

Supplemental materials for:

Basu T, Kamdar N, Brady P, Cole CM, King J, Rontal R, Harper DM. Annual wellness visits for persons with physical disabilities increased disparately throughout the ACA time frame. *Ann Fam Med*. 2021;19:xxx-xxx.

Supplemental Table 1: Disability Diagnoses Codes: ICD-9-CM and ICD-10-CM

Condition	ICD-9-CM	ICD-10-CM
<b>Cerebral Palsy</b>		
	343.0 - 343.4	G80.0 - G80.3
	343.8 - 343.9	G80.8 - G80.9
<b>Spina Bifida</b>		
	741.00 - 741.03	Q05.X
	741.90 - 741.93	
<b>Spinal Cord Injury</b>		
	952.0X	S34
	952.1X	S14
	952.2 - 952.9	S24
	806.0X - 806.3X	
	806.4 - 806.5	
	806.6X - 806.7X	
	806.8 - 806.9	
<b>Multiple Sclerosis</b>		
	340	G35
<b>Hemiplegia</b>		
	342.00 - 342.01	G81.00 - G81.04
	342.11, 342.12	G81.10 - G81.14
	342.80 - 342.82	G81.9X
	342.90 - 342.92	
<b>Quadriplegia</b>		
	344.00 - 344.04	G82.5X
	344.09	
<b>Paraplegia</b>		
	344.1	G82.20 - G82.22

Supplemental Table 2. Population description by insurance type

Characteristics	Total (N=317,134)	Medicare Advantage (N=175,669)	Commercially insured (N=141,465)	p value
Age				<0.001
Mean (SD)	60.8 (17.7)	71.0 (12.2)	48.1 (15.0)	
Sex				<0.001
Female	186166 (58.7%)	101204 (57.6%)	84962 (60.1%)	
Male	130968 (41.3%)	74465 (42.4%)	56503 (39.9%)	
Race				<0.001
Asian	7249 (2.6%)	4002 (2.7%)	3247 (2.6%)	
Black	35646 (13.0%)	21466 (14.4%)	14180 (11.3%)	
Hispanic	25646 (9.3%)	15252 (10.2%)	10394 (8.3%)	
White	206144 (75.0%)	108243 (72.7%)	97901 (77.9%)	
Disability Types				<0.001
Spina bifida	11339 (3.6%)	2777 (1.6%)	8562 (6.1%)	
Cerebral palsy	19319 (6.1%)	9431 (5.4%)	9888 (7.0%)	
Multiple sclerosis	85925 (27.1%)	28135 (16.0%)	57790 (40.9%)	
Spinal cord Injury	46340 (14.6%)	25249 (14.4%)	21091 (14.9%)	
Hemiplegia	130096 (41.0%)	93883 (53.4%)	36213 (25.6%)	
Paraplegia	16253 (5.1%)	11096 (6.3%)	5157 (3.6%)	
Quadriplegia	7862 (2.5%)	5098 (2.9%)	2764 (2.0%)	

317,188 unique individuals were identified for this study (Table 1). 317, 134 unique individuals had complete data for insurance and known sex as seen in this table.

Supplemental Table3. AWV use in 2008 and 2016, and Linear trends for ACA time course by insurance, disability, gender, and race

	2008 AWV % use	2016 AWV % use	Linear Trends			
			Pre-ACA	Implementing phase of ACA	Post ACA	
			(2008 to 2010)	(2011-2013)	(2014-2016)	
<b>Insurance</b>						
COM	31.3% (30.6, 32.1)	38.0% (37.0, 38.5)	0.27 (0.18, 0.36)	1.84 (1.74, 1.96)	0.98 (0.81, 1.15)	
MA	11.4% (10.7, 12.1)	31.0% (30.7, 31.7)	0.74 (0.22, 1.26)	2.16 (1.86, 2.47)	4.39 (2.61, 6.17)	
			-0.47 (-1.00, 0.06)	-0.31 (-0.63, 0.01)	-3.41 (-5.20, -1.62*)	<i>difference</i>
<b>Disability</b>						
Acquired	25.5% (24.9, 26.2)	33.0% (32.6, 33.4)	1.21 (0.01, 2.42)	1.72 (1.54, 1.91)	2.48 (0.95, 4.02)	
Congenital	23.1% (21.9, 24.3)	35.6% (34.7, 36.5)	-1.20 (-1.38, -1.02)	1.18 (0.92, 1.43)	2.95 (1.95, 3.95)	
			2.41 (1.19, 3.64)*	0.55 (0.23, 0.86)*	-0.47 (-2.30, 1.37)	<i>difference</i>
<b>Gender</b>						
Women	33.0% (32.2, 33.8)	36.8% (35.3, 37.2)	-1.23 (-1.25, -1.21)	0.51 (0.18, 0.84)	2.39 (1.32, 3.46)	
Men	11.4% (10.8, 12.1)	28.5% (28.0, 29.0)	0.53 (0.11, 0.94)	2.44 (2.38, 2.50)	3.64 (2.61, 4.68)	
			-1.75 (-2.17, -1.34)*	-1.93 (-2.26, -1.60)*	-1.25 (-2.75, 0.23)	<i>difference</i>
<b>Race</b>						
White	26.1% (25.4, 26.7)	34.3% (33.9, 34.7)	-0.74 (-0.89, -0.59)	1.34 (1.15, 1.52)	2.90 (1.97, 3.83)	
Black	19.6% (18.1, 21.2)	30.12% (29.17, 31.08)	-0.06 (-0.24, 0.12)	1.25 (1.19, 1.31)	3.84 (2.28, 5.39)	
			0.68 (0.44, 0.91)*	-0.09 (-0.28, 0.11)	0.94 (-0.88, 2.75)	<i>difference</i>
Hispanic	21.7% (19.8, 23.8)	30.14% (29.16, 31.1)	-0.66 (-2.32, 1.00)	1.03 (1.03, 1.04)	3.27 (1.29, 5.24)	
			0.08 (-1.59, 1.74)	-0.31 (-0.49, -0.12)*	0.37 (-1.82, 2.55)	<i>difference</i>

MA means Medicare Advantage

COM means Commercial insurance

\* difference represents the statistical difference in linear trends at the p<0.05 level of significance; for race: Black vs. White and Hispanic vs. White.

Supplemental Table 4. Estimates of the linear trends from time series analysis for disability types by insurance

		<b>Pre-ACA (2008 to 2010)</b>	<b>Implementing phase of ACA (2011-2013)</b>	<b>Post ACA (2014-2016)</b>
	<i>Linear trend</i>	<b><i>Coeff (95% CI)</i></b>	<b><i>Coeff (95% CI)</i></b>	<b><i>Coeff (95% CI)</i></b>
<b>COM</b>	Congenital	2.24 (1.38, 3.10)	2.01 (1.27, 2.76)	1.22 (1.02, 1.42)
	Acquired	-0.28 (-0.44, -0.12)	1.81 (1.78, 1.84)	0.93 (0.67, 1.18)
	Difference	2.52 (1.64, 3.40)	0.21 (-0.54, 0.95)	0.30 (-0.03, 0.62)
<b>MA</b>	Congenital	0.69 (0.43, 0.95)	2.41 (1.66, 3.16)	4.19 (1.52, 6.85)
	Acquired	1.26 (-0.69, 3.21)	2.16 (1.70, 2.61)	4.41 (2.73, 6.10)
	Difference	0.57 (-1.40, 2.54)	0.25 (-0.63, 1.13)	-0.23 (-3.38, 2.92)

Supplemental Table 5: Estimates of the linear trends from time series analysis for gender by insurance

		Pre-ACA (2008 to 2010)	Implementation phase of ACA (2011-2013)	Post ACA (2014-2016)
	<i>Linear trend</i>	<i>Coeff (95% CI)</i>	<i>Coeff (95% CI)</i>	<i>Coeff (95% CI)</i>
<b>COM</b>	Men	0.35 (.006, 0.70)	2.76 (2.65, 2.87)	1.72 (1.49,1.95)
	Women	0.54 (0.47, 0.61)	1.38 (1.25, 1.51)	0.63 (0.41,0.86)
	Difference	0.19 (-0.17, 0.54)	-1.38 (-1.55, -1.21)	-1.09 (-1.40,-0.77)
<b>MA</b>	Men	1.53 (0.80, 2.27)	2.48 (2.24, 2.72)	4.56 (2.73,6.39)
	Women	0.28 (-0.12, 0.68)	1.94 (1.59, 2.30)	4.27 (2.53,6.01)
	Difference	-1.25 (-2.09,- 0.42)	-0.54 (-0.97, -0.11)	-0.29 (-2.81,2.24)

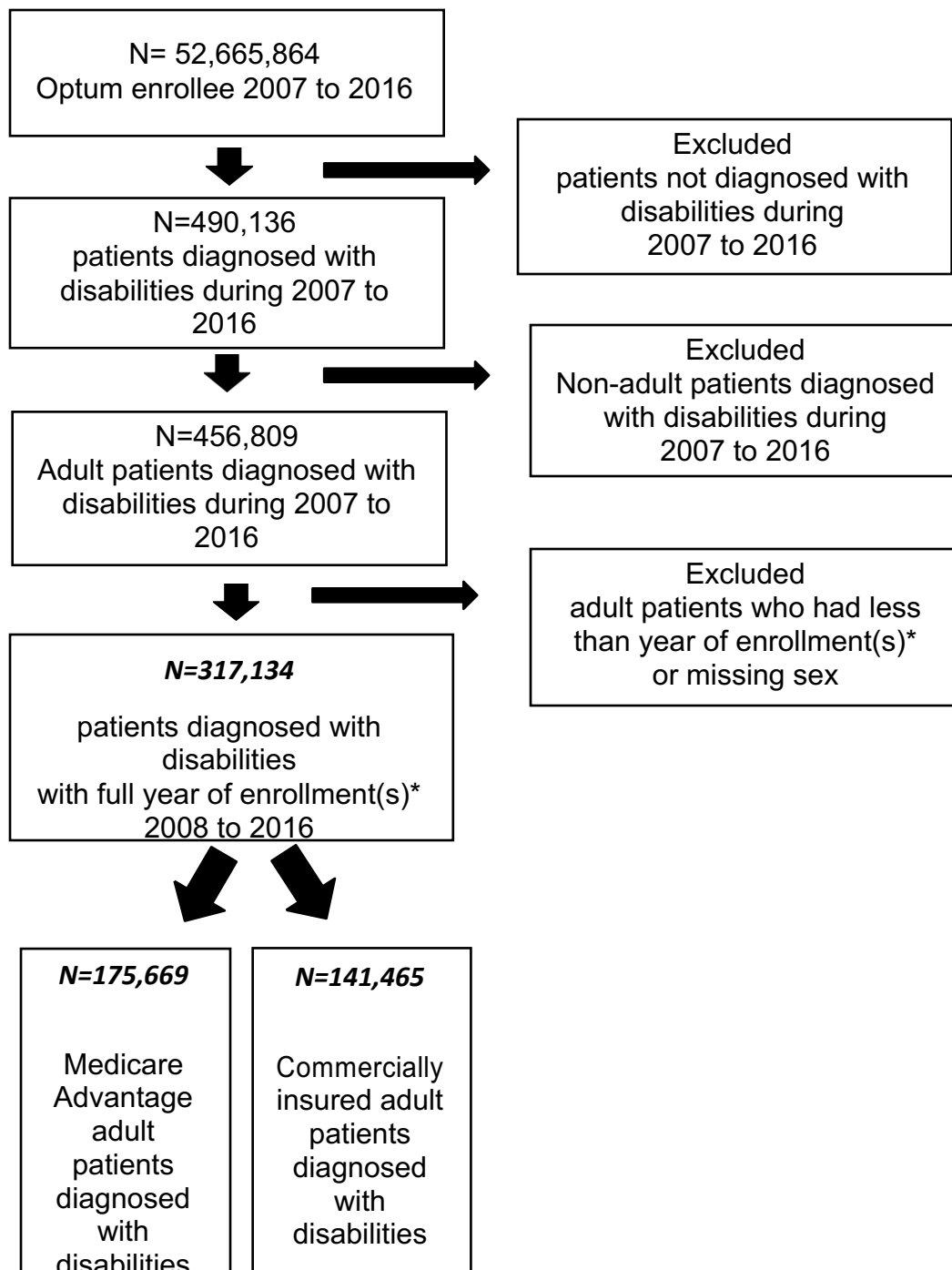
**Supplemental Table 6.** Estimates of the linear trends from time series analysis with 95% CIs for Black vs. White adults by insurance

		<b>Pre-ACA (2008 to 2010)</b>	<b>Implementing phase of ACA (2011-2013)</b>	<b>Post ACA (2014-2016)</b>
	<i>Linear trend</i>	<i>Coeff (95% CI)</i>	<i>Coeff (95% CI)</i>	<i>Coeff (95% CI)</i>
<b>COM</b>	<b>Black</b>	1.44 (0.84, 2.04)	2.15 (1.61, 2.68)	1.32 (1.12, 1.52)
	White	0.09 (-0.25, 0.43)	1.95 (1.87, 2.02)	0.91 (0.66, 1.16)
	Difference	1.35 (0.66, 2.03)	0.20 (-0.34, 0.74)	0.41 (0.09, 0.73)
<b>MA</b>	Black	0.38 (-0.09, 0.86)	1.97 (1.44, 2.50)	5.59 (3.23, 7.94)
	White	0.81 (0.58, 1.04)	2.25 (2.02, 2.48)	4.53 (2.87, 6.19)
	Difference	-0.43 (-0.95, 0.10)	-0.28 (-0.85, 0.30)	1.06 (-1.82, 3.94)

Estimates of the linear trends from time series analysis with 95% CIs for Hispanic vs. White adults by insurance

		<b>Pre-ACA (2008 to 2010)</b>	<b>Implementing phase of ACA (2011-2013)</b>	<b>Post ACA (2014-2016)</b>
	<i>Linear trend</i>	<i>Coeff (95% CI)</i>	<i>Coeff (95% CI)</i>	<i>Coeff (95% CI)</i>
<b>COM</b>	<b>Hispanic</b>	0.99 (-0.61, 2.59)	1.76 (1.18, 2.34)	<b>2.06 (1.13, 2.99)</b>
	White	0.09 (-0.25, 0.43)	1.95 (1.87, 2.02)	0.91 (0.66, 1.16)
	Difference	0.90 (-0.74, 2.53)	-0.18 (-0.77, 0.40)	1.15 (0.19, 2.11)
<b>MA</b>	Hispanic	0.96 (-1.09, 3.01)	1.79 (1.57, 2.00)	4.23 (1.76, 6.70)
	White	0.81 (0.58, 1.04)	2.25 (2.02, 2.48)	4.53 (2.87, 6.19)
	Difference	0.15 (-1.92, 2.21)	-0.46 (-0.78, -0.15)	-0.30 (-3.27, 2.68)

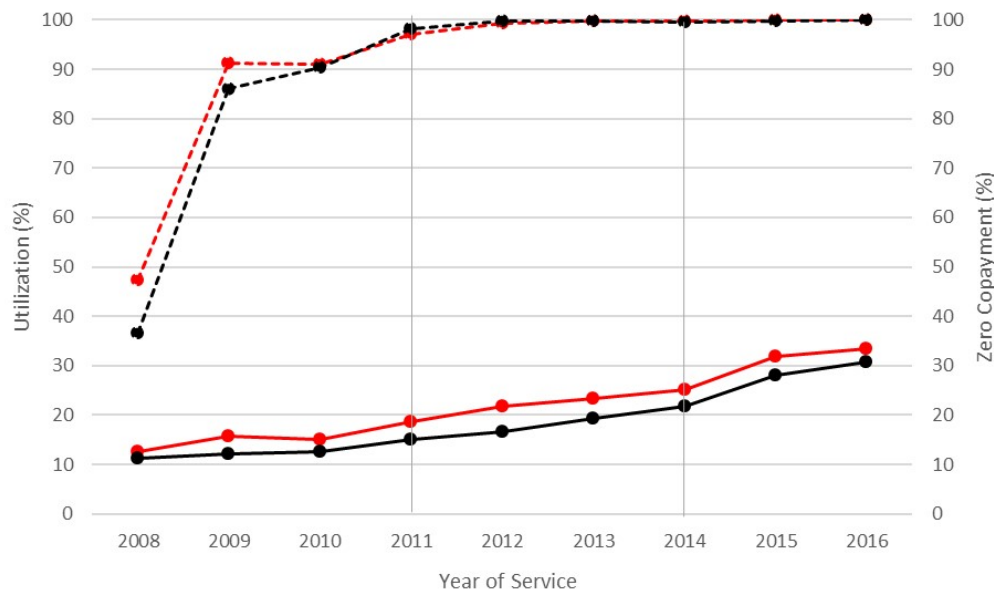
Supplemental Figure 1. CONSORT diagram



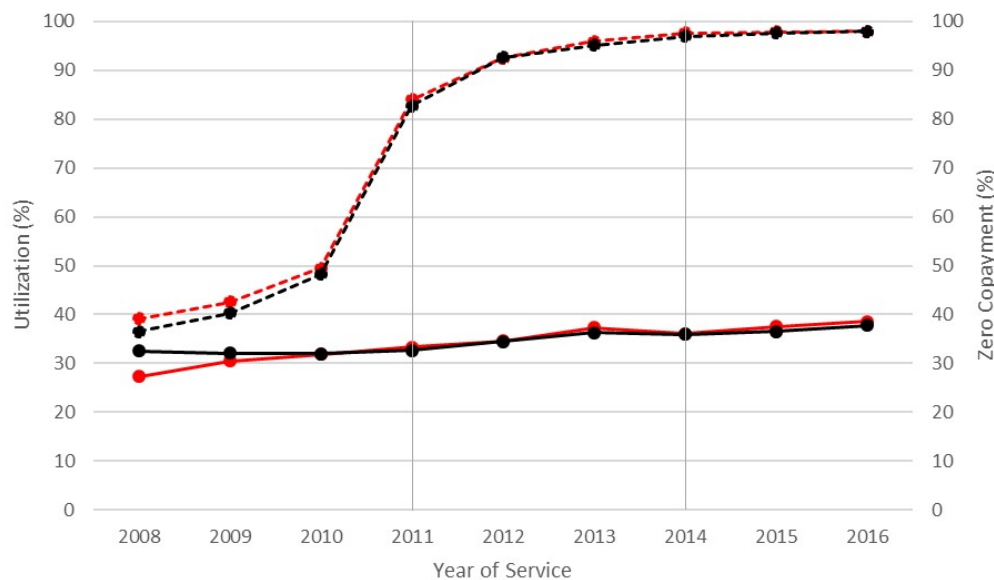
\*For congenital conditions, we included the patient that had full calendar year of enrollment with a diagnosis of the condition at any point during that year. On the other hand, for acquired conditions, we first identified the year in which the patient was first diagnosed during the study period with the condition. We then examined all years that this patient had a full calendar year of enrollment to be included in the study population.

## Supplemental Figure 2. Proportion zero copay and annual wellness visits by insurance and disability

Supplemental Figure 2A. Annual Wellness Visits among the MA insured by disability



Supplemental Figure 2B. Annual Wellness Visits among the COM insured by disability



The Pre-ACA period is from 2008-2011. The ACA implementation period is from 2011-2014. The Post-ACA period is from 2014-2016.

The dotted lines represent the proportion of individuals with zero copay.

The solid lines represent utilization rates.

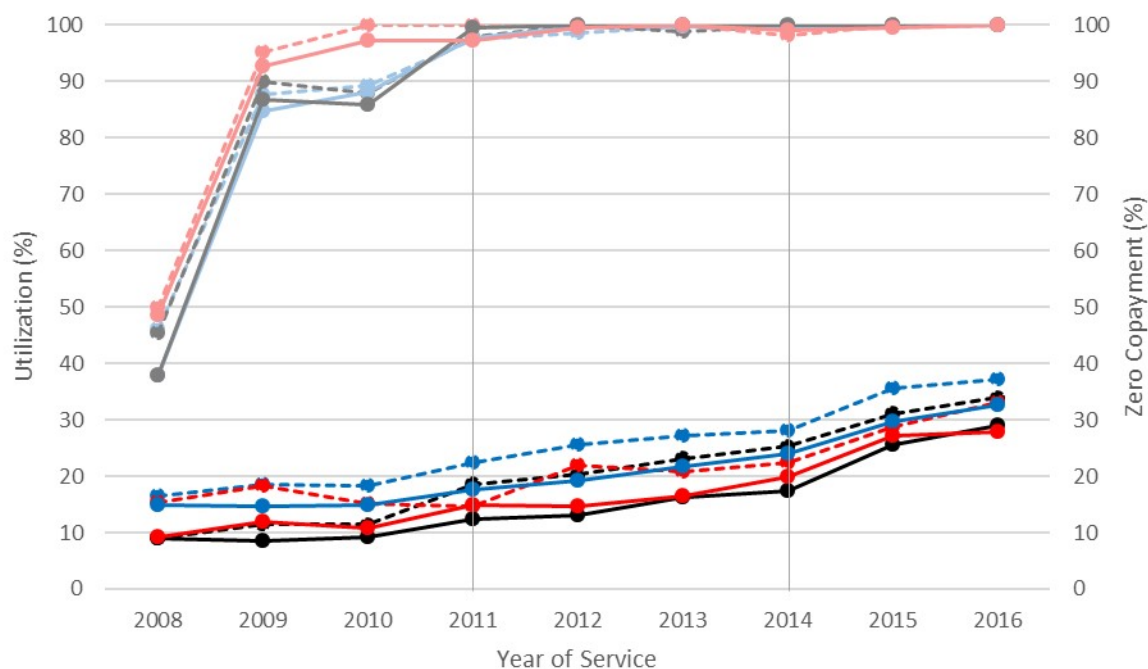
A red line indicates those with a **congenital disability** (SB, CP).

A black line indicates those with an **acquired disability** (SCI, MS, HP, QP, PP).

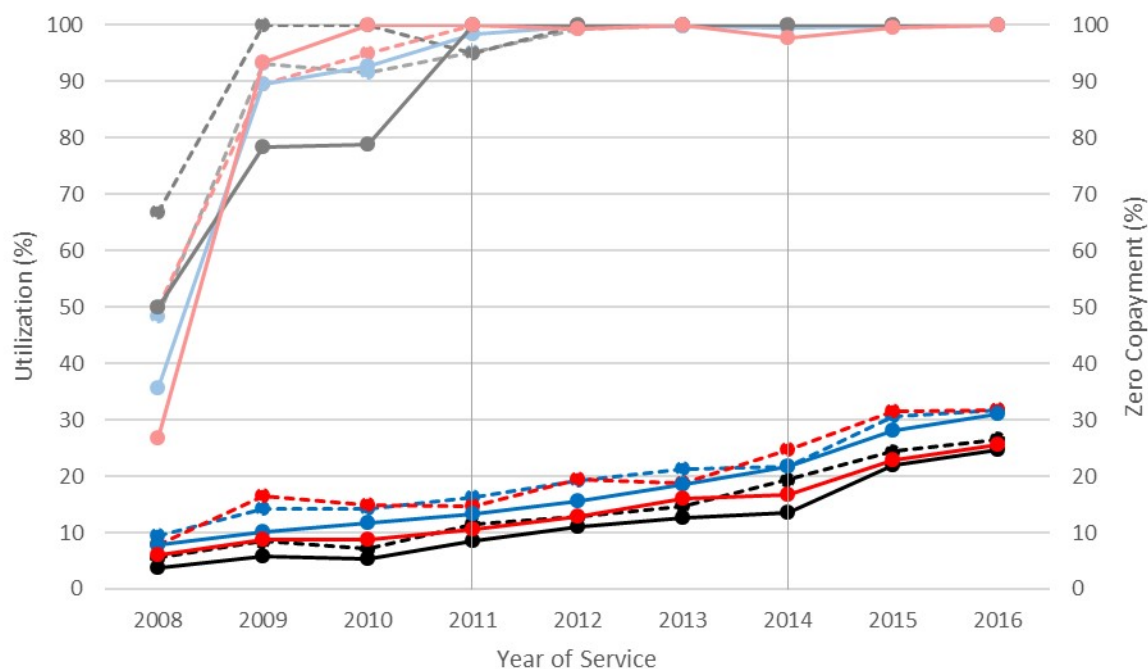


**Supplemental Figure 3. Proportion zero copay and annual wellness visits by insurance, gender, disability, and race**

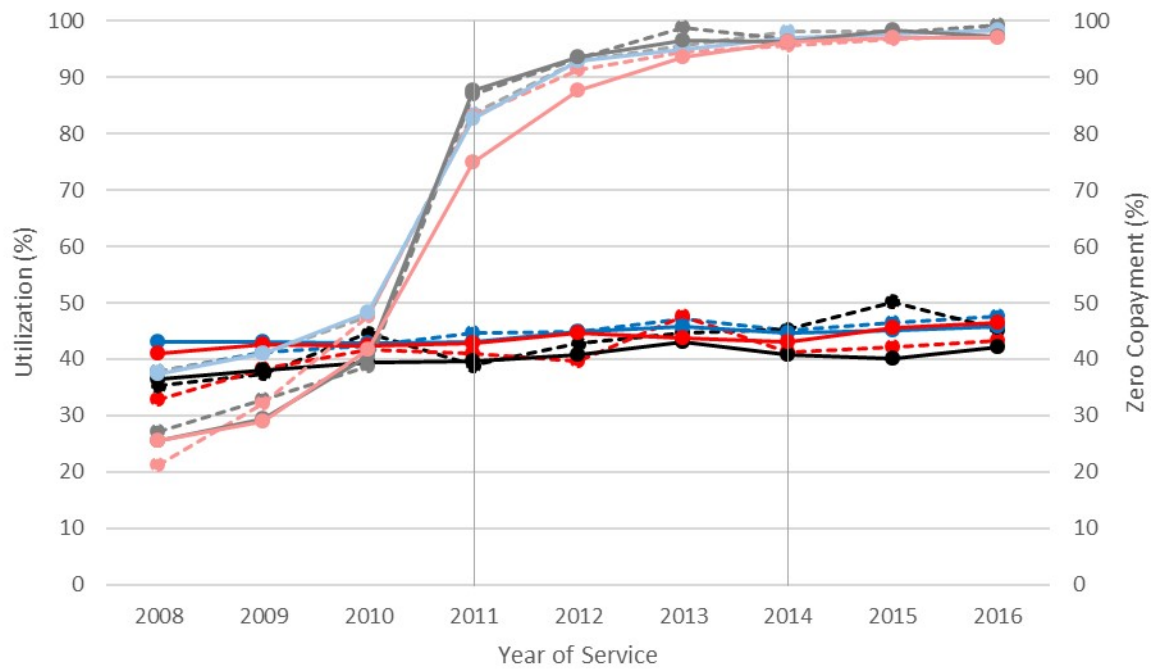
**Supplemental Figure 3A. Annual Wellness Visits among the female MA insured by disability and race**



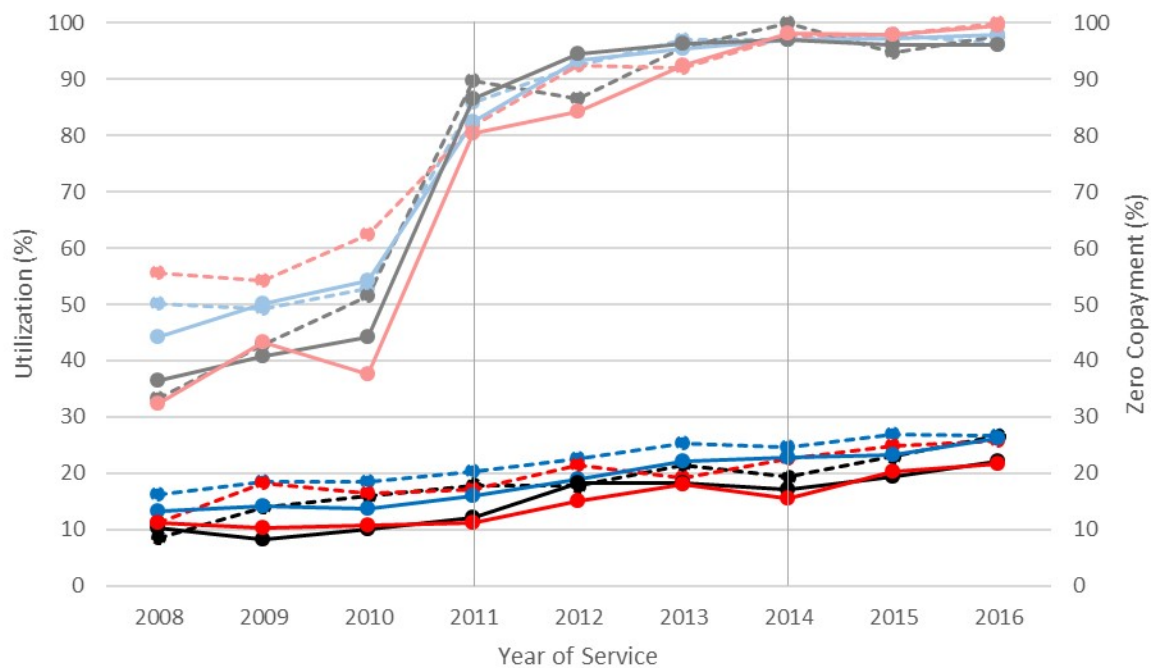
**Supplemental Figure 3B. Annual Wellness Visits among the male MA insured by disability and race**



**Supplemental Figure 3C. Annual Wellness Visits among the female COM insured by disability and race**



**Supplemental Figure 3D. Annual Wellness Visits among the male COM insured by disability and race**



Red line – Hispanic (light red for zero copays, darker red for visit rates)  
 Black line – Black (grey for zero copays, black for visit rates)  
 Blue line – White (light blue for zero copays, darker blue for visit rates)  
 Dotted line – Congenital  
 Solid line – Acquired