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The Pathway to SSA Disability Program Entry Among Medicaid Enrollees 2007-2011: The Role of Serious Mental Illness, Multiple Impairments, and Recent Healthcare Utilization

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ABSTRACT

Project Number

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Title

The pathway to SSA disability program entry among Medicaid enrollees 2007-2011: the role of serious mental illness, multiple impairments, and recent healthcare utilization

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Key Findings and Policy Implications

We studied a random sample of Medicaid enrollment and claims data from 2007-2011 to identify low-income adults who moved between non-disabled and disabled eligibility, and between state benefits and SSA disability benefits (SSI/DI). We also examined the role of serious mental illness (SMI), co-occurring chronic medical conditions (CC), and other factors associated with these movements between eligibility type and benefit status.

Working age adult Medicaid beneficiaries with SMI, and especially those with SMI and co-occurring CC (SMI&CC), were significantly more likely than those without SMI to convert from non-disabled to disabled Medicaid eligibility, and from non-SSI/DI to SSI/DI status between 2007 and 2011. Other predictors of conversion to disabled or SSI/DI status included being older, male, Black/African American, and living in the Southern region of the U.S. Conversion was less likely among those who were Hispanic, residents of the Midwest, and eligible for Medicaid due to 1115 waivers. While beneficiaries with higher total Medicaid payments were more likely to convert to disabled or SSI/DI status, those who used potentially preventative outpatient and prescription health services were less likely to convert to disabled or SSI/DI status.

Compared to all working age adults, higher proportions of women on Temporary Aid to Needy Families (TANF) converted to disabled and SSI/DI status. Among female TANF recipients, those with SMI or SMI&CC were significantly more likely to convert to disabled and SSI/DI status than those without SMI.

Almost half of those eligible for Medicaid due to disability were dual Medicaid and Medicare beneficiaries. Dually covered persons were more likely to be older, male, Black/African American, and users of outpatient or prescription services, and less likely to be Hispanic, covered under an 1115 waiver, and have high Medicaid costs.

SMI and SMI&CC appear to be pathways to disability and SSI/DI beneficiary status among low-income working age adults receiving Medicaid. People with conditions, including women on TANF and dual Medicaid/Medicare eligibles, might benefit from early intervention efforts.

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I. BACKGROUND

Medicaid (Title XIX of the Social Security Act) was created in 1965 as a program through which states, the District of Columbia, and territories receive federal financial contributions to the cost of furnishing health and long-term services to vulnerable populations. These include federally recognized populations such as low-income individuals and families, and other medically needy individuals as determined by state and federal options. Since the program's inception, there have been many changes in federal and state Medicaid eligibility laws, expanding Medicaid coverage beyond its original focus on public assistance recipients. Medicaid now covers millions of Americans, including children, pregnant women, elderly adults, and people with disabilities. In addition, Medicaid has become the predominant funder of long-term services for people with disabilities and is the single largest payer for mental health services (Centers for Medicare and Medicaid Services, 2019).

Data from the Centers for Medicare and Medicaid Services (CMS) MAX 2010 Chartbook (Borck et al., 2014) indicate that 22% of the U.S. population (almost 69 million people) were enrolled in Medicaid at some point in 2010, with working-age adults accounting for 37% of Medicaid enrollees. In 2010, over a third of the working age adult Medicaid enrollees aged 18-64 were eligible due to disability (36%), with the remainder being non-disabled (Borck et al., 2014). While disabled individuals under age 65 account for only 15% of Medicaid recipients, they account for half of all Medicaid spending (Wagner, 2015). Due to the transitory nature of many pathways to Medicaid eligibility, only 60% of beneficiaries in 2010 were enrolled for the entire year, although disabled Medicaid enrollees represented 79% of those continuously enrolled for the entire year.

Following the introduction of welfare reform through the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA), the declining availability of public income support has made disability assistance a significant source of government financial aid for low-income, working age adults and their families (Wong, 2016). One outcome has been increased financial incentives for state governments to promote movement by recipients of Temporary Assistance for Needy Families (TANF) to the federal disability program Supplemental Security Income (SSI) (Parolin and Luigjes, 2019; Schmidt, 2013). Estimates are that one-third to two-fifths of TANF recipients have impairments or chronic health problems (Nadel et al., 2003) and even higher proportions report poor health as a barrier to employment (Hildebrandt and Kelber, 2012), making application for SSI an option for significant numbers of low-income persons. Some have referred to this as health insurance-motivated disability enrollment, a process whereby low income, working-age individuals apply for public disability benefits such as SSI or Social Security Disability Income (SSDI) in part to obtain or maintain public health insurance such as Medicaid or Medicare (Kennedy and Blodgett, 2012).

Historically, low-income adults without dependent children have had few paths to obtain public health insurance unless they qualified for SSI cash benefits because of a disability (Burns and Dague, 2017). However, in states that expanded their Medicaid programs through waivers or in response to health care reform provisions of the Patient Protection and Affordable Care Act of 2010 (ACA), childless adults could obtain Medicaid coverage without undergoing an intensive SSI disability review process and despite having substantially higher income and assets than allowed under the SSI program. One study found that, on average, Medicaid coverage for

childless adults reduced SSI participation by 7% relative to adults without Medicaid coverage (Burns and Dague, 2017).

Medicaid enrollment is related to geography because of state variation in population composition as well as Medicaid policy which allows states the flexibility to define eligibility and coverage. Enrollees in the most populous states (California, New York, and Texas) made up one-third of all Medicaid enrollees in 2010 (Borck et al., 2014). States also vary in coverage of non-mandated populations of low-income working aged adults. One way in which states can expand Medicaid coverage is through Section 1115 waivers to federal rules. Prior to the introduction of Section 1115 waivers, non-disabled adults age 18 to 64 without dependent children typically did not qualify for Medicaid. By 2010, 21 states and the District of Columbia had obtained Section 1115 Medicaid waivers to cover this group of non-disabled, working-age adults.

Numerous studies have shown that substantial proportions of individuals with severe mental illness have annual incomes falling at or below the federal poverty level (Cook, 2006). These individuals are eligible for multiple state and federal social welfare and social insurance programs including TANF, Medicaid, SSI, SSDI, and Medicare. In prior research on working age adults with serious mental illness (SMI), we found that multiple program participation was more common in means-tested social welfare programs such as SSI and TANF than in social insurance programs such as SSDI (Cook & Burke-Miller, 2017). We also found that receipt of State welfare benefits declined significantly over the 24 months of study follow-up, while receipt of SSI, Medicaid, SSDI, and Medicare benefits increased significantly. Other research demonstrated a high prevalence of psychiatric disorders among women on TANF (Cook et al., 2009; Corcoran et al., 2004; Taylor and Barusch, 2004). Thus, among this population, time limits on receipt of TANF and other State benefits such as food stamps (Moffit, 2015) appear to have encouraged those who were eligible to apply for SSI program participation.

In addition to a greater likelihood of living in poverty, working age people with SMI have significantly higher rates of many co-occurring chronic medical conditions than the general population (Cook, Razzano et al., 2015) which increases their likelihood of disability and enrollment in state and federal disability benefits (Cook & Burke-Miller, 2018). The role of state Medicaid coverage as a pathway to federal disability benefits for adults with SMI presents a potential area for early intervention prior to disability onset and benefit enrollment. This study builds on research on the high prevalence of multiple physical impairments among people with severe mental illness (Cook et al., 2007; DeHert et al., 2011; Razzano et al., 2015); the relationship between poverty and psychiatric disability (Burke-Miller et al., 2010; Cook & Mueser, 2013); and the prevalence of untreated psychiatric disorders among low-income women on welfare (TANF), who could be eligible for disability benefits (Cook et al., 2009; Pavetti et al., 2010).

The foregoing trends have implications for low income, working age individuals' transitions to (and from) disability status, entry into and exit from SSI and DI beneficiary status, and dual Medicaid and Medicare health insurance coverage. We sought to examine these transitions, along with the role played by serious mental illness alone and with co-occurring chronic medical conditions, to inform SSA's priority of identifying pathways to disability, opportunities for early intervention, and the intersection of state benefit programs with SSA disability programs. In

addition to the effect of SMI and SMI&CC, we examined demographic, Medicaid, and healthcare utilization factors that may have influenced or mitigated transitions. We analyzed Medicaid enrollment and claims data from 2007-2011 in order to identify low-income adults whose Medicaid eligibility status changed from non-disabled to disabled, those who moved from state benefits to SSA disability benefits, and factors associated with these changes. We also examined factors associated with change from disabled to non-disabled status, transitions out of the SSI/DI programs, and factors associated with dual Medicaid and Medicare status.

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II. METHODS

Data came from Medicaid Analytic eXtract (MAX) personal summary and Medicaid Enrollees Supplemental (MES) chronic condition files from the years 2007 to 2011 for 50 states and the District of Columbia. The MAX personal summary files include information on Medicaid beneficiary[1] eligibility, health care utilization, payments, and sociodemographic characteristics. The MES chronic conditions files contain behavioral, mental health, intellectual disability, developmental disability, physical disability conditions, and other chronic physical and behavioral conditions based on algorithms developed by the CMS Medicare-Medicaid Coordination Office specifically to enhance research on Medicare and Medicaid populations (https://www.ccwdata.org/web/guest/condition-categories). The MES chronic conditions files were available through 2011 at the time of our data request.

As part of a Data Use Agreement with CMS, CMS provided a 5% random sample of working age adult Medicaid enrollees in 2007, and their follow-up data through 2011. We excluded Medicaid beneficiaries diagnosed with end stage renal disease because of their presumptive eligibility for Medicare (CMS, 2019). The sample was further limited to those whose Medicaid basis of eligibility (BOE) was either adult or disabled, excluding those eligible as children (up to age 21) or aged adults (age 65 or older). Medicaid and the Social Security Administration (SSA) use the same definition of disability: an inability to earn a living which results from a medically verifiable, severe, physical or mental impairment expected to last at least twelve months or to result in death. We identified enrollees who had continuous coverage over the 5 years and those who had any lapse in enrollment.

In addition to basis of eligibility, Medicaid enrollees' primary financial eligibility criteria, or Maintenance Assistance Status (MAS), was identified by five categories: people receiving Supplemental Security Income (SSI) cash benefits and covered under Section 1931 of the Social Security Act (Section 1931/Cash Assistance); people qualifying through state medically needy provisions that allow a higher income threshold than that required by the cash assistance level (Medically Needy); people qualifying through any state poverty-related Medicaid expansions (Poverty Related); people eligible only through a state 1115 wavier program that extends benefits to certain otherwise-ineligible groups (Section 1115 Waiver); and a mixture of other mandatory and optional coverage groups including those qualifying through hospice and home- and community-based services (HCBS) care waivers, institutionalized aged and disabled persons, immigrants who qualify for emergency Medicaid benefits, and others (Other).

Persons who were Medicare-Medicaid dual-eligible were identified in the data, as were those enrolled in TANF. However, Social Security Administration disability beneficiary status was not available in the data, requiring the use of proxies. Supplemental Security Income (SSI) status was defined as having a BOE of disability and a MAS of Section 1931/Cash Assistance. Social Security Disability Income (SSDI) status was defined as having a BOE of disability, a MAS of Section 1931/Cash Assistance, and dual Medicare eligibility. Due to the use of proxy

[1] The Code of Federal Regulations was revised on 15 and 16 July 2012 to change the word Medicaid "recipient" or "enrollee" to "beneficiary" (Frakt, 2014). Since the CMS Chartbook and documentation refers to Medicaid "enrollees" we have used the terms interchangeably.

measures, we examined probable federal disability status by combining those on SSI with those on SSDI (SSI/DI).

Serious mental illness (SMI) was defined as diagnosis of schizophrenia, other psychotic disorders, bipolar disorder, major depressive disorder, and anxiety disorders including post-traumatic stress disorder (Mullner, 2015). Chronic medical condition (CC) was defined as diagnosis of musculoskeletal, circulatory, endocrine-metabolic, or respiratory system disorders (Cook & Burke-Miller, 2018).

A. Statistical Analysis

Characteristics of the population overall and by status as disabled vs. non-disabled adult in the baseline data year (2007) were analyzed descriptively using chi-square tests of association and *t*-tests of mean differences, as were bivariate analyses of subgroups and outcomes. The outcomes examined were: conversion from BOE of non-disabled status in 2007 to disabled status in later years among all working age adults and among women receiving TANF; conversion from non-SSI/DI proxy beneficiary status in 2007 to SSI/DI status in later years among all working age adults and among women receiving TANF; conversion from BOE of disabled status in 2007 to non-disabled status in later years among working age adults; conversion from proxy SSI/DI beneficiary status in 2007 to non-SSI/DI status in later years among working age adults; and predictors of dual Medicaid-Medicare beneficiary status in 2007 among working age adults.

Multivariable logistic regression analyses of outcomes were conducted in hierarchical models incorporating successive steps including: 1) time (years of data); 2) SMI alone, chronic medical condition (CC) alone, and SMI&CC; 3) demographic characteristics; 4) baseline Section 1115 MAS; and 5) baseline healthcare utilization. Due to the large sample size, even small differences between groups are statistically significant. As a result, we emphasize the direction and magnitude of results in interpreting the findings. Bivariate analyses of outcomes and all hierarchical steps are shown in additional tables not described in the text.

B. RESULTS

1. Characteristics associated with disabled and non-disabled Medicaid eligibility

Characteristics of the study population are shown in Table 1. Random selection yielded an analysis sample of 948,990 Medicaid enrollees aged 18-64 whose BOE was either disabled (35%) or non-disabled adult (65%). The entire cohort identified in 2007 had a mean of 4 years of data; the non-disabled adults had a mean of 4 years and the disabled group had a mean of 5 years. Around two-thirds of the total group (42.8%) experienced a lapse in Medicaid coverage following the 2007 baseline year (2008-2011) (not shown).

In the analysis sample of all working age adults aged 18-64 in 2007, about 30% were male. The proportion male differed notably between those who were eligible due to disability (47% male) and those who were non-disabled (21% male). The total sample was 72% White, both among the disabled and non-disabled adult groups. The proportion of Black/African Americans in the total sample was 23%, slightly higher in the disabled (25%) than in the non-disabled group (21%). While the total sample was 23% Hispanic/Latino, a notably lower proportion of the disabled group was Hispanic/Latino (9%) than the non-disabled group (30%). There was a

Table 1. Characteristics of Medicaid working age adult or disabled enrollees, 2007 (N=948,990). Data are from CMS MAX Personal Summary and Chronic Condition files. Differences in proportions among dichotomous and ordinal variables are tested using chi-squared tests of association and continuous variables mean differences by t-test.

	Total N=948,990 100%	Medicaid Basis of Eligibility is Adult non-Disabled N=616,261 64.9%	Medicaid Basis of Eligibility is Disabled N=332,729 35.1%	χ^2 or *t*-test p-value
Years of data, mean (SD)	4.1 (1.2)	3.9 (1.2)	4.5 (1.0)	<.001
Demographics				
Male	29.9%	20.7%	47.0%	<.001
Race group				
White	71.6%	71.7%	71.5%	<.001
Black	22.8%	21.4%	25.4%	
Native Am./Alaskan	1.5%	1.8%	1.1%	
Asian	3.3%	4.4%	1.2%	
Hawaiian/Pac. Islander	1.1%	1.2%	1.0%	
Hispanic	22.8%	30.4%	8.9%	<.001
Age, years (mean (SD)	36.5 (12.5)	32.0 (9.9)	44.8 (12.5)	<.001
Region				
Northeast	21.5%	22.2%	20.3%	<.001
Midwest	18.9%	17.7%	21.2%	
South	28.2%	22.4%	38.9%	
West	31.4%	37.7%	19.6%	
Most populous States				
California	22.3%	28.2%	11.5%	<.001
New York	10.7%	12.6%	7.2%	
Texas	4.2%	3.3%	6.0%	
Illinois	3.7%	3.7%	3.8%	
Florida	3.9%	3.3%	5.0%	
Pennsylvania	3.6%	2.7%	5.4%	
Medicaid Status				
Maintenance Assistance Status (MAS)				
Section 1931/Cash	42.8%	30.1%	66.3%	<.001
Section 1115 waiver	23.5%	35.9%	0.5%	
Medically Needy	6.0%%	6.7%	4.8%	
Poverty Related	12.1%	9.2%	17.6%	
Other[1]	15.6%	18.1%	10.8%	
Dual Medicare Eligible	17.0%	0.9%	46.9%	<.001
SSI and/or SSDI by proxy	23.3%	0.0%	66.3%	<.001
TANF[2]	7.5%	10.5%	0.4%	<.001
Medicaid Services				
Any Medicaid service	88.5%	87.0%	91.4%	<.001
Any inpatient	13.0%	12.2%	14.5%	<.001
Any outpatient (physician, hospital outpatient, clinic)	66.3%	63.9%	70.8%	<.001
Any Prescription	55.0%	52.4%	59.9%	<.001
Any Psychiatric	15.9%	9.6%	27.5%	<.001
Total Medicaid Payments (FFS and Capitated Premium Payments), mean (SD)	$6,355 (21,766)	$2,429 (5,205)	$13,626 (34,923)	<.001

TABLE 1 (*continued*)

	Total N=948,990 100%	Medicaid Basis of Eligibility is Adult non-Disabled N=616,261 64.9%	Medicaid Basis of Eligibility is Disabled N=332,729 35.1%	χ^2 or *t*-test p-value
Chronic Conditions				
Serious Mental Illness (SMI)	25.3%	16.0%	42.6%	<.001
Anxiety	11.4%	8.1%	17.4%	<.001
Major Depression	8.4%	4.6%	15.4%	
Bipolar	3.8%	1.5%	8.1%	
Schizophrenia Spectrum	6.0%	1.1%	15.1%	
Chronic Condition (CC)	32.6%	20.5%	55.1%	<.001
Musculoskeletal	8.4%	3.9%	16.7%	<.001
Circulatory	21.1%	11.2%	39.3%	
Endocrine-Metabolic	17.2%	9.3%	31.8%	
Respiratory	10.5%	6.1%	18.8%	
SMI without CC	10.7%	9.0%	14.0%	<.001
CC without SMI	18.0%	13.5%	26.4%	<.001
SMI&CC	14.6%	7.0%	28.6%	<.001
Substance use	9.5%	7.1%	13.9%	<.001
Alcohol	2.5%	1.5%	4.3%	<.001
Drug	3.5%	2.6%	5.1%	
Tobacco use	4.2%	3.2%	6.1%	<.001

[1]Other Maintenance Assistance Status (MAS): mixture of mandatory and optional coverage groups including but not limited to hospice and home- & community-based services, institutionalized aged and disabled, and immigrants who qualify for emergency Medicaid benefits.

[2]Availability of these data varies by individual, month, and state. TANF status is available for all 12 months of the year for 64% of enrollees in 2007 (608,291/948,990).

notable age difference by basis of eligibility, with disabled persons averaging 45 years of age, and non-disabled 32 years.

Approximately two-fifths (20%) of the sample population was located in the Northeast region of the U.S. and 19% resided in the Midwest, with similar populations in the disabled and non-disabled groups. There were notable variations in the distribution of disabled and non-disabled adults in the South and West regions of the U.S. While 28% of the overall sample was located in the South, this was true for a higher proportion of the disabled (39%) than non-disabled (22%) group. Conversely, while 31% of the total sample was in the West, only 20% of disabled adults resided there while 38% of non-disabled adults did so.

Maintenance Assistance Status (MAS) varied by basis of eligibility. The majority of disabled Medicaid enrollees had a MAS of Section 1931/Cash Assistance (66%), compared to less than a third of non-disabled adults (30%). Less than 1% of disabled beneficiaries had a MAS of Section 1115 waiver, compared to over a third of non-disabled beneficiaries (36%). A higher proportion of disabled than non-disabled beneficiaries had a Poverty Related MAS (18% vs 9% respectively). A lower proportion of disabled than non-disabled beneficiaries had a MAS of Other (11% vs 18%). Finally, the proportion Medicaid beneficiaries with a MAS of Medically Needy was not notably different between disabled (5%) and non-disabled adults (7%).

Almost half of the disabled group was dually eligible for Medicaid and Medicare (47%), while almost none of the non-disabled group was dually eligible (<1%). Around two-thirds of the disabled population (66%) was identified through our proxy measure as enrolled in SSI and/or SSDI while, by definition, none of the non-disabled adults were SSI or SSDI beneficiaries.

The definition of TANF eligibility varies across states in the MAX data, and the availability of TANF enrollment data varies by individual, month, and state. In the baseline year (2007), TANF status was available for all 12 months for 64% of the total sample of Medicaid enrollees (608,291/948,990). Restricting the sample to those with available TANF data, around a tenth (11%) of non-disabled Medicaid recipients were also enrolled in TANF, compared to <1% of disabled Medicaid recipients.

Most of the total sample had received Medicaid-funded services in 2007 (89%), including 91% of disabled and 87% of non-disabled adults. Use of specific health care services was generally higher among disabled than non-disabled adult Medicaid beneficiaries, although the size of the difference varied. For example, the proportion using inpatient services was 15% among disabled and 12% among non-disabled beneficiaries. The proportion using outpatient services (defined as physicians' office, hospital outpatient, or clinic visits) was 71% among disabled and 64% among non-disabled beneficiaries. The proportion using prescription drugs was 60% among disabled and 52% among non-disabled beneficiaries. There was a somewhat larger difference regarding use of psychiatric services, where the proportion of disabled beneficiaries using mental health services (28%) was more than double that of non-disabled beneficiaries (10%). Average total Medicaid payments (defined as both fee for service and capitated premium payments) also was considerably higher among disabled beneficiaries ($13,626) than among non-disabled beneficiaries ($2,429). Due to the extremely skewed distribution of the total Medicaid payments variable, values were transformed by log10 for the multivariable analyses.

A quarter of the total cohort (25%) had SMI. The prevalence of SMI was higher among disabled beneficiaries (43%), but was still notable among non-disabled adults (16%). Cohort members could have multiple SMI diagnoses: including 73% with one diagnosis, 20% with 2 diagnoses, and 7% with 3 or more diagnoses (not shown). The most prevalent psychiatric disorder was anxiety disorder, followed by major depressive disorder, schizophrenia spectrum disorder, and bipolar disorder. Almost a third of the total cohort (33%) had a CC. Over half of the disabled population had a CC (55%) compared to 21% of the non-disabled group. The most prevalent CC was circulatory conditions, followed by endocrine-metabolic conditions, respiratory conditions, and musculoskeletal conditions. The overall prevalence of co-occurring SMI&CC was 15%, with a higher prevalence among the disabled (29%) than the non-disabled group (7%). Substance use diagnoses also were more prevalent among disabled beneficiaries than non-disabled (14% vs 7%, respectively), as were tobacco related diagnoses (6% vs 3%, respectively).

2. Non-disabled to disabled eligibility status

The first column of Table 2 presents the results of multivariable logistic regression models predicting working age Medicaid beneficiaries' conversion from non-disabled BOE in 2007 to disabled BOE in later years, which occurred among 5.1% (N=31,600/616,261). In the final step of the hierarchical models, adjusting for time, demographic characteristics, section 1115 Waiver, and healthcare utilization, working age adults with co-occurring SMI&CC were significantly more likely to convert from non-disabled to disabled Medicaid BOE than those without co-occurring SMI&CC, and more likely to convert than those with SMI alone and those with CC alone.

Other predictors of converting from non-disabled to disabled status included being older, male (compared to female), Black/African American (compared to White), living in the Northeast or Southern United States (compared to the Western United States), any inpatient service use, and total Medicaid payments. Conversion to disabled status was less likely among the Other race group (compared to White), Hispanic/Latino beneficiaries (compared to non-Hispanic), Midwestern residents (compared to the Western United States), those whose MAS was under a Section 1115 waiver (compared to other MAS), and those who had any outpatient or prescription services.

3. Non-disabled to disabled eligibility status among TANF women

The second column of Table 2 shows the results of multivariable models predicting conversion from non-disabled to disabled BOE with the sample limited to women on TANF in 2007, which occurred among 8.3% (N=3,214/38,519). In the final step of the hierarchical models, adjusting for time, demographic characteristics, section 1115 Waiver, and healthcare utilization, women on TANF with co-occurring SMI&CC were significantly more likely to convert from non-disabled to disabled Medicaid BOE than those without co-occurring SMI&CC, and more likely than those with SMI alone and those with CC alone.

Other predictors of converting from non-disabled to disabled status among women on TANF included older age in years, living in the Northeast or Southern United States (compared to the Western United States), those whose MAS was through a Section 1115 waiver (compared to other MAS), and total Medicaid payments. Conversion to disabled status among TANF women

Table 2. Multivariable logistic regression models predicting outcomes: conversion from non-disabled to disabled status, and conversion from non-SSI/DI to SSI/DI status among all working age adult Medicaid beneficiaries and among women on TANF. Data are from CMS MAX Personal Summary and Chronic Condition files.

	Converted from non-disabled to disabled BOE		Converted from non-SSI/DI to SSI/DI proxy status	
	All Working Age Adults N=31,600/616,261 (5.1%) OR (95% CI)	Women on TANF N=3,214/38,519 (8.3%) OR (95% CI)	All Working Age Adult N=28,547/728,240 (3.9%) OR (95% CI)	Women on TANF N=2,103/39,722 (5.3%) OR (95% CI)
Time (years 2-5)	1.65 (1.57, 1.62)***	1.75 (1.65, 1.86)***	1.69 (1.66, 1.72)***	1.88 (1.74, 2.03)***
SMI & CC	7.84 (7.54, 8.16)***	5.76 (5.12, 6.49)***	6.99 (6.71, 7.28)***	7.04 (6.07, 8.15)***
SMI alone	5.07 (4.86, 5.29)***	3.85 (3.43, 4.32)***	4.52 (4.33, 4.72)***	5.04 (4.36, 5.83)***
CC alone	2.25 (2.16, 2.34)***	1.97 (1.73, 2.25)***	2.79 (2.67, 2.91)***	2.38 (2.02, 2.80)***
Age, years	1.08 (1.08, 1.08)***	1.08 (1.08, 1.09)***	1.03 (1.03, 1.03)***	1.08 (1.08, 1.09)***
Male	1.49 (1.44, 1.53)***	N/A	1.32 (1.29, 1.36)***	N/A
Race				
White (reference)	Reference	Reference	Reference	Reference
Black	1.42 (1.38, 1.46)***	0.96 (0.88, 1.06)	1.38 (1.34, 1.42)***	1.13 (1.01, 1.26)*
Other	0.53 (0.50, 0.55)***	0.83 (0.71, 0.97)*	0.75 (0.72, 0.78)***	0.79 (0.66, 0.95)*
Hispanic/Latino	0.58 (0.56, 0.60)***	0.71 (0.64, 0.78)***	0.77 (0.74, 0.80)***	0.82 (0.72, 0.92)**
Region				
West (reference)	Reference	Reference	Reference	Reference
Northeast	1.31 (1.28, 1.34)***	1.63 (1.53, 1.74)***	1.01 (0.99, 1.04)ns	1.28 (1.18, 1.39)***
Midwest	0.78 (0.76, 0.80)***	0.76 (0.69, 0.83)***	0.86 (0.84, 0.88)***	0.61 (0.54, 0.69)***
South	1.13 (1.10, 1.16)***	1.16 (1.06, 1.28)**	1.04 (1.01, 1.06)**	1.34 (1.20, 1.50)***
Section 1115 Waiver	0.60 (0.58, 0.62)***	1.65 (1.36, 2.00)***	0.79 (0.76, 0.82)***	0.87 (0.66, 1.15)ns
Any Inpatient Services	1.17 (1.12, 1.21)***	0.86 (0.76, 0.97)*	1.01 (0.98, 1.05)ns	0.89 (0.78, 1.03)ns
Any Outpatient or Prescription Services	0.76 (0.73, 0.79)***	0.61 (0.55,0.67)***	0.78 (0.75, 0.81)***	0.67 (0.59, 0.77)***
Total Medicaid Payments[1]	1.48 (1.44, 1.52)***	1.75 (1.58, 1.93)***	1.43 (1.40, 1.46)***	1.88 (1.66, 2.12)***

[1]Dollars transformed by log10 for analysis due to the extremely skew distribution.

was less likely among the Other race group (compared to White), Hispanic/Latina beneficiaries (compared to non-Hispanic), Midwestern residents (compared to residents of the Western United States), and those who had any inpatient or outpatient/prescription services.

4. Non-SSI/DI to SSI/DI status

The third column of Table 2 presents the results of multivariable logistic regression models predicting conversion from non-SSI/DI beneficiary status to SSI/DI status, which occurred among 3.9% (N=28,547/728,240). In the final step of the hierarchical models, adjusting for time, demographic characteristics, section 1115 Waiver, and healthcare utilization, working age adults with co-occurring SMI&CC were significantly more likely to convert to SSI/DI status than those without, and more likely than those with SMI alone, and those with CC alone. We ran the same model with one additional variable to adjust for baseline disabled status, and found that the effect of SMI&CC did not change (not shown). In this model, the effect of Medicaid basis of eligibility due to disability on converting to SSI/DI status was positive but not large: OR=1.05 95%CI (1.01, 1.09), p<.05).

As seen in Table 2, other predictors of converting from non SSI/DI to SSI/DI status included being older, male (compared to female), Black/African American (compared to White), living in the Southern United States (compared to the Western United States), and total Medicaid payments. Conversion to SSI/DI status was less likely among Other race group (compared to White), Hispanic/Latino beneficiaries (compared to non-Hispanic), Midwestern residents (compared to the Western United States), those whose MAS was through a Section 1115 waiver (compared to other MAS), and those who had any outpatient or prescription services.

5. Non-SSI/DI to SSI/DI status among women receiving TANF

The last column of Table 2 presents the results of multivariable logistic regression models predicting conversion from non-SSI/DI beneficiary status to SSI or SSI/DI beneficiary status among working age women receiving TANF, which occurred among 5.3% (N=2,103/39,722). In the final step of the hierarchical models, adjusting for time, demographic characteristics, section 1115 Waiver, and healthcare utilization, working age women on TANF with co-occurring SMI&CC were significantly more likely to convert to SSI/DI status than those without, and more likely than those with SMI alone and those with CC alone.

Other predictors of converting from non SSI/DI beneficiary to SSI/DI beneficiary status included being older, Black/African American (compared to White), living in the Northeast or Southern United States (compared to the Western United States), and total Medicaid payments. Conversion to SSI/DI status was less likely among the Other race group (compared to White), Hispanic/Latino beneficiaries (compared to non-Hispanic), Midwestern residents (compared to the Western United States), and those who had any outpatient or prescription services.

6. Disabled to non-disabled eligibility status

The first column of Table 3 presents the results of multivariable logistic regression models predicting conversion from disabled to non-disabled beneficiary status, which occurred among 2.8% (N=9,263/332,729). In the final step of the hierarchical models, adjusting for time, demographic characteristics, section 1115 Waiver, and healthcare utilization, working age adults with co-occurring SMI&CC were significantly less likely to convert from disabled to non-

Table 3. Multivariable logistic regression models predicting outcomes: conversion from disabled to non-disabled status, conversion from SSI/DI to non-SSI/DI status, and characteristics associated with dual Medicaid & Medicare beneficiary status. Data are from CMS MAX Personal Summary and Chronic Condition files

	All Working Age Adults Converted from disabled to non-disabled BOE N=9,263/332,729 (2.8%) OR (95% CI)	All Working Age Adults Converted from SSI/DI to non-SSI/DI status N=32,257/220,750 (14.6%) OR (95% CI)	All Working Age Adult Dual Medicaid & Medicare Beneficiaries in 2007 N=161,265/948,990 (17.0%) OR (95% CI)
Time (years 2-5)	0.79 (0.78, 0.81)***	0.95 (0.93, 0.96)***	n/a
SMI & CC	0.92 (0.86, 0.99)*	0.83 (0.80, 0.86)***	1.43 (1.40, 1.46)***
SMI alone	1.06 (1.00, 1.13)ns	1.06 (1.02, 1.10)**	2.45 (2.40, 2.50)***
CC alone	1.06 (1.00, 1.13)ns	0.80 (0.77, 0.83)***	0.97 (0.95, 0.99)**
Age, years	0.94 (0.94, 0.94)***	0.99 (0.99, 0.99)***	1.08 (1.08, 1.08)***
Male	0.61 (0.58, 0.64)***	1.08 (1.06, 1.11)***	2.19 (2.16, 2.22)***
Race			
White (reference)	Reference	Reference	Reference
Black	1.08 (1.03, 1.13)**	1.12 (1.08, 1.15)***	1.14 (1.12, 1.16)***
Other	1.10 (1.02, 1.19)*	0.77 (0.73, 0.81)***	0.55 (0.54, 0.57)***
Hispanic/Latino	1.28 (1.19, 1.37)***	0.84 (0.80, 0.88)***	0.37 (0.36, 0.38)***
Region			
West (reference)	Reference	Reference	Reference
Northeast	1.75 (1.69, 1.82)***	0.87 (0.85, 0.89)***	1.17 (1.15, 1.18)***
Midwest	0.97 (0.93, 1.01)ns	1.53 (1.49, 1.56)***	1.02 (1.01, 1.04)***
South	0.55 (0.53, 0.57)***	0.72 (0.71, 0.73)***	1.10 (1.09, 1.11)***
Section 1115 Waiver	4.25 (3.57, 5.07)***	n/a	0.05 (0.05, 0.05)***
Any Inpatient Services	1.36 (1.27, 1.45)***	1.38 (1.33, 1.43)***	1.01 (0.99, 1.03)ns
Any Outpatient or Prescription Services	1.12 (1.06, 1.19)***	0.98 (0.95, 1.02)	1.34 (1.32, 1.37)***
Total Medicaid Payments[1]	0.75 (0.73, 0.77)***	0.75 (0.74, 0.76)***	0.62 (0.61, 0.63)***

[1]Dollars transformed by log10 for analysis due to the extremely skew distribution

disabled status than those without co-occurring SMI&CC. However, neither condition alone was significantly associated with the likelihood of converting from disabled to non-disabled status.

Predictors of converting from disabled to non-disabled status included being younger, Black/African American and Other compared to White, Hispanic/Latino ethnicity compared to non Hispanic/Latino, geographic region, with residence in the Northeast associated with greater likelihood of conversion to non-disabled status, and residence in the South associated with lesser likelihood, compared to residence in the Western region of the U.S.

Interestingly, being eligible for Medicaid under a Section 1115 Waiver was associated with notably greater likelihood of converting from disabled to non-disabled status. Use of any inpatient services or outpatient/prescription services were associated with greater likelihood of converting to non-disabled status. Male enrollees were less likely than females to convert to non-disabled status, as were those with higher Medicaid payments.

7. SSI/DI to non-SSI/DI status

The second column of Table 3 presents the results of hierarchical multivariable logistic regression models predicting conversion from SSI/DI to *non-SSI/DI* beneficiary status, which occurred among 14.6% (N=32,257/220,750), with the final step of the model adjusting for time, demographic characteristics, section 1115 Waiver, and healthcare utilization. Compared to people without SMI or CCs, those with co-occurring SMI&CC were significantly less likely to leave SSI/DI beneficiary status, as were those with CC alone. However, those with SMI alone were significantly *more* likely to leave SSI/DI beneficiary status.

Other predictors of ending SSI/DI beneficiary status included being younger, male, Black/African American, residence in the Midwest region, and use of inpatient services. Conversely, this transition was less likely among those from the Other race group, those of Hispanic/Latino ethnicity, residents of the Northeast or South, and those with higher total Medicaid payments. There were no Medicaid beneficiaries meeting the proxy criteria for SSI/DI status in 2007 who were covered under a Section 1115 Waiver MAS.

8. Dual Medicaid and Medicare status

The final column of Table 3 presents predictors of dual Medicare and Medicaid beneficiary status, which was held for 17% of the total group in 2007 (161,265/948,990). Hierarchical models adjusted for demographic characteristics, section 1115 Waiver, and healthcare utilization. In the final step, dual status was more likely for those with co-occurring SMI&CC, and those with SMI alone. Interestingly, those with CC alone were less likely to be dual Medicare/Medicaid beneficiaries.

Other characteristics associated with dual Medicare/Medicaid beneficiary status were being older, male versus female, Black/African-American versus White, residence in the Northeast, Midwest, and South compared to the West, and use of any outpatient or prescription Medicaid services. Those who were less likely to be dual beneficiaries were from the Other race group compared to White, Hispanic/Latino compared to non-Hispanic, those covered under an 1115 Waiver, and those with higher Medicaid health service payments.

9. Impact of Lapses in Medicaid Coverage on Transition to Disability and SSI/DI

Given the literature on seeking disability status as a means of securing Medicaid insurance coverage, we wanted to see whether experiencing a lapse in Medicaid coverage was associated with a subsequent transition to disability. Around two-thirds of the total group (42.8%) experienced a lapse in Medicaid coverage following the 2007 baseline year (2008-2011). This occurred for a lower proportion of those whose BOE in 2007 was disability (26.0%) than for those whose BOE was non-disability (51.8%).

Those who lost Medicaid coverage were significantly more likely to experience conversion to a BOE of disability than those who did not lose coverage, even controlling for all other variables in our multivariable model. In addition, those with a lapse in Medicaid coverage were significantly more likely to enter the SSI/DI program than those not losing Medicaid coverage, again controlling for all other model variables.

Finally, we wanted to see whether those covered under 1115 Medicaid expansion waivers were less likely to lose eligibility given the argument that such waivers de-couple Medicaid eligibility from health, parental, or disability status. To do this we computed proportions experiencing lapses in Medicaid coverage by each category of Maintenance Assistance Status (MAS) (not shown). Contrary to our expectation, a higher proportion of those covered under Section1115 waivers experienced a coverage lapse (57.9%) compared to the other MAS categories of poverty related (50.4%), medically needy (45.2%), other (HCBS, institutionalized, etc.) (45.7%), and Section 1932/SSI (30.8%), with the latter category having the lowest proportion of members experiencing a Medicaid lapse.

10. Appended Results

Additional details from the analysis are included as Appended tables. These include bivariate relationships among variables in the multivariable models that are summarized in Appended Tables 1 through 5. Finally, Appended Tables 6 through 12 present the results of all steps of the hierarchical multivariable logistic regression models.

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III. SUMMARY

Mirroring findings reported in the MAX Chartbook for 2010 (Borck et al., 2014), our data showed that around a third (35%) of working age adult Medicaid beneficiaries in 2007 were eligible due to disability. Compared to their non-disabled counterparts, disabled beneficiaries were older, more often male, and more likely to be African American. There was considerable geographic variation, with higher proportions of disabled beneficiaries residing in the Southern U.S. and lower proportions in the Western U.S. Although the disabled population had higher prevalence of SMI and CC alone and together (SMI alone 14%, CC alone 26%, SMI&CC 29%), there was still notable prevalence of SMI and CC among the non-disabled population (SMI alone 9%, CC alone 14%, SMI&CC 7%). This suggests the importance of attending to serious psychiatric disorders and chronic medical conditions, regardless of a group's disability status.

Working-age adult Medicaid beneficiaries with SMI, and especially those with SMI&CC, were significantly more likely than their counterparts to convert from non-disabled to disabled eligibility and from non-SSI/DI to SSI/DI status. This confirms findings in previous studies of working-age adults, where those with SMI&CC were significantly more likely to report SSI, SSDI, and Medicaid than those without SMI or CC (Cook & Burke-Miller, 2018). Interestingly, in the present study, SMI and co-occurring SMI&CC were significant predictors of converting to SSI/DI status for both disabled and non-disabled working age adults. This further reinforces the need to focus on these disorders in efforts to forestall progression to disability and entry into the SSI/DI programs.

Compared to all working age adults, even higher proportions of women on TANF converted from non-disabled to disabled basis of Medicaid eligibility, and from non-SSI/DI to SSI/DI beneficiary status. Further, among women on TANF, SMI&CC and SMI alone were significant predictors of converting to disabled and SSI/DI status. This is consistent with previous research finding high rates of unrecognized and untreated mental health and substance use disorders in populations of women TANF recipients (Cook et al., 2009; Corcoran et al., 2004). It is possible that these untreated behavioral and medical conditions become disabling over time, especially if women lose eligibility for Medicaid and access to medical care after exiting the TANF program (Hildebrandt and Stevens, 2009). It also is possible that the time-limited nature of TANF leads women who exit the program but still need assistance to seek disability status in order to retain Medicaid and attempt to enter the SSI/DI program (Cancian et al., 2014).

Higher Medicaid payments were associated with greater likelihood of converting to disabled or SSI/DI status among all working age adults and among women on TANF. This may reflect greater need for higher cost medical care among those with disabilities compared to those without (Kennedy et al., 2017). On the other hand, use of outpatient and prescription services was associated with a lesser likelihood of converting to disabled or SSI/DI status. This suggests that outpatient treatment and prescribed medications could play a preventive role in avoiding medical deterioration and therefore lower the chances of becoming disabled and of entering publicly funded federal disability programs. This hypothesis is supported by evidence that use of prescription drugs lowers medical costs in Medicaid populations. For example, Roebuck and colleagues (2015) showed that a 1 percent increase in overall prescription drug use was associated with decreases in total nondrug Medicaid costs by 0.108 percent for disabled or blind adults.

We also found that lapses in Medicaid coverage were associated with greater likelihood of subsequently converting to disabled status and also with subsequent entry into the SSI/DI program. These transitions among non-continuously enrolled adults may be due to deterioration in a person's medical condition that occurs with the cessation of medical care once Medicaid coverage is lost (Saunders and Alexander, 2009), leading to disability onset. For example, Carlson and colleagues (2007) found unmet medical needs and lack of access to medication among those who lost Medicaid coverage. It may also be due to insurance-motivated disability enrollment, as those who lose Medicaid coverage pursue disability status in order to regain that coverage, as proposed by some researchers (Kennedy and Blodgett, 2012).

Our study uniquely contributes to understanding factors associated with the transition from disabled to non-disabled status as the basis for Medicaid eligibility, which occurred for only 3% of the total disabled sample. Transition from disabled to non-disabled status was more likely among those using outpatient or prescription services, those who were younger, females, and those with lower total Medicaid payments. It also was more likely among those who did not have co-occurring SMI&CC and those who were eligible for Medicaid under a Section 1115 Waiver. These findings suggest that those who transitioned to non-disabled BOE may have been less ill, and that even though they were more likely to use outpatient and prescription services, their lower costs were due to being in better health. Further research is needed to explore alternative explanations and better understand this group's experiences.

A higher proportion of working age adults who met our proxy criteria for SSI/DI beneficiary status converted to non-SSI/DI status (15%) than converted from Medicaid BOE of disabled to non-disabled (3%). This may reflect greater volatility of retaining SSI/DI beneficiary status, especially for adults with SMI and no co-occurring chronic medical conditions (Goldman et al., 2018). It also confirms that SSI was not the sole access point to health insurance for these individuals, since they subsequently retained Medicaid coverage due to some other basis of eligibility.

Dual Medicaid and Medicare working age beneficiaries tend to be the sickest and most vulnerable due to the combined effects of disability and extreme poverty (Meyer, 2012; Riley et al., 2014).Thus, it is not surprising that close to half of those eligible for Medicaid due to disability were dually eligible for Medicare. Among Medicaid enrollees, dual Medicare eligibility was significantly associated with both SMI alone and co-occurring SMI & CC, and with greater use of outpatient and prescription Medicaid services. Total Medicaid payments was negatively associated with dual Medicaid and Medicare status, which seems contrary to expectations, but may reflect the role of Medicare as primary payor for healthcare among dual eligibles.

A. Limitations

One limitation to our analysis is the wide variation in the structure and operation of states' TANF, Medicaid, SSI/DI and other public assistance programs, which could account for differences between groups as well as associations between variables that we observed. Another limitation is our inability to determine the reasons for changes in respondents' basis of Medicaid eligibility as well as their Medical Assistance Status, which also may have influenced our findings. A third limitation regards changes in Medicaid program participation, which we are

unable to characterize as voluntary or involuntary. As noted by Saunders and Alexander (2009), there is no one-to-one correspondence between Medicaid eligibility and enrollment; even among the continuously eligible, drop-out often occurs when, for example, the administrative requirements of participation became too burdensome or intrusive. It is estimated that 20%-40% of adults who may have been eligible for Medicaid were not enrolled in 2008 (Sommers et al., 2012). A fourth and related limitation is our inability to determine whether individuals who lost Medicaid coverage replaced it with some other form of private or public coverage versus remaining uninsured. Fifth, analyzing annual enrollment data may mask complex short term changes in disability and other statuses. Finally, the data do not reflect more recent program updates and policy changes. All of these limitations call for caution against making unwarranted causal inferences in the face of wide variation in programs and limited information regarding reasons for changes in eligibility and beneficiary status.

B. Policy Implications of Our Findings

It is important to place our findings in a public policy context. Compared with working-age adults without disabilities, average health care costs for those with disabilities are 3 to 7 times higher, they are less likely to work, more likely to earn below the federal poverty level, and more likely to use public insurance (Kennedy et al., 2017). Thus, efforts to avert disability among individuals already enrolled in Medicaid have the potential to reduce individual, social, and program costs. In addition, there is evidence of the increasing prevalence of co-occurring mental and physical health disorders. Data from the Medical Expenditure Panel Survey reveal a significant increase in co-occurring SMI&CC in the working age adult population, from 5% in 2000 to 13% in 2015 across all age groups (Cook and Burke-Miller, 2018). In particular, musculoskeletal and connective tissue, circulatory, endocrine-metabolic, and respiratory disorders tended to co-occur with SMI. This study also found that 3-4 times as many adults with SMI&CC reported SSI and/or SSDI beneficiary status than those with SMI alone or CC alone. These results are consistent with those of the present study that Medicaid enrollees with SMI&CC were almost 7 times as likely as to become SSI/DI beneficiaries and were significantly more likely to move from non-disabled to disabled status as their BOE for Medicaid, compared to their counterparts. These findings suggest the need for interventions aimed at preventing disability in these highly vulnerable groups.

One promising intervention model was tested in SSA's Mental Health Treatment Study (Frey et al., 2008), which included systematic medication management, a nurse-care coordinator to integrate participants' physical and mental health therapies, evidence-based supported employment services using the individual placement and support model, and payments for out-of-pocket mental health and other expenses necessary to help participants return to work. This approach enabled SSDI beneficiaries with psychiatric impairments to return to competitive employment at significantly higher rates than control condition participants, and resulted in significant improvements in both mental health status and quality of life compared to controls (Frey et al., 2011).

Another promising set of interventions were those evaluated in SSA's Demonstration to Maintain Independence and Employment (Whalen et al., 2012). In this multi-site effort, states designed and tested programs for low-income workers with or at risk for medical and behavioral health disorders in order to prevent disability and enhance independence by avoiding entry into

SSI and SSDI programs. While different models were tested in different states, common elements included supplementing existing health insurance coverage (e.g., providing dental and vision care, expediting physical and mental health treatment), offering financial assistance with service access (e.g., reduced insurance premiums, subsidized co-pays, lower deductibles), and delivering vocational services to maintain current levels of employment and to enhance career development. These interventions had a positive impact on participants' health and functional status, and models tested in two of the states forestalled the receipt of SSA disability benefits (Bohman et al., 2011; Linkins et al., 2011).

C. CONCLUSION

Co-occurring SMI&CC appears to be a pathway to disability and federal disability program entry among low-income, working age Medicaid beneficiaries. Given the noteworthy and increasing prevalence of co-occurring serious mental illness and chronic health conditions, and their detrimental impacts on employment and healthcare costs, there is a need for more interventions for working age adults with co-occurring mental and physical health conditions. Engaging adults with SMI&CC in disease prevention, illness self-management, and supported employment interventions has the potential to prevent the onset of disability and slow the growth in SSI and SSDI enrollment.

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APPENDIX TABLES

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Table A.1. Bivariate analysis of characteristics of Medicaid non-disabled working age adult enrollees associated with conversion to disabled status 2007-2011. (N=31,600/616,261, 5.1%). Data are from CMS MAX Personal Summary and Chronic Condition files

	Total N=616,261 100%	Medicaid Basis of Eligibility converted to Disabled N=31,600 5.1%	Medicaid Basis of Eligibility did not convert to Disabled N=584,661 94.9%	p-value
Demographics				
Male	20.7%	32.0%	20.1%	<.001
Race group				
White	71.7%	67.5%	71.9%	<.001
Black	21.4%	28.2%	21.1%	
Other	6.9%	4.3%	7.0%	
Hispanic	30.4%	14.6%	31.2%	<.001
Region				
Northeast	22.2%	36.6%	21.4%	<.001
Midwest	17.7%	20.1%	17.6%	
South	22.4%	23.7%	22.3%	
West	37.7%	19.6%	38.7%	
Most populous States				
California	28.2%	8.8%	29.3%	<.001
New York	12.6%	16.3%	12.4%	
Texas	3.3%	2.7%	3.3%	
Illinois	3.7%	1.8%	3.8%	
Florida	3.3%	3.0%	3.3%	
Pennsylvania	2.7%	8.1%	2.4%	
Age, years (mean (SD)	32.0 (9.9)	41.0 (10.8)	31.5 (9.6)	<.001
Medicaid Status				
Maintenance Assistance Status (MAS)				
Section 1931/Cash	30.1%	40.6%	29.5%	<.001
Section 1115 waiver	35.9%	32.6%	36.0%	
Medically Needy	6.7%	8.9%	6.6%	
Poverty Related	9.2%	2.7%	9.5%	
Other[1]	18.1%	15.2%	18.3%	
Dual Medicare Eligible	0.9%	9.3%	0.4%	<.001
SSI and/or SSDI by proxy	0.0%	n/a	n/a	n/a
TANF[2]	8.5%	15.8%	8.2%	<.001
Years of data, mean (SD)	3.9 (1.2)	4.6 (0.8)	3.9 (1.2)	<.001
Medicaid Services				
Received any services	87.0%	92.7%	86.7%	<.001
Any inpatient	12.2%	16.1%	12.0%	<.001
Any outpatient (physician, hospital outpatient, clinic)	63.9%	69.2%	63.6%	<.001
Any Prescription	52.4%	68.6%	51.5%	<.001
Any Psychiatric	9.6%	27.9%	8.6%	<.001
Total Medicaid Payments (FFS and Capitated Premium Payments), mean (SD)	$2,429 (5,205)	$5,583 (11,697)	$2,259 (4,539)	<.001
Chronic Conditions				
Serious Mental Illness (SMI)	16.0%	52.9%	14.0%	<.001
Anxiety	8.1%	26.8%	7.1%	<.001
Major Depression	4.6%	17.1%	3.9%	
Bipolar	1.5%	7.3%	1.2%	
Schizophrenia Spectrum	1.1%	9.1%	0.7%	
Chronic Condition (CC)	20.5%	60.8%	18.3%	<.001

TABLE A.1. (*continued*)

	Total N=616,261 100%	Medicaid Basis of Eligibility converted to Disabled N=31,600 5.1%	Medicaid Basis of Eligibility did not convert to Disabled N=584,661 94.9%	p-value
Musculoskeletal	3.9%	20.2%	3.0%	<.001
Circulatory	11.2%	40.9%	9.6%	
Endocrine-Metabolic	9.3%	31.9%	8.1%	
Respiratory	6.1%	21.1%	5.3%	
SMI without CC	9.0%	18.2%	8.5%	<.001
CC without SMI	13.5%	26.1%	12.8%	<.001
SMI&CC	7.0%	34.7%	5.5%	<.001
Substance use	7.1%	22.3%	6.3%	<.001
Alcohol	1.5%	5.2%	1.3%	<.001
Drug	2.6%	7.6%	2.3%	
Tobacco use	3.2%	7.8%	2.9%	<.001

[1]Other Maintenance Assistance Status (MAS): mixture of mandatory and optional coverage groups including but not limited to hospice and home- & community-based services, institutionalized aged and disabled, and immigrants who qualify for emergency Medicaid benefits.

[2]Availability of these data varies by individual, month, and state. TANF status is available for all 12 months of the year for 64% of enrollees in 2007 (608,291/948,990).

Table A.2. Bivariate analysis of characteristics of Medicaid beneficiaries who converted from non-SSI/SSDI beneficiary status to SSI or SSI + SSDI status (N=28,547/728,240, 3.9%). Data are from CMS MAX Personal Summary and Chronic Condition files

	Total N=728,240 100%	Converted to SSI or SSI&SSDI status N=28,547 3.9%	Did not convert to SSI or SSI&SSDI N=699,693 96.1%	p-value
Demographics				
Male	25.4%	36.2%	24.9%	<.001
Race group				
White	72.3%	66.0%	72.6%	<.001
Black	21.5%	29.7%	21.2%	
Other	6.2%	4.3%	6.2%	
Hispanic	26.8%	12.4%	27.4%	<.001
Region				
Northeast	22.1%	27.5%	21.9%	<.001
Midwest	19.5%	25.2%	19.2%	
South	24.3%	27.0%	24.2%	
West	34.1%	20.2%	34.7%	
Most populous States				
California	24.9%	10.0%	25.5%	<.001
New York	11.4%	14.1%	11.3%	
Texas	3.4%	2.9%	3.5%	
Illinois	4.1%	4.5%	4.1%	
Florida	3.6%	2.9%	3.6%	
Pennsylvania	3.2%	5.7%	3.1%	
Age, years (mean (SD)	34.4 (11.5)	41.7 (11.4)	34.1 (11.5)	<.001
Medicaid Status				
Maintenance Assistance Status (MAS)				
Section 1931/Cash	25.5%	28.5%	25.3%	<.001
Section 1115 waiver	30.6%	19.8%	31.0%	
Medically Needy	7.9%	12.7%	7.7%	
Poverty Related	15.8%	13.6%	15.9%	
Other[1]	20.3%	25.4%	20.1%	
Dual Medicare Eligible	12.5%	17.6%	12.3%	<.001
SSI and/or SSDI by proxy	0.0%	n/a	n/a	
TANF[2]	7.5%	11.5%	7.4%	<.001
Years of data, mean (SD)	4.0 (1.2)	4.7 (0.7)	3.9 (1.2)	<.001
Medicaid Services				
Received any services	86.1%	93.2%	85.8%	<.001
Any inpatient	12.5%	18.1%	12.2%	<.001
Any outpatient (physician, hospital outpatient, clinic)	63.9%	73.4%	63.5%	<.001
Any Prescription	51.1%	68.4%	50.4%	<.001
Any Psychiatric	11.4%	31.3%	10.6%	<.001
Total Medicaid Payments (FFS and Capitated Premium Payments), mean (SD)	$4,276 (17,597)	$10,417 (30,336)	$4,025 (16,827)	<.001
Chronic Conditions				
Serious Mental Illness (SMI)	19.3%	56.7%	17.7%	<.001
Anxiety	9.0%	27.7%	8.2%	<.001
Major Depression	5.9%	18.9%	5.4%	
Bipolar	2.4%	8.8%	2.1%	
Schizophrenia Spectrum	2.9%	14.5%	2.4%	
Chronic Condition (CC)	25.0%	63.6%	23.5%	<.001

TABLE A.2. (*continued*)

	Total N=728,240 100%	Converted to SSI or SSI&SSDI status N=28,547 3.9%	Did not convert to SSI or SSI&SSDI N=699,693 96.1%	p-value
Musculoskeletal	5.5%	21.7%	4.8%	<.001
Circulatory	14.9%	44.4%	13.7%	
Endocrine-Metabolic	12.2%	34.2%	11.3%	
Respiratory	7.4%	24.1%	6.7%	
SMI without CC	9.6%	18.0%	9.3%	<.001
CC without SMI	15.4%	24.9%	15.0%	<.001
SMI&CC	9.6%	38.7%	8.4%	<.001
Substance use	7.7%	24.3%	7.0%	<.001
Alcohol	1.8%	6.5%	1.6%	<.001
Drug	2.8%	9.0%	2.5%	
Tobacco use	3.5%	8.6%	3.3%	<.001

[1]Other Maintenance Assistance Status (MAS): mixture of mandatory and optional coverage groups including but not limited to hospice and home- & community-based services, institutionalized aged and disabled, and immigrants who qualify for emergency Medicaid benefits.

[2]Availability of these data varies by individual, month, and state. TANF status is available for all 12 months of the year for 64% of enrollees in 2007 (608,291/948,990).

Table A.3. Characteristics of Medicaid working age disabled adult beneficiaries who converted from disabled to non-disabled status (N=9,263/332,729, 2.8%). Data are from CMS MAX Personal Summary and Chronic Condition files

	Total with BOE of disability in 2007 N=332,729 100%	Later had a BOE of adult, not disabled (N=9,263/332,729) 2.8%	Remained BOE of disabled (N=323,466/332,729) 97.2%	p-value
Demographics				
Male	47.0%	40.7%	47.2%	<.001
Race group				
White	71.5%	68.4%	71.6%	<.001
Black	25.4%	27.9%	25.3%	
Other	3.1%	3.6%	3.1%	
Hispanic	8.9%	11.6%	8.9%	<.001
Region				
Northeast	20.3%	33.5%	19.9%	<.001
Midwest	21.2%	20.6%	21.2%	
South	38.9%	23.9%	39.3%	
West	19.6%	22.0%	19.5%	
Most populous States				
California	11.5%	9.0%	11.5%	<.001
New York	7.2%	9.8%	7.1%	<.001
Texas	6.0%	1.8%	6.1%	<.001
Illinois	3.8%	3.8%	3.8%	.845
Florida	5.0%	3.2%	5.0%	<.001
Pennsylvania	5.4%	7.3%	5.3%	<.001
Age, years (mean (SD)	44.8 (12.5)	36.1 (13.4)	45.1 (12.4)	<.001
Medicaid Status	**0.4%**	**1.5%**	**0.4%**	**<.001**
Maintenance Assistance Status (MAS)				
Section 1931/Cash	66.3%	50.7%	66.8%	<.001
Section 1115 waiver	0.5%	1.8%	0.5%	
Medically Needy	4.8%	10.5%	4.6%	
Poverty Related	17.6%	23.7%	17.4%	
Other[1]	10.8%	13.2%	10.7%	
Dual Medicare Eligible	46.9%	32.6%	47.3%	<.001
SSI and/or SSDI by proxy TANF[2]	66.3%	50.7%	66.8%	<.001
Years of data, mean (SD)	4.5 (1.0)	4.4 (0.9)	4.5 (1.0)	<.001
Medicaid Services				
Received any services	91.4%	91.1%	91.4%	.411
Any inpatient	14.5%	14.3%	14.5%	.708
Any outpatient (physician, hospital outpatient, clinic)	70.8%	68.5%	70.9%	<.001
Any Prescription	59.9%	57.8%	59.9%	<.001
Any Psychiatric	27.5%	25.4%	27.6%	<.001
Total Medicaid Payments (FFS and Capitated Premium Payments), mean (SD)	$13,626 (34,923)	$8,264 (20,548)	$13,780 (35,237)	<.001
Chronic Conditions				
Serious Mental Illness (SMI)	42.6%	40.5%	42.7%	<.001
Anxiety	17.4%	17.3%	17.4%	.708
Major Depression	15.4%	15.1%	15.4%	.579
Bipolar	8.1%	9.5%	8.1%	<.001
Schizophrenia Spectrum	15.1%	8.9%	15.3%	<.001
Chronic Condition (CC)	55.1%	40.6%	55.5%	<.001

TABLE A.3. (*continued*)

	Total with BOE of disability in 2007 N=332,729 100%	Later had a BOE of adult, not disabled (N=9,263/332,729) 2.8%	Remained BOE of disabled (N=323,466/332,729) 97.2%	p-value
Musculoskeletal	16.7%	9.7%	16.9%	<.001
Circulatory	39.3%	24.5%	39.7%	
Endocrine-Metabolic	31.8%	19.4%	32.1%	
Respiratory	18.8%	14.4%	19.0%	
SMI without CC	14.0%	20.0%	13.8%	<.001
CC without SMI	26.4%	20.0%	26.6%	<.001
SMI&CC	28.6%	20.6%	28.9%	<.001
Substance use	13.9%	16.8%	13.8%	<.001
Alcohol	4.3%	4.7%	4.3%	.043
Drug	5.1%	6.9%	5.1%	<.001
Tobacco use	6.1%	6.0%	6.1%	.583

[1]Other Maintenance Assistance Status (MAS): mixture of mandatory and optional coverage groups including but not limited to hospice and home- & community-based services, institutionalized aged and disabled, and immigrants who qualify for emergency Medicaid benefits.

[2]Availability of these data varies by individual, month, and state. TANF status is available for all 12 months of the year for 64% of enrollees in 2007 (608,291/948,990).

Table A.4. Characteristics of Medicaid working age adult beneficiaries who converted from SSI/DI to non-SSI/DI status (N=32,257/220,750, 14.6%). Data are from CMS MAX Personal Summary and Chronic Condition files

	Total with SSI/DI status in 2007 N=220,750 100%	Later had a non-SSI/DI status N=32,257/220,750 14.6%	Remained in SSI/DI status all years N=188,493/220,750 85.4%	p-value
Demographics				
Male	45.0%	48.2%	44.4%	<.001
Race group				
White	69.3%	70.9%	69.0%	<.001
Black	27.2%	26.5%	27.3%	
Other	3.5%	2.6%	3.&%	
Hispanic	9.7%	8.1%	9.9%	<.001
Region				<.001
Northeast	19.5%	17.4%	19.8%	
Midwest	17.1%	24.7%	15.8%	
South	41.1%	34.3%	42.3%	
West	22.3%	23.6%	22.1%	
Most populous States				
California	13.9%	13.5%	13.9%	<.05
New York	8.2%	6.6%	8.5%	<.001
Texas	6.7%	3.6%	7.3%	<.001
Illinois	2.5%	8.8%	1.4%	<.001
Florida	4.9%	3.8%	5.1%	<.001
Pennsylvania	4.9%	3.9%	5.1%	<.001
Age, years (mean (SD)	43.4 (13.0)	41.8 (13.3)	43.6 (12.9)	
Medicaid Status				
Maintenance Assistance Status (MAS)				
Section 1931/Cash Section 1115 waiver Medically Needy Poverty Related Other[1]	100%	100%	100%	n/a
Dual Medicare Eligible	31.9%	47.2%	29.3%	<.001
SSI and/or SSDI by proxy	100%	n/a	n/a	n/a
TANF[2]	0.4%	0.5%	0.4%	<.01
Years of data, mean (SD)	4.6 (0.9)	4.5 (0.9)	4.6 (0.9)	
Medicaid Services				
Received any services	96.6%	95.4&	96.8%	<.001
Any inpatient	14.7%	14.7%	14.6%	.713
Any outpatient (physician, hospital outpatient, clinic)	74.5%	71.1%	75.1%	<.001
Any Prescription	68.2%	59.8%	69.6%	<.001
Any Psychiatric	30.6%	28.7%	30.9%	<.001
Total Medicaid Payments (FFS and Capitated Premium Payments), mean (SD)	$13,215 (30,884)	$12,086 (32,564)	$13,408 (30,583)	<.001
Chronic Conditions				
Serious Mental Illness (SMI)	45.3%	44.2%	45.5%	<.001
Anxiety	19.2%	17.6%	19.5%	<.001
Major Depression	16.3%	15.8%	16.4%	.010
Bipolar	8.6%	9.5%	8.4%	<.001
Schizophrenia Spectrum	16.3%	15.7%	16.4%	.001
Chronic Condition (CC)	57.6%	49.9%	58.9%	<.001

TABLE A.4. (*continued*)

	Total with SSI/DI status in 2007 N=220,750 100%	Later had a non-SSI/DI status N=32,257/220,750 14.6%	Remained in SSI/DI status all years N=188,493/220,750 85.4%	p-value
Musculoskeletal	17.9%	14.1%	18.5%	<.001
Circulatory	41.3%	34.3%	42.5%	
Endocrine-Metabolic	33.7%	27.4%	34.8%	
Respiratory	1.0%	17.5%	21.6%	
SMI without CC	14.4%	17.3%	13.9%	<.001
CC without SMI	26.7%	23.0%	27.4%	<.001
SMI&CC	30.9%	26.9%	31.5%	<.001
Substance use				
Alcohol	4.6%	4.6%	4.6%	.518
Drug	5.8%	5.8%	5.8%	.858
Tobacco use	6.6%	6.4%	6.7%	.022

[1]Other Maintenance Assistance Status (MAS): mixture of mandatory and optional coverage groups including but not limited to hospice and home- & community-based services, institutionalized aged and disabled, and immigrants who qualify for emergency Medicaid benefits.

[2]Availability of these data varies by individual, month, and state. TANF status is available for all 12 months of the year for 64% of enrollees in 2007 (608,291/948,990).

Table A.5. Characteristics of working age adult Medicaid beneficiaries associated with having dual Medicaid & Medicare benefits (2007). Data are from CMS MAX Personal Summary and Chronic Condition files

	Total N=948,990 100%	Dual Medicaid & Medicare N=161,265 17.0%	Medicaid only N=787,725 83.0%	p-value
Demographics				
Male	29.9%	48.7%	26.1%	<.001
Race group				
White	71.6%	75.2%	70.9%	<.001
Black	22.8%	22.6%	22.9%	
Other	5.5%	2.2%	6.2%	
Hispanic	22.8%	7.6%	26.0%	<.001
Region				
Northeast	21.5%	20.1%	21.8%	<.001
Midwest	18.9%	22.4%	18.2%	
South	28.2%	39.4%	25.9%	
West	31.4%	18.0%	34.1%	
Most populous States				
California	22.3%	9.7%	24.9%	<.001
New York	10.7%	6.4%	11.6%	<.001
Texas	4.2%	5.7%	3.9%	<.001
Illinois	3.7%	3.8%	3.7%	.073
Florida	3.9%	5.1%	3.7%	<.001
Pennsylvania	3.6%	4.7%	3.4%	<.001
Age, years (mean (SD)	36.5 (12.5)	46.9 (10.7)	34.4 (11.7)	<.001
Medicaid Status				
Maintenance Assistance Status (MAS)				
Section 1931/Cash	42.8%	45.0%	42.3%	<.001
Section 1115 waiver	23.5%	1.3%	28.9%	
Medically Needy	6.0%	6.0%	6.0%	
Poverty Related	12.1%	32.3%	8.0%	
Other[1]	15.6%	15.4%	15.6%	
SSI and/or SSDI by proxy	23.3%	43.6%	19.1%	<.001
TANF[2]	6.2%	0.5%	7.1%	<.001
Years of data, mean (SD)	4.1 (1.2)	4.5 (1.0)	4.0 (1.2)	<.001
Medicaid Services				
Received any services	88.5%	85.4%	89.2%	<.001
Any inpatient	13.0%	11.5%	13.3%	<.001
Any outpatient (physician, hospital outpatient, clinic)	66.3%	64.7%	66.7%	<.001
Any Prescription	55.0%	41.4%	57.8%	<.001
Any Psychiatric	15.9%	22.1%	14.6%	<.001
Total Medicaid Payments (FFS and Capitated Premium Payments), mean (SD)	$6,355 (21,766)	$10,744 (34,237)	$5,457 (18,056)	<.001
Chronic Conditions				
Serious Mental Illness (SMI)	25.3%	39.3%	22.4%	<.001
Anxiety	11.4%	14.3%	10.8%	<.001
Major Depression	8.4%	13.6%	7.3%	<.001
Bipolar	3.8%	7.8%	3.0%	<.001
Schizophrenia Spectrum	6.0%	14.7%	4.2%	<.001
Chronic Condition (CC)	32.6%	47.9%	29.5%	<.001

TABLE A.5. (*continued*)

	Total N=948,990 100%	Dual Medicaid & Medicare N=161,265 17.0%	Medicaid only N=787,725 83.0%	p-value
Musculoskeletal	8.4%	13.6%	7.3%	<.001
Circulatory	21.1%	32.3%	18.8%	<.001
Endocrine-Metabolic	17.2%	25.9%	15.4%	<.001
Respiratory	10.5%	13.3%	10.0%	<.001
SMI without CC	10.7%	15.5%	9.8%	<.001
CC without SMI	18.0%	24.1%	16.8%	<.001
SMI&CC	14.6%	23.8%	12.7%	<.001
Substance use	9.5%	9.6%	9.5%	.049
Alcohol	2.5%	2.9%	2.4%	<.001
Drug	3.5%	3.5%	3.5%	.941
Tobacco use	4.2%	4.4%	4.2%	<.001

[1]Other Maintenance Assistance Status (MAS): mixture of mandatory and optional coverage groups including but not limited to hospice and home- & community-based services, institutionalized aged and disabled, and immigrants who qualify for emergency Medicaid benefits.

[2]Availability of these data varies by individual, month, and state. TANF status is available for all 12 months of the year for 64% of enrollees in 2007 (608,291/948

Table A.6. Multivariable logistic regression model: Working age adult Medicaid beneficiaries who converted from non-disabled to disabled basis of eligibility (N=31,600/616,261, 5.1%). Data are from CMS MAX Personal Summary and Chronic Condition files

	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Time (years 2-5)	1.89 (1.87, 1.92)***	1.45 (1.44, 1.48)***	1.60 (1.58, 1.62)***	1.59 (1.57, 1.62)***	1.65 (1.57, 1.62)***
SMI & CC		17.20 (16.64, 17.79)***	9.74 (9.40, 10.09)***	9.60 (9.27, 9.95)***	7.84 (7.54, 8.16)***
SMI alone		6.23 (6.00, 6.46)***	6.05 (5.82, 6.29)***	5.97 (5.74, 6.20)***	5.07 (4.86, 5.29)***
CC alone		5.89 (5.68, 6.08)***	2.59 (2.50, 2.69)***	2.56 (2.47, 2.66)***	2.25 (2.16, 2.34)***
Age, years			1.08 (1.08, 1.08)***	1.08 (1.08, 1.08)***	1.08 (1.08, 1.08)***
Male			1.47 (1.43, 1.52)***	1.52 (1.47, 1.56)***	1.49 (1.44, 1.53)***
Race					
White (reference)			Reference	Reference	Reference
Black			1.51 (1.47, 1.55)***	1.50 (1.46, 1.54)***	1.42 (1.38, 1.46)***
Other			0.50 (0.48, 0.52)***	0.51 (0.49, 0.53)***	0.53 (0.50, 0.55)***
Hispanic/Latino			0.53 (0.51, 0.55)***	0.53 (0.51, 0.55)***	0.58 (0.56, 0.60)***
Region					
West (reference)			Reference	Reference	Reference
Northeast			1.12 (1.10, 1.14)***	1.20 (1.18, 1.23)***	1.31 (1.28, 1.34)***
Midwest			0.91 (0.89, 0.94)***	0.89 (0.87, 0.91)***	0.78 (0.76, 0.80)***
South			1.23 (1.20, 1.26)***	1.19 (1.16, 1.22)***	1.13 (1.10, 1.16)***
MAS Section 1115 Waiver				0.77 (0.75, 0.80)***	0.60 (0.58, 0.62)***
Any Inpatient					1.17 (1.12, 1.21)***
Any Outpatient or Prescription					0.76 (0.73, 0.79)***
Total Payments[1]					1.48 (1.44, 1.52)***

[1]Dollars transformed by log10 for analysis due to the extremely skew distribution.

Table A.7. Multivariable logistic regression model: Working age women on Medicaid receiving TANF benefits who converted from non-disabled to disabled basis of eligibility N=3,214/38,519 (8.3%). Data are from CMS MAX Personal Summary and Chronic Condition files

	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Time (years 2-5)	1.85 (1.75, 1.95)***	1.63 (1.54, 1.72)***	1.81 (1.71, 1.92)***	1.81 (1.71, 1.92)***	1.75 (1.65, 1.86)***
SMI & CC		8.06 (7.31, 8.88)***	5.46 (4.91, 6.08)***	5.46 (4.91, 6.08)***	5.76 (5.12, 6.49)***
SMI alone		3.43 (3.10, 3.79)***	3.62 (3.25, 4.03)***	3.59 (3.22, 4.00)***	3.85 (3.43, 4.32)***
CC alone		2.63 (2.34, 2.95)***	1.74 (1.54, 1.96)***	1.73 (1.53, 1.96)***	1.97 (1.73, 2.25)***
Age, years			1.08 (1.08, 1.09)***	1.08 (1.08, 1.09)***	1.08 (1.08, 1.09)***
Male				n/a	n/a
Race					
White (reference)			Reference	Reference	Reference
Black			0.95 (0.87, 1.04)	0.96 (0.87, 1.05)	0.96 (0.88, 1.06)
Other			0.86 (0.73, 0.99)*	0.86 (0.73, 0.99)*	0.83 (0.71, 0.97)*
Hispanic/Latino			068 (0.61, 0.75)***	0.68 (0.61, 0.75)***	0.71 (0.64, 0.78)***
Region					
West (reference)			Reference	Reference	Reference
Northeast			1.84 (1.73, 1.96)***	1.80 (1.68, 1.91)***	1.63 (1.53, 1.74)***
Midwest			0.77 (0.70, 0.84)***	0.77 (0.70, 0.85)***	0.76 (0.69, 0.83)***
South			1.15 (1.05, 1.26)**	1.17 (1.06, 1.28)***	1.16 (1.06, 1.28)**
MAS Section 1115 Waiver				1.64 (1.36, 1.98)***	1.65 (1.36, 2.00)***
Any Inpatient					0.86 (0.76, 0.97)*
Any Outpatient or Prescription					0.61 (0.55,0.67)***
Total Payments[1]					1.75 (1.58, 1.93)***

[1]Dollars transformed by log10 for analysis due to the extremely skew distribution.

Table A.8. Multivariable logistic regression model: Working age adult Medicaid beneficiaries who converted from non-SSI/SSDI beneficiary status to SSI or SSI + SSDI status (N=28,547/728,240, 3.9%). Data are from CMS MAX Personal Summary and Chronic Condition files.

	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Time (years 2-5)	2.06 (2.03, 2.09)***	1.62 (1.60, 1.65)***	1.68 (1.65, 1.71)***	1.67 (1.65, 1.70)***	1.69 (1.66, 1.72)***
SMI & CC		12.57 (12.14, 13.01)***	8.78 (8.46, 9.11)***	8.69 (8.38, 9.02)***	6.99 (6.71, 7.28)***
SMI alone		5.66 (5.44, 5.89)***	5.39 (5.17, 5.61)***	5.32 (5.11, 5.54)***	4.52 (4.33, 4.72)***
CC alone		4.92 (4.74, 5.10)***	3.24 (3.12, 3.37)***	3.22 (3.10, 3.35)***	2.79 (2.67, 2.91)***
Age, years			1.03 (1.03, 1.03)***	1.03 (1.03, 1.03)***	1.03 (1.03, 1.03)***
Male			1.34 (1.30, 1.37)***	1.34 (1.31, 1.38)***	1.32 (1.29, 1.36)***
Race					
White (reference)			Reference	Reference	Reference
Black			1.43 (1.39, 1.47)***	1.42 (1.39, 1.46)***	1.38 (1.34, 1.42)***
Other			0.73 (0.70, 0.76)***	0.73 (0.70, 0.77)***	0.75 (0.72, 0.78)***
Hispanic/Latino			0.70 (0.67, 0.73)***	0.70 (0.68, 0.73)***	0.77 (0.74, 0.80)***
Region					
West (reference)			Reference	Reference	Reference
Northeast			1.01 (0.99, 1.03)ns	1.04 (1.01, 1.06)**	1.01 (0.99, 1.04)ns
Midwest			0.96 (0.94, 0.98)***	0.95 (0.93, 0.97)***	0.86 (0.84, 0.88)***
South			1.03 (1.01, 1.06)**	1.02 (1.00, 1.04)ns	1.04 (1.01, 1.06)**
MAS Section 1115 Waiver				0.89 (0.86, 0.92)***	0.79 (0.76, 0.82)***
Any Inpatient					1.01 (0.98, 1.05)ns
Any Outpatient or Prescription					0.78 (0.75, 0.81)***
Total Payments[1]					1.43 (1.40, 1.46)***

[1]Dollars transformed by log10 for analysis due to the extremely skew distribution.

Table A.9. Multivariable logistic regression model: Working age women on Medicaid receiving TANF benefits who converted from non-SSI/SSDI beneficiary status to SSI or SSI + SSDI status (N=2,103/39,722, 5.3%). Data are from CMS MAX Personal Summary and Chronic Condition files

	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Time (years 2-5)	2.03 (1.88, 2.18)***	1.72 (1.60, 1.86)***	1.93 (1.79, 2.09)***	1.93 (1.79, 2.09)***	1.88 (1.74, 2.03)***
SMI & CC		11.45 (10.11, 12.97)***	7.24 (6.34, 8.27)***	7.25 (6.35, 8.28)***	7.04 (6.07, 8.15)***
SMI alone		4.80 (4.20, 5.48)***	4.96 (4.33, 5.69)***	4.98 (4.34, 5.71)***	5.04 (4.36, 5.83)***
CC alone		3.64 (3.14, 4.22)***	2.21 (1.89, 2.58)***	2.21 (1.89, 2.58)***	2.38 (2.02, 2.80)***
Age, years			1.08 (1.08, 1.09)***	1.08 (1.08, 1.09)***	1.08 (1.08, 1.09)***
Male			N/A	N/A	N/A
Race					
White (reference)			Reference	Reference	Reference
Black			1.10 (0.99, 1.23)ns	1.10 (0.99, 1.23)ns	1.13 (1.01, 1.26)*
Other			0.84 (0.70, 1.00)	0.84 (0.70, 1.00)ns	0.79 (0.66, 0.95)*
Hispanic/Latino			0.77 (0.68, 0.87)***	0.77 (0.68, 0.87)***	0.82 (0.72, 0.92)**
Region					
West (reference)			Reference	Reference	Reference
Northeast			1.38 (1.27, 1.49)***	1.39 (1.28, 1.50)***	1.28 (1.18, 1.39)***
Midwest			0.62 (0.55, 0.71)***	0.62 (0.55, 0.71)***	0.61 (0.54, 0.69)***
South			1.37 (1.23, 1.52)***	1.37 (1.23, 1.52)***	1.34 (1.20, 1.50)***
MAS Section 1115 Waiver				0.88 (0.66, 1.16)ns	0.87 (0.66, 1.15)ns
Any Inpatient					0.89 (0.78, 1.03)ns
Any Outpatient or Prescription					0.67 (0.59, 0.77)***
Total Payments[1]					1.88 (1.66, 2.12)***

[1]Dollars transformed by log10 for analysis due to the extremely skew distribution.

Table A.10. Multivariable logistic regression model: Working age adult Medicaid beneficiaries who converted from disabled to non-disabled status (N=9,263/332,729, 2.8%). Data are from CMS MAX Personal Summary and Chronic Condition files.

	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Time (years 2-5)	0.92 (0.90, 0.93)***	0.92 (0.91, 0.94)***	0.79 (0.77, 0.81)***	0.79 (0.78, 0.81)***	0.79 (0.78, 0.81)***
SMI & CC		0.57 (0.54, 0.60)***	0.86 (0.81, 0.91)***	0.86 (0.81, 0.91)***	0.92 (0.86, 0.99)*
SMI alone		1.15 (1.08, 1.21)***	1.05 (0.99, 1.11)ns	1.04 (0.98, 1.10)ns	1.06 (1.00, 1.13)ns
CC alone		0.59 (0.55, 0.62)***	1.02 (0.96, 1.09)ns	1.02 (0.96, 1.09)ns	1.06 (1.00, 1.13)ns
Age, years			0.95 (0.94, 0.95)***	0.95 (0.94, 0.95)***	0.94 (0.94, 0.94)***
Male			0.62 (0.60, 0.65)***	0.62 (0.60, 0.65)***	0.61 (0.58, 0.64)***
Race					
White (reference)			Reference	Reference	Reference
Black			1.09 (1.04, 1.14)***	1.10 (1.05, 1.16)***	1.08 (1.03, 1.13)**
Other			1.08 (1.00, 1.16)ns	1.07 (0.99, 1.15)ns	1.10 (1.02, 1.19)*
Hispanic/Latino			1.26 (1.17, 1.35)***	1.27 (1.19, 1.36)***	1.28 (1.19, 1.37)***
Region					
West (reference)			Reference	Reference	Reference
Northeast			1.65 (1.60, 1.71)***	1.62 (1.57, 1.68)***	1.75 (1.69, 1.82)***
Midwest			0.96 (0.92, 0.99)*	0.97 (0.93, 1.01)ns	0.97 (0.93, 1.01)ns
South			0.57 (0.55, 0.59)***	0.56 (0.54, 0.59)***	0.55 (0.53, 0.57)***
MAS Section 1115 Waiver				4.50 (3.81, 5.32)***	4.25 (3.57, 5.07)***
Any Inpatient					1.36 (1.27, 1.45)***
Any Outpatient or Prescription					1.12 (1.06, 1.19)***
Total Payments[1]					0.75 (0.73, 0.77)***

[1]Dollars transformed by log10 for analysis due to the extremely skew distribution.

Table A.11. Multivariable logistic regression model: Working age adult Medicaid beneficiaries who converted from SSI/DI to non-SSI/DI status (N=32,257/220,750, 14.6%). Data are from CMS MAX Personal Summary and Chronic Condition files.

	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Time (years 2-5)	0.96 (0.94, 0.97)***	0.96 (0.95, 0.97)***	0.93 (0.92, 0.94)***		0.95 (0.93, 0.96)***
SMI & CC		0.71 (0.69, 0.74)***	0.74 (0.71, 0.76)***		0.83 (0.80, 0.86)***
SMI alone		1.04 (1.00, 1.08)*	0.99 (0.95, 1.02)		1.06 (1.02, 1.10)**
CC alone		0.70 (0.68, 0.72)***	0.74 (0.72, 0.77)***		0.80 (0.77, 0.83)***
Age, years			0.99 (0.99, 0.99)***		0.99 (0.99, 0.99)***
Male			1.10 (107, 1.12)***		1.08 (1.06, 1.11)***
Race					
White (reference)			Reference		Reference
Black			1.13 (1.09, 1.16)***		1.12 (1.08, 1.15)***
Other			0.76 (0.72, 0.80)***		0.77 (0.73, 0.81)***
Hispanic/Latino			0.83 (0.79, 0.87)***		0.84 (0.80, 0.88)***
Region					
West (reference)			Reference		Reference
Northeast			0.83 (0.81, 0.85)***		0.87 (0.85, 0.89)***
Midwest			1.49 (1.46, 1.53)***		1.53 (1.49, 1.56)***
South			0.77 (0.75, 0.78)***		0.72 (0.71, 0.73)***
MAS Section 1115 Waiver	n/a – there were no beneficiaries meeting SSI/DI criteria in 2007 that were covered by the Section 1115 Waiver MAS				
Any Inpatient					1.38 (1.33, 1.43)***
Any Outpatient or Prescription					0.98 (0.95, 1.02)
Total Payments[1]					0.75 (0.74, 0.76)***

[1]Dollars transformed by log10 for analysis due to the extremely skew distribution.

Table A.12. Multivariable logistic regression model: Characteristics of Medicaid beneficiaries associated with dual Medicaid & Medicare status in 2007 (N=161,265/948,990, 17.0%). Data are from CMS MAX Personal Summary and Chronic Condition files

	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
SMI & CC	3.12 (3.07, 3.16)***	1.07 (1.05, 1.09)***	0.91 (0.89, 0.92)***	1.43 (1.40, 1.46)***
SMI alone	2.64 (2.60, 2.69)***	2.21 (2.17, 2.25)***	1.91 (1.87, 1.95)***	2.45 (2.40, 2.50)***
CC alone	2.37 (2.34, 2.41)***	0.77 (0.76, 0.79)***	0.72 (0.70, 0.73)***	0.97 (0.95, 0.99)**
Age, years		1.09 (1.09, 1.09)***	1.09 (1.09, 1.09)***	1.08 (1.08, 1.08)***
Male		2.10 (2.07, 2.13)***	2.15 (2.12, 2.18)***	2.19 (2.16, 2.22)***
Race				
White (reference)		Reference	Reference	Reference
Black		1.22 (1.20, 1.24)***	1.13 (1.11, 1.14)***	1.14 (1.12, 1.16)***
Other		0.47 (0.46, 0.48)***	0.55 (0.54, 0.57)***	0.55 (0.54, 0.57)***
Hispanic/Latino		0.32 (0.31, 0.33)***	0.34 (0.34, 0.35)***	0.37 (0.36, 0.38)***
Region				
West (reference)		Reference	Reference	Reference
Northeast		0.77 (0.76, 0.78)***	1.03 (1.02, 1.04)***	1.17 (1.15, 1.18)***
Midwest		1.12 (1.11, 1.13)***	1.01 (0.99, 1.02)ns	1.02 (1.01, 1.04)***
South		1.53 (1.51, 1.55)***	1.31 (1.30, 1.32)***	1.10 (1.09, 1.11)***
MAS Section 1115 Waiver			0.05 (0.05, 0.05)***	0.05 (0.05, 0.05)***
Any Inpatient				1.01 (0.99, 1.03)ns
Any Outpatient or Prescription				1.34 (1.32, 1.37)***
Total Payments[1]				0.62 (0.61, 0.63)***

[1]Dollars transformed by log10 for analysis due to the extremely skew distribution.

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