.014 (-0.028 - 0.056)	-0.006 (-0.053 - 0.040)
ISNP	-0.191 (-0.740 - 0.359)	0.087 (-0.474 - 0.648)	-0.109 (-0.693 - 0.474)	0.146 (-0.319 - 0.611)	-0.199 (-0.673 - 0.275)	0.163 (-0.334 - 0.660)	-0.590* (-1.141 - 0.040)
PPO	-0.060** (-0.102 - 0.019)	-0.033 (-0.075 - 0.009)	0.012 (-0.032 - 0.056)	-0.036* (-0.071 - 0.001)	-0.013 (-0.049 - 0.022)	-0.031 (-0.068 - 0.007)	-0.047* (-0.089 - 0.006)
Other	0.030 (-0.030 - 0.090)	0.007 (-0.054 - 0.068)	-0.014 (-0.077 - 0.050)	-0.022 (-0.073 - 0.028)	0.001 (-0.050 - 0.053)	0.009 (-0.045 - 0.063)	-0.013 (-0.073 - 0.047)
Zero Premium	-0.022 (-0.062 - 0.019)	0.009 (-0.032 - 0.050)	0.006 (-0.037 - 0.049)	-0.029 (-0.064 - 0.005)	0.009 (-0.026 - 0.044)	-0.013 (-0.049 - 0.024)	0.014 (-0.027 - 0.054)
Premium	0.000 (-0.000 - 0.000)	0.000 (-0.000 - 0.001)	0.000 (-0.000 - 0.001)	-0.000 (-0.000 - 0.000)	-0.000 (-0.000 - 0.000)	0.000 (-0.000 - 0.000)	0.000 (-0.000 - 0.001)
For-profit contract	0.049* (0.008 - 0.089)	0.038 (-0.003 - 0.080)	0.019 (-0.024 - 0.062)	0.011 (-0.024 - 0.045)	0.023 (-0.012 - 0.057)	0.049** (0.012 - 0.086)	0.009 (-0.031 - 0.050)
Health System Affiliation	0.054* (0.000 - 0.107)	0.036 (-0.019 - 0.091)	0.067* (0.010 - 0.124)	0.022 (-0.023 - 0.067)	0.040 (-0.006 - 0.086)	-0.022 (-0.071 - 0.026)	0.022 (-0.032 - 0.075)
National contract	-0.012 (-0.055 - 0.030)	-0.040 (-0.083 - 0.003)	-0.030 (-0.075 - 0.015)	-0.009 (-0.045 - 0.026)	-0.029 (-0.065 - 0.008)	-0.037 (-0.075 - 0.001)	0.007 (-0.035 - 0.049)
Constant	0.348** (0.265 - 0.430)	0.262** (0.178 - 0.346)	0.491** (0.403 - 0.578)	0.169** (0.099 - 0.239)	0.216** (0.144 - 0.287)	0.208** (0.133 - 0.282)	0.640** (0.558 - 0.723)
R-squared	0.188	0.188	0.175	0.169	0.177	0.180	0.178

**Supplemental Table 6b: Full Regression Coefficients for Primary Analysis, Non-Proxy Responses**

VARIABLES	Overall Rating of Care	Overall Rating of Plan	Getting Needed Care	Non-Proxy Getting Appointments and Care Quickly	Customer Service	Care Coordination	Getting Needed Prescriptions
ADRD	0.018 (-0.016 - 0.053)	0.038* (0.005 - 0.072)	-0.090** (-0.125 - -0.055)	0.014 (-0.016 - 0.043)	-0.085** (-0.115 - -0.054)	0.001 (-0.030 - 0.031)	-0.042* (-0.074 - -0.009)
Dual	-0.000 (-0.018 - 0.017)	0.059** (0.042 - 0.077)	-0.045** (-0.063 - -0.028)	-0.001 (-0.016 - 0.014)	0.006 (-0.010 - 0.021)	-0.016* (-0.032 - 0.001)	-0.012 (-0.028 - 0.005)
race= Black	-0.018 (-0.039 - 0.002)	0.018 (-0.002 - 0.038)	-0.036** (-0.056 - -0.015)	0.035** (0.017 - 0.052)	0.045** (0.027 - 0.063)	0.046** (0.028 - 0.064)	-0.017 (-0.036 - 0.002)
race= other/unknown	-0.055* (-0.100 - -0.010)	-0.003 (-0.047 - 0.041)	-0.009 (-0.054 - 0.037)	-0.031 (-0.070 - 0.007)	0.010 (-0.029 - 0.050)	-0.028 (-0.068 - 0.013)	-0.060** (-0.103 - -0.018)
Race=Asian	-0.102** (-0.147 - -0.057)	-0.005 (-0.049 - 0.039)	-0.133** (-0.179 - -0.088)	-0.062** (-0.100 - -0.023)	-0.045* (-0.084 - -0.005)	-0.029 (-0.069 - 0.011)	-0.106** (-0.148 - -0.064)
Race=Hispanic	0.069** (0.044 - 0.093)	0.109** (0.085 - 0.133)	-0.031* (-0.056 - 0.006)	0.058** (0.037 - 0.079)	0.021 (-0.000 - 0.043)	-0.007 (-0.029 - 0.014)	-0.059** (-0.082 - -0.036)
Race=NA/Al	-0.012 (-0.128 - 0.105)	0.003 (-0.112 - 0.118)	0.013 (-0.105 - 0.132)	0.032 (-0.068 - 0.132)	0.087 (-0.016 - 0.191)	0.100 (-0.004 - 0.204)	-0.085 (-0.195 - 0.025)
Female	0.035** (0.024 - 0.046)	0.024** (0.014 - 0.035)	-0.027** (-0.038 - -0.016)	-0.004 (-0.014 - 0.005)	0.000 (-0.009 - 0.010)	-0.012* (-0.022 - 0.003)	0.003 (-0.007 - 0.013)
2-2.5 stars	0.054* (0.004 - 0.104)	0.055* (0.006 - 0.104)	0.019 (-0.032 - 0.070)	0.012 (-0.031 - 0.055)	0.031 (-0.013 - 0.075)	0.028 (-0.017 - 0.073)	0.069** (0.022 - 0.116)
3-3.5 stars	0.018 (-0.009 - 0.045)	0.009 (-0.018 - 0.035)	0.017 (-0.011 - 0.044)	0.003 (-0.020 - 0.027)	-0.020 (-0.044 - 0.004)	0.008 (-0.016 - 0.032)	0.028* (0.003 - 0.054)
4-4.5 stars	0.047** (0.021 - 0.074)	0.058** (0.032 - 0.084)	0.038** (0.011 - 0.065)	0.013 (-0.010 - 0.036)	-0.004 (-0.028 - 0.019)	0.012 (-0.012 - 0.035)	0.039** (0.013 - 0.064)
5 stars	0.094** (0.057 - 0.131)	0.140** (0.103 - 0.177)	0.076** (0.039 - 0.114)	0.073** (0.041 - 0.105)	0.012 (-0.020 - 0.045)	0.031 (-0.002 - 0.064)	0.079** (0.044 - 0.114)
Any hospital use	0.005 (-0.011 - 0.020)	0.002 (-0.014 - 0.017)	0.041** (0.025 - 0.057)	0.009 (-0.005 - 0.022)	0.018** (0.005 - 0.032)	0.004 (-0.010 - 0.018)	0.024** (0.009 - 0.039)
Any MDS use	-0.007 (-0.021 - 0.006)	-0.004 (-0.018 - 0.009)	-0.031** (-0.044 - -0.017)	-0.005 (-0.017 - 0.006)	-0.008 (-0.020 - 0.004)	-0.025** (-0.037 - 0.013)	-0.028** (-0.041 - -0.016)
Any HH use	-0.023**	0.002	-0.018**	0.000	-0.008	-0.023**	-0.010



	(-0.035 - 0.011)	(-0.010 - 0.014)	(-0.030 - - 0.006)	(-0.010 - 0.010)	(-0.018 - 0.003)	(-0.034 - - 0.013)	(-0.021 - 0.002)
Dual SNP	-0.022 (-0.059 - 0.016)	0.010 (-0.027 - 0.047)	0.016 (-0.022 - 0.054)	0.006 (-0.026 - 0.038)	0.029 0.062	-0.004 (-0.037 - 0.030)	0.003 (-0.032 - 0.039)
CSNP	-0.001 (-0.025 - 0.023)	0.057** (0.033 - 0.081)	0.001 (-0.024 - 0.025)	0.021 (-0.000 - 0.041)	0.030** (0.008 - 0.051)	-0.000 (-0.022 - 0.021)	-0.009 (-0.032 - 0.013)
ISNP	-0.084 (-0.389 - 0.222)	-0.071 (-0.372 - 0.230)	-0.229 (-0.539 - 0.081)	-0.115 (-0.377 - 0.147)	-0.041 (-0.311 - 0.229)	-0.124 (-0.397 - 0.149)	-0.211 (-0.499 - 0.077)
PPO	-0.004 (-0.020 - 0.013)	-0.007 (-0.024 - 0.009)	0.017 (-0.000 - 0.033)	-0.010 (-0.024 - 0.004)	0.001 0.016	0.006 (-0.009 - 0.020)	0.004 (-0.011 - 0.020)
Other	-0.029* (-0.053 - - 0.004)	-0.025* (-0.050 - - 0.001)	-0.053** (-0.078 - - 0.028)	-0.013 (-0.034 - 0.008)	-0.028* (-0.050 - -0.007)	0.013 (-0.008 - 0.035)	0.009 (-0.015 - 0.032)
Zero Premium	-0.010 (-0.027 - 0.007)	-0.006 (-0.022 - 0.011)	-0.015 (-0.032 - 0.002)	0.003 (-0.012 - 0.018)	0.001 0.016	-0.013 (-0.028 - 0.003)	0.012 (-0.004 - 0.028)
Premium	-0.000 (-0.000 - 0.000)	0.000 (-0.000 - 0.000)	-0.000 (-0.000 - 0.000)	0.000 (-0.000 - 0.000)	-0.000 0.000	-0.000 (-0.000 - 0.000)	0.000 (-0.000 - 0.000)
For-profit contract	0.011 (-0.006 - 0.028)	-0.013 (-0.030 - 0.003)	-0.017* (-0.034 - - 0.000)	0.006 (-0.008 - 0.021)	-0.008 (-0.023 - 0.007)	0.006 (-0.009 - 0.021)	-0.022** (-0.038 - - 0.006)
Health System Affiliation	0.025* (0.003 - 0.047)	0.028* (0.007 - 0.050)	0.002 (-0.020 - 0.024)	0.006 (-0.012 - 0.025)	0.028** (0.009 - 0.048)	0.017 (-0.002 - 0.037)	0.012 (-0.008 - 0.033)
National contract	-0.006 (-0.023 - 0.011)	0.011 (-0.005 - 0.028)	-0.005 (-0.022 - 0.013)	-0.001 (-0.016 - 0.013)	0.011 0.026	-0.009 (-0.024 - 0.007)	-0.002 (-0.018 - 0.014)
Constant	0.345** (0.310 - 0.380)	0.299** (0.264 - 0.333)	0.510** (0.475 - 0.546)	0.200** (0.170 - 0.230)	0.238** (0.207 - 0.269)	0.265** (0.233 - 0.296)	0.651** (0.618 - 0.684)
R-squared	0.058	0.077	0.068	0.061	0.059	0.063	0.064