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New Maryland Medicare-Medicaid Enrollees with Mental Health Conditions: Prior Medicare and Medicaid Resource Use

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New Maryland Medicare-Medicaid Enrollees with Mental Health Conditions: Prior Medicare and Medicaid Resource Use

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Abstract

The incidence of mental health disorders co-occurring with chronic somatic health conditions is gaining attention. This combination can pose significant burdens to health care system resources to provide for complex care needs. In this analysis, the prevalence of co-occurring mental health disorders amongst Maryland's new dual eligible enrollees during 2008 and their subsequent Medicare and Medicaid resource use is explored using the Centers for Medicare and Medicaid Services Chronic Condition Data Warehouse. Mental health conditions were identified in over a third of all new duals in the study population. The most prevalent mental health condition was depression, which affected 24.4 percent of the total study population and 65.0 percent of the subset with a mental health diagnosis. Among those with a mental health condition, 27.6 percent had more than one co-occurrence with another mental health condition. The average Medicaid-first new enrollee with at least one mental health condition cost 15 percent more than the average enrollee without a mental health condition, while Medicare-first enrollees with at least one mental health condition cost 75 percent more than the average enrollee without a mental health condition. These findings establish the scope of the prevalence of mental health conditions among new dual eligible enrollees in Maryland and highlight the need for greater attention and research into this population.

Introduction

Of increasing concern to policymakers and health care insurers are the chronic physical and mental conditions of rising prevalence that create substantial needs for medical care to manage an individual's disease processes (Kasper, O'Malley Watts, & Lyons, 2010). The Centers for Medicare and Medicaid Services (CMS) has a particular vested interest in providing Medicare and Medicaid beneficiaries with access to high-quality, coordinated care in order to maintain health and functioning, while at the same time controlling medical expenditures (CMS, 2012). In order to meet this challenge, understanding chronic conditions and comorbidities, particularly among the dual eligible enrollee population, is extremely important. In addition to the medical care that is required, these conditions often interfere with a person's ability to undertake routine daily activities such as dressing, bathing, preparing meals, and taking medications, which results in a need for supportive services that further add to health care costs (Kasper et al., 2010). Mental illnesses are both a cause for becoming dually eligible, and a factor contributing to the complexity of managing the care for individuals with multiple chronic conditions and associated functional impairments (Frank, 2013). This study seeks to broaden the knowledge base for Quality Improvement Organizations (QIOs) by exploring and describing the prevalence of mental health conditions, in particular along with co-occurring chronic conditions, in new dual eligible enrollees in Maryland. These findings are presented across different demographic groupings in order to provide a preliminary assessment of disparities related to mental health conditions.

Literature Review

The burden of chronic health conditions has been well documented in the United States and elsewhere. Studies in the epidemiological and policy sciences strive to elucidate the scope and severity of the impact that chronic conditions have on causing disability and increasing health care utilization and expenditures. In the United States, approximately half (53 percent) of the adult population has at least one chronic condition related to physical or mental health (Bayliss et al., 2012). The co-occurrence of mental disorders with chronic physical conditions is of special importance because strong mental–physical comorbidities have been found to be related to excess impairment associated with these comorbidities (Kessler, Ormel, Demler, & Stang, 2003). Those with multiple chronic conditions are a large and growing segment of the United States population. Despite that trend, little is known about how chronic conditions cluster, and about the ramifications of having specific combinations of chronic conditions (Vogeli et al., 2007). Measures of disability, chronic physical illness, psychosocial functioning, and health care utilization reveal that anything less than excellent health is associated with increased limitations and decreased independence, both of which place burdens on the individual and society (Keyes, 2007). Epidemiological studies are increasingly showing that comorbidity is a pervasive feature of common chronic mental and physical disorders (Gaderman, Alonso, Vilagut, Zaslavasky, & Kessler, 2012.)

While many chronic conditions can be controlled through treatment and long-term management, often they are the catalyst for seeking and utilizing health care services, and the leading contributors to disability and mortality (Bayliss et al., 2012). Research supports the amplification of chronic disease symptoms in patients with chronic medical illness who have comorbid mental health disorders (Ellis, Grubaugh, & Egede, 2013; Bayliss et al., 2012; Gaderman, et al., 2012; Egede, 2007; Katon, Lin, & Kroenke, 2007; Moussavi et al., 2007; Vogeli et al., 2007; Jones et al., 2004; Kessler et al., 2003). When considering the impact of mental health conditions on public programs, it has been pointed out that people with psychiatric conditions constitute the most rapidly growing subgroup of Social Security disability beneficiaries (Drake, Skinner, Bond, & Goldman, 2009). When summed, the group of conditions categorized as mental disorders make up the largest percentage of all disabled beneficiaries in the Social Security Disability Insurance (SSDI) program in 2012 (Social Security Administration, 2013).

A key component of the interest in studying individuals with multiple chronic conditions is the concept of disability. Defining disability can be complex, with multilayered personal, institutional, and societal ramifications. Nevertheless, a general understanding now defines disability as requiring assistance with daily activities because of health, sensory, cognitive, and emotional conditions interacting with the social and physical environments (Iezzoni, 2002). In accordance with a more structured definition for public benefits, the Social Security Administration (SSA) defines disability as an inability to engage in any substantial gainful activity due to medically determinable physical or mental impairment, which can result in death or be expected to last for a continuous period of at least twelve months (SSA, 2013). With the

focus of this analysis on mental disorders, it is noted that there is an increasing national trend for SSDI benefits due to mental disorders, with an increase of 52 percent between 2002 and 2012 (SSA, 2013). Among the mental disorders categorized by SSA, mood disorders are the most prevalent, followed by intellectual disability and schizophrenic and other psychotic disorders.

Research has supported age differences in the appearance of chronic conditions of both physical and mental disorders based on typical age of onset (Kessler et al., 2005; Jones et al., 2004). For example, the median age of onset for anxiety disorders and impulse-control disorders was much earlier, age 11 years, than for substance use disorders, age 20 years, and mood disorders, age 30 years (Kessler et al., 2005). The Jones et al. study (2004) had only one participant younger than 33 years with serious pulmonary disease, and no one older than 45 years with an infectious disease. Additionally, cardiovascular disorders showed a clear increase across age groups for both hypertension and heart problems (Jones et al., 2004).

A population of particular interest is those who are eligible for both Medicare and Medicaid: dual eligible enrollees (also called dual eligibles, or duals). It has been shown that comorbidity among dual eligible enrollees is common and more likely for older duals (Kasper et al., 2010). When the comorbidities include physical and mental health conditions, the degree of care complexity, coordination, and access to needed services rises drastically and increases costs (Kasper, et al., 2010; Lum, Parashuram, Shippee, Wysocki, Shippee, Homyak, & Kane, 2013). Among the most prevalent chronic and disabling conditions for dual eligibles are mental disorders (Frank, 2013). Multiple chronic conditions increase the probability of adverse health outcomes such as functional limitations and mortality, as well as the risk of high-cost services such as hospitalizations, emergency room visits, and institutional care in nursing facilities (CMS, 2012). This study adds to what is known about dual eligible enrollees with mental health conditions, their comorbidities, and the associated health care expenditures.

Research Questions

The study takes advantage of Medicare and Medicaid claims data and applies the Chronic Conditions Data Warehouse (CCW) condition categories' algorithms to answer the following questions about Marylanders:

1. Who are the new dual eligible enrollees? Statistics describe the study population by demographic variables including gender, race, urbanicity, age, and whether an individual gained eligibility for Medicare or Medicaid first.

2. What is the prevalence of mental health conditions for new dual eligible enrollees? How prevalent are comorbidities within mental health conditions? Are there differences based on previously applied covariates?

3. What are the average costs of care for new dual eligible enrollees with mental health conditions? How do costs vary by condition and type of insurance coverage?

4. What are the most prevalent physical health conditions for the population with mental health conditions? What are the most commonly occurring combinations of physical and mental health conditions?

Methodology

This study explores health care claims and diagnoses data for new Medicare-Medicaid enrollees in the three years before dual eligibility. For new Medicaid-to-Medicare enrollees, the report analyzes both Medicaid fee-for-service (FFS) claims and managed care encounters data; for new Medicare-to-Medicaid enrollees, it analyzes Medicare FFS claims data. Persons with simultaneous Medicare/Medicaid eligibility are not included in this study because no pre-enrollment data are available for them.

The definition of an enrollee used in the research includes (1) persons who receive Medicare and full Medicaid benefits and (2) persons who receive Medicare and partial Medicaid benefits in the form of support for premiums, copayments, and deductibles. A new enrollee was defined as a Medicare beneficiary who received either partial or full Medicaid benefits in calendar year (CY) 2008 but did not have evidence of simultaneous Medicare-Medicaid enrollment in CYs 2006 or 2007. In order to simplify the interpretation of this analysis, the population has been limited based on an individual's pathway to becoming eligible for both programs. Only those Medicare-to-Medicaid beneficiaries whose initial Medicaid eligibility occurred in 2008 were included, and only Medicaid-to-Medicare recipients whose initial Medicare eligibility occurred in 2008 were kept. These pathways are highlighted in the findings for three reasons. First, there are significant differences in the demographic makeup of the two populations (Johnson, Folkemer, & Stockwell, 2012). Second, prevalence of conditions can vary by pathway to dual eligibility (Stockwell, Tripp, & Folkemer, 2012). Third, there are differences in reimbursement for care coordination between the two payers.

Existing administrative datasets were bolstered by applying CCW condition categories to identify mental health conditions as well as physical health co-occurring conditions. These broad categories were chronic, clinical, and disability-related, with each having a set of algorithms which identified specific conditions. The chronic condition definitions cover 27 diagnostic groups common in the older population, such as hypertension, arthritis, and diabetes. The mental health conditions utilized in this analysis are included in the clinical group, which also includes tobacco use. For purposes of this study, if a dual eligible enrollee was flagged for having anxiety disorders, bipolar disorder, conduct disorders, depressive disorders, personality disorders, post-traumatic stress disorder (PTSD), or schizophrenia and other psychotic disorders, they were included in the sub-population with a mental health condition. The disability-related category

covers both physical and mental disabilities, such as autism, multiple sclerosis, sensory impairments, and brain or spinal cord injuries.[1]

While much of the literature focuses on a particular set of conditions, the entire set of CCW condition flags are included due to the exploratory nature of this analysis. This allows for a thorough understanding of the prevalence in Maryland's new dual enrollee population of all developed mental health condition flags alongside their combination with the full breadth of illness defined in the CCW. The updates to the original list of conditions have included the clinical group, which added mental health conditions, and the disability-related category, which focused on intellectual and developmental disabilities.[2] The research questions posed by this paper seek to be as broad as possible to not exclude any condition from the prevalence and cost reporting.

Data Sources

This analysis uses four distinct data sources, which were used to identify chronic conditions and expenditures. Each of these data sources is described more fully below.

MMA State File

In order to meet the data collection needs of CMS under the Medicare Modernization Act of 2003 (MMA), the MMA State File (also known as the MMA Medicare/Medicaid Dual Eligible Monthly File) is produced on a monthly basis by each state. Each month, the state submits to CMS a listing of its enrollees, both full and partial. CMS returns the file to the state after appending extensive Medicare program enrollment information, including enrollment dates for Medicare Parts A, B, C, and D; dates of coverage for end-stage renal disease; low-income subsidy status; and assignment to Medicare Part D plans. The MMA State File was initiated in August of 2005.

Maryland's Medicaid Eligibility and Recipient Files

The Medicaid Eligibility File contains dates of Medicaid eligibility and coverage group information for all Maryland Medicaid enrollees. Each Medicaid enrollee's coverage group reflects the specific eligibility criteria under which he or she qualified for Maryland Medicaid benefits. This file is structured to contain one record per person per coverage group. The

[1] See https://www.ccwdata.org/web/guest/condition-categories for more information.
[2] There is a forthcoming addition set to include alcohol use disorders, drug use disorders, fibromyalgia, chronic pain and chronic fatigue, HIV/AIDS, leukemia and lymphoma, liver disease, cirrhosis, and other liver conditions, migraine and other chronic headache, obesity, peripheral vascular disease, pressure ulcers and chronic ulcers, and viral hepatitis B and C.

Medicaid Recipient File contains basic demographic, contact, and identifier information for Maryland Medicaid enrollees.

Medicare Claims

The CCW was established in response to the Medicare Modernization Act of 2003 to improve the quality of care and reduce the cost of care for chronically ill Medicare beneficiaries. Hilltop obtained data for this study from the CCW as a "research-identifiable file," meaning that it contained claims-level data and unique individual identifiers. Data were grouped using standard Medicare service types, including inpatient, outpatient, carrier/physician, skilled nursing facility, home health agency, hospice, and durable medical equipment. One addition was made to the data to include chronic condition flags, derived using the date an individual became dually eligible, as opposed to the date used in the Medicare beneficiary summary files. Medicare Advantage encounter information and Medicare Part D pharmacy claims data were not available for this analysis.

Medicaid Claims and Encounters

Maryland's Medicaid Management Information System (MMIS) houses claims, encounters, and eligibility spans for all Medicaid recipients in the state. Most recipients under the age of 65 years are enrolled in HealthChoice, Maryland's Medicaid managed care program. Services provided through this program are stored as encounters in MMIS. Capitated payments to managed care providers for HealthChoice enrollees, as well as services for all other recipients, are paid and stored as fee-for-service claims.

Two algorithms enhanced the Medicaid data for this analysis. The first was the addition of chronic condition identifiers to Medicaid-to-Medicare individuals using their respective pre-enrollee data. The logic applied is identical to that used with Medicare claims CCW,[3] which scans each individual's past claims data for key diagnoses and procedure codes to convert to chronic condition flags, but was modified to work with Medicaid claims and encounter files. The second was the grouping of Medicaid claims to conform to the standard Medicare categories listed above (see Appendix A for a more detailed explanation of the grouping logic). Both of these additions allow for a suitable comparison between the two pathways examined in this analysis.

[3] See https://www.ccwdata.org/web/guest/condition-categories for more information.

Findings

The following tables reflect Hilltop's analysis of Medicaid and Medicare data sources regarding the prevalence of mental health conditions in new dually eligible individuals from January 1, 2008 to December 31, 2008.

Table 1 outlines the demographic breakdown of individuals in the study population. Almost 40 percent of new dually eligible individuals had a mental health condition, and about the same proportion were Medicare-eligible first (as opposed to Medicaid-eligible). There were more females in the study population than males, more non-white individuals than whites, more urban dwellers than rural,[4] and more individuals over the age of 65 than under. This profile was similar for both Medicaid-first and Medicare-first individuals with the exception of age distributions, with Medicaid-first individuals being predominantly younger, while three quarters of Medicare-first individuals were over 65.

The demographic profile for individuals with a mental health condition differed from those without in a few ways. First, females were slightly more likely to have a mental health condition than males, regardless of payer. The same was true for rural dwellers when compared to their urban counterparts. There were significantly larger differences when examining age and race categories, with white, as well as younger, individuals much more likely to have a mental health condition.

Table 1. Demographic Distribution of Maryland's New Duals, 2008

Category	Study Cohort				Medicaid-first				Medicare-first			
	All		Mental Health		All		Mental Health		All		Mental Health	
	n	%	n	%	n	%	n	%	n	%	n	%
Female	7,297	61.3%	2,876	64.3%	2,792	58.5%	1,119	60.4%	4,505	63.2%	1,757	67.1%
Male	4,607	38.7%	1,598	35.7%	1,982	41.5%	735	39.6%	2,625	36.8%	863	32.9%
Non-White	6,924	58.2%	2,109	47.1%	2,945	61.7%	951	51.3%	3,979	55.8%	1,158	44.2%
White	4,980	41.8%	2,365	52.9%	1,829	38.3%	903	48.7%	3,151	44.2%	1,462	55.8%
Urban	8,057	67.7%	2,812	62.9%	3,478	72.9%	1,268	68.4%	4,579	64.2%	1,544	58.9%
Rural	3,847	32.3%	1,662	37.1%	1,296	27.1%	586	31.6%	2,551	35.8%	1,076	41.1%
0-64	4,943	41.5%	2,289	51.2%	3,288	68.9%	1,554	83.8%	1,655	23.2%	735	28.1%
65+	6,961	58.5%	2,185	48.8%	1,486	31.1%	300	16.2%	5,475	76.8%	1,885	71.9%
Total	**11,904**	**100%**	**4,474**	**37.6%**	**4,774**	**40.1%**	**1,854**	**38.8%**	**7,130**	**59.9%**	**2,620**	**36.7%**

[4] Defined using the Maryland Rural Council criteria, found at http://rural.maryland.gov/the-rural-maryland-council.

By far the most prevalent mental health condition was depression (as shown in Table 2), which affected almost a quarter of all new duals in Maryland and about two thirds of new duals with a mental health diagnosis. Less prevalent were bipolar disorders, anxiety disorders and schizophrenia, which affected about 10 percent of all new duals and about 30 percent of new duals with a mental health diagnosis. Conduct disorders, personality disorders, and post-traumatic stress disorder were much less common, and were found in a relatively small number of individuals. These findings were similar regardless of payer, although Medicaid-first individuals were about twice as likely to have post-traumatic stress disorder.

Table 2. Prevalence of Mental Health Conditions in Maryland's New Duals, 2008

Condition	All			Medicaid-first			Medicare-first		
	n	% All	% MH	n	% All	% MH	n	% All	% MH
Depressive Disorders	2,909	24.4%	65.0%	1,235	25.9%	66.6%	1,674	23.5%	63.9%
Bipolar Disorder	1,589	13.3%	35.5%	699	14.6%	37.7%	890	12.5%	34.0%
Anxiety Disorders	1,410	11.8%	31.5%	588	12.3%	31.7%	822	11.5%	31.4%
Schizophrenia and Other Psychotic Disorders	1,107	9.3%	24.7%	423	8.9%	22.8%	684	9.6%	26.1%
Conduct Disorders and Hyperkinetic Syndrome	244	2.0%	5.5%	143	3.0%	7.7%	101	1.4%	3.9%
Personality Disorders	171	1.4%	3.8%	85	1.8%	4.6%	79	1.1%	3.0%
Post-Traumatic Stress Disorder (PTSD)	135	1.1%	3.0%	92	1.9%	5.0%	50	0.7%	1.9%

Table 3 shows the frequency of co-occurring mental health conditions in the new dual population. Just over half of all individuals with a mental health condition had only one mental health condition, regardless of payer. Over a quarter had two mental health conditions, and there were a few individuals who had met the criteria for all seven conditions covered in this study.

Table 3. Number of Mental Health Conditions in Maryland's New Duals, 2008

Number of Conditions	All			Medicaid-first			Medicare-first		
	n	% All	% MH	n	% All	% MH	n	% All	% MH
One	2,484	20.9%	55.5%	996	20.9%	53.7%	1,488	20.9%	56.8%
Two	1,237	10.4%	27.6%	497	10.4%	26.8%	740	10.4%	28.2%
Three	515	4.3%	11.5%	232	4.9%	12.5%	283	4.0%	10.8%
Four	155	1.3%	3.5%	84	1.8%	4.5%	71	1.0%	2.7%
Five	58	0.5%	1.3%	29	0.6%	1.6%	29	0.4%	1.1%
Six	23	0.2%	0.5%	14	0.3%	0.8%	9	0.1%	0.3%
Seven	2	0.0%	0.0%	2	0.0%	0.1%	0	0.0%	0.0%

Tables 4 and 5 show the distribution of mental health conditions and frequency of co-occurring mental health conditions broken out by gender. Females were more likely than males to have depression, anxiety, or PTSD, while males were more likely to have any of the other conditions. This pattern was similar for both Medicaid-first and Medicare-first individuals. The number of co-occurring mental health conditions was similar regardless of gender.

Table 4. Prevalence of Mental Health Conditions in Maryland's New Duals by Gender, 2008

Condition	Female			Male		
	n	% All	% MH	n	% All	% MH
Depressive Disorders	1,964	26.9%	68.3%	945	20.5%	59.1%
Bipolar Disorder	981	13.4%	34.1%	608	13.2%	38.0%
Anxiety Disorders	1,016	13.9%	35.3%	394	8.6%	24.7%
Schizophrenia and Other Psychotic Disorders	595	8.2%	20.7%	512	11.1%	32.0%
Conduct Disorders and Hyperkinetic Syndrome	109	1.5%	3.8%	135	2.9%	8.4%
Personality Disorders	95	1.3%	3.3%	69	1.5%	4.3%
Post-Traumatic Stress Disorder (PTSD)	92	1.3%	3.2%	50	1.1%	3.1%

Table 5. Number of Mental Health Conditions in Maryland's New Duals by Gender, 2008

Number of Conditions	Female			Male		
	n	% All	% MH	n	% All	% MH
One	1,588	21.8%	55.2%	896	19.4%	56.1%
Two	808	11.1%	28.1%	429	9.3%	26.8%
Three	336	4.6%	11.7%	179	3.9%	11.2%
Four	96	1.3%	3.3%	59	1.3%	3.7%
Five	33	0.5%	1.1%	25	0.5%	1.6%
Six	14	0.2%	0.5%	9	0.2%	0.6%
Seven	1	0.0%	0.0%	1	0.0%	0.1%

Tables 6 and 7 show the distribution of mental health conditions and frequency of co-occurring mental health conditions broken out by age group. Younger individuals in general were more likely to have any of the mental health conditions. The one category that displayed a higher prevalence in the older group was schizophrenia and other psychotic disorders, which were found in over a quarter of older enrollees with a mental health condition. Younger individuals were also more likely to have more than one mental health condition, with over half of individuals having two or more co-occurring conditions.

Table 6. Prevalence of Mental Health Conditions in Maryland's New Duals by Age, 2008

Condition	0-64			65+		
	n	% All	% MH	n	% All	% MH
Depressive Disorders	1,544	31.2%	67.5%	1,365	19.6%	62.5%
Bipolar Disorder	935	18.9%	40.8%	654	9.4%	29.9%
Anxiety Disorders	773	15.6%	33.8%	637	9.2%	29.2%
Schizophrenia and Other Psychotic Disorders	536	10.8%	23.4%	571	8.2%	26.1%
Conduct Disorders and Hyperkinetic Syndrome	139	2.8%	6.1%	74	1.1%	3.4%
Personality Disorders	129	2.6%	5.6%	13	0.2%	0.6%
Post-Traumatic Stress Disorder (PTSD)	170	3.4%	7.4%	25	0.4%	1.1%

Table 7. Number of Mental Health Conditions in Maryland's New Duals by Age, 2008

Number of Conditions	0-64			65+		
	n	% All	% MH	n	% All	% MH
One	1,137	23.0%	49.7%	1,347	19.4%	61.6%
Two	651	13.2%	28.4%	586	8.4%	26.8%
Three	317	6.4%	13.8%	198	2.8%	9.1%
Four	110	2.2%	4.8%	45	0.6%	2.1%
Five	50	1.0%	2.2%	8	0.1%	0.4%
Six	22	0.4%	1.0%	1	0.0%	0.0%
Seven	2	0.0%	0.1%	0	0.0%	0.0%

Tables 8 and 9 show the distribution of mental health conditions and frequency of co-occurring mental health conditions broken out by race. Every condition covered in this study was more common in white individuals. However, as before with the older group, the non-white segment of the study population had a higher prevalence and greater probability of those with a mental health condition having schizophrenia or other psychotic disorders. Whites were also more likely to have more than one co-occurring mental health condition. These patterns were similar for both Medicaid-first and Medicare-first individuals.

Table 8. Prevalence of Mental Health Conditions in Maryland's New Duals by Race, 2008

Condition	White			Non-White		
	n	% All	% MH	n	% All	% MH
Depressive Disorders	1,565	31.4%	66.2%	1,344	19.4%	63.7%
Bipolar Disorder	886	17.8%	37.5%	703	10.2%	33.3%
Anxiety Disorders	882	17.7%	37.3%	528	7.6%	25.0%
Schizophrenia and Other Psychotic Disorders	522	10.5%	22.1%	585	8.4%	27.7%
Conduct Disorders and Hyperkinetic Syndrome	108	2.2%	4.6%	94	1.4%	4.5%
Personality Disorders	91	1.8%	3.8%	51	0.7%	2.4%
Post-Traumatic Stress Disorder (PTSD)	150	3.0%	6.3%	56	0.8%	2.7%

Table 9. Number of Mental Health Conditions in Maryland's New Duals by Race, 2008

Number of Conditions	White			Non-White		
	n	% All	% MH	n	% All	% MH
One	1,206	24.2%	51.0%	1,278	18.5%	60.6%
Two	705	14.2%	29.8%	532	7.7%	25.2%
Three	301	6.0%	12.7%	214	3.1%	10.1%
Four	96	1.9%	4.1%	59	0.9%	2.8%
Five	43	0.9%	1.8%	15	0.2%	0.7%
Six	12	0.2%	0.5%	11	0.2%	0.5%
Seven	2	0.0%	0.1%	0	0.0%	0.0%

The distribution of mental health conditions and frequency of co-occurring mental health conditions broken out by location are shown in Tables 10 and 11. The prevalence rate of anxiety disorders was slightly higher in rural dwellers, as were conduct disorders. The frequency of co-occurring mental health conditions was similar regardless of location.

Table 10. Prevalence of Mental Health Conditions in Maryland's New Duals by Location, 2008

Condition	Urban			Rural		
	n	% All	% MH	n	% All	% MH
Depressive Disorders	1,830	22.7%	65.1%	1,079	28.0%	64.9%
Bipolar Disorder	1,035	12.8%	36.8%	554	14.4%	33.3%
Anxiety Disorders	806	10.0%	28.7%	604	15.7%	36.3%
Schizophrenia and Other Psychotic Disorders	740	9.2%	26.3%	367	9.5%	22.1%
Conduct Disorders and Hyperkinetic Syndrome	92	1.1%	3.3%	103	2.7%	6.2%
Personality Disorders	79	1.0%	2.8%	63	1.6%	3.8%
Post-Traumatic Stress Disorder (PTSD)	141	1.8%	5.0%	72	1.9%	4.3%

Table 11. Number of Mental Health Conditions in Maryland's New Duals by Location, 2008

Number of Conditions	Urban			Rural		
	n	% All	% MH	n	% All	% MH
One	1,578	19.6%	56.1%	906	23.6%	54.5%
Two	767	9.5%	27.3%	470	12.2%	28.3%
Three	320	4.0%	11.4%	195	5.1%	11.7%
Four	99	1.2%	3.5%	56	1.5%	3.4%
Five	34	0.4%	1.2%	24	0.6%	1.4%
Six	13	0.2%	0.5%	10	0.3%	0.6%
Seven	1	0.0%	0.0%	1	0.0%	0.1%

The costs incurred by the Medicaid-first population, broken out by mental health conditions, are shown in Table 12. The average individual with at least one mental health condition cost about 15 percent more than the average individual without a mental health condition, although this difference varied drastically depending on the condition. The most costly individuals were those with schizophrenia, who cost over 50 percent more than individuals with no mental health conditions. Those increases were especially high for pharmacy expenditures; individuals with schizophrenia spent almost four times as much as individuals without a mental health condition, and significantly more than any other mental health condition. Individuals with the most common condition—depression—spent about 10 percent more than the mentally healthy comparison group. The group with PTSD cost slightly less than those individuals without a mental health condition. It could be surmised that those individuals might be accessing care

through the Veteran's Health Administration system, and those costs are not included in this report.

Table 13 shows the costs incurred by the Medicare-first population, broken out by mental health conditions. The average individual with at least one mental health condition cost about 75 percent more than the average individual without a mental health condition, although again this difference varied drastically depending on the condition. The most costly individuals were those with personality disorders, who cost about twice as much as their mentally healthy counterparts. Those increases were especially high for inpatient hospital expenditures; individuals with personality disorders spent almost three times as much as individuals without a mental health condition, and significantly more than any other mental health condition. Individuals with the most common condition, depression, also spent about twice as much as the mentally healthy comparison group. As with the Medicaid-first population, the group with PTSD cost slightly less than those individuals without a mental health condition. Note that the data used only cover individuals with traditional fee-for-service Medicare, and does not include Part D pharmacy costs.

It is important to keep in mind that, although the cost differences between individuals with different mental health conditions are significant, those differences are not necessarily caused by the mental health conditions themselves. For example, it is quite possible that individuals with mental illness are more costly due to different co-occurring conditions present in each population, not due to the cost of mental health treatment. The statistical methods for assessing the costs specific to mental health issues are beyond the scope of this analysis but would be an interesting topic for future study.

Table 12. Average Per Member Per Month Costs for Maryland's Medicaid-First New Duals by Mental Health Condition, 2008

Service Type	No Mental Health Conditions	Depressive Disorders	Bipolar Disorder	Anxiety Disorders	Schizophrenia/ Psychotic	Conduct Disorders	Personality Disorders	Post-Traumatic Stress Disorder
Carrier	$229.28	$351.90	$469.36	$301.00	$675.44	$411.68	$447.75	$334.49
DME	$9.54	$2.97	$3.07	$5.28	$0.43	$3.99	$1.44	$0.08
Home health aide	$3.65	$4.56	$1.85	$3.58	$1.75	$2.38	$3.49	$0.00
Hospice	$8.84	$2.10	$1.51	$0.00	$3.66	$0.00	$0.00	$0.00
Inpatient	$879.88	$776.11	$918.28	$773.58	$974.91	$440.88	$1,304.29	$884.72
Outpatient	$269.84	$195.62	$196.73	$235.73	$185.34	$154.77	$401.28	$232.30
Nursing facility	$219.71	$311.40	$223.35	$314.92	$381.68	$95.33	$143.54	$40.33
Dental	$0.03	$0.04	$0.00	$0.00	$0.12	$0.28	$0.00	$0.00
Home health services	$229.30	$96.90	$151.41	$181.99	$322.35	$902.48	$190.14	$70.57
Pharmacy	$142.28	$298.42	$396.42	$257.90	$534.48	$356.90	$300.07	$271.42
Special services	$18.61	$8.05	$5.93	$8.50	$5.15	$22.15	$4.47	$13.69
MCO capitation[5]	$633.44	$858.61	$925.36	$889.98	$970.17	$863.40	$793.51	$764.99
Total	**$2,644.40**	**$2,906.69**	**$3,293.28**	**$2,972.46**	**$4,055.47**	**$3,254.24**	**$3,589.99**	**$2,612.58**

[5] MCO capitation payments are made to Maryland's Medicaid managed care organizations for individuals who receive their care through HealthChoice instead of the fee-for-service environment.

Table 13. Average Per Member Per Month Costs for Maryland's Medicare-First New Duals by Mental Health Condition, 2008

Service Type	No Mental Health Conditions	Depressive Disorders	Bipolar Disorder	Anxiety Disorders	Schizophrenia/ Psychotic	Conduct Disorders	Personality Disorders	Post-Traumatic Stress Disorder
Carrier	$318.51	$528.62	$478.93	$465.91	$492.14	$394.99	$549.35	$419.30
DME	$20.15	$28.85	$24.51	$29.71	$22.37	$18.50	$54.18	$26.00
Home health aide	$47.98	$129.67	$77.16	$84.07	$92.56	$41.06	$21.01	$7.59
Hospice	$21.25	$32.11	$30.77	$23.11	$26.75	$0.00	$6.84	$0.00
Inpatient	$1,159.81	$2,473.19	$2,381.77	$2,071.98	$2,427.92	$2,089.88	$2,516.97	$1,178.87
Outpatient	$230.58	$252.28	$224.49	$231.67	$230.83	$166.52	$355.47	$331.51
Nursing facility	$408.20	$964.83	$1,017.04	$741.89	$850.78	$619.65	$263.20	$140.17
Total	**$2,206.48**	**$4,409.55**	**$4,234.68**	**$3,648.34**	**$4,143.34**	**$3,330.60**	**$3,767.02**	**$2,103.44**

Table 14 shows the frequency of the total number of all co-occurring conditions for those with a mental health condition. These included mental health, chronic, and disability-related conditions as outlined in Appendix B. About half of individuals with a mental health condition had six or fewer co-occurring conditions and about a quarter had ten or more, although the distribution varied drastically by payer. Over half of the Medicaid-first individuals had four or fewer conditions, for example, while over half of the Medicare-first cohort had nine or more conditions.

Table 14. Number of Conditions in Maryland's New Duals with a Mental Health Condition by Payer, 2008

Number of Conditions	All		Medicaid-first		Medicare-first	
	n	% MH	n	% MH	n	% MH
One	275	6.1%	230	12.4%	45	1.7%
Two	332	7.4%	260	14.0%	72	2.7%
Three	363	8.1%	265	14.3%	98	3.7%
Four	425	9.5%	289	15.6%	136	5.2%
Five	386	8.6%	200	10.8%	186	7.1%
Six	397	8.9%	176	9.5%	221	8.4%
Seven	386	8.6%	142	7.7%	244	9.3%
Eight	362	8.1%	88	4.7%	274	10.5%
Nine	333	7.4%	77	4.2%	256	9.8%
Ten or more	1,215	27.2%	127	6.9%	1,088	41.5%

Non-mental health conditions were prevalent in new duals with a mental health condition, as shown in Table 15. The most common co-occurring conditions and the frequency with which they occurred varied drastically by payer, with Medicaid-first individuals much less likely to have a co-occurring non-mental health condition than Medicare-first individuals. Hypertension was the most common condition, affecting about a third of the Medicaid-first population and over four fifths of the Medicare-first population. This was followed by tobacco use and diabetes in the Medicaid-first population, and anemia and Alzheimer's/dementia in the Medicare-first group.

Table 15. Top 10 Non-Mental Health Conditions for Maryland New Duals with a Mental Health Condition by Payer, 2008

Medicaid-first			Medicare-first		
Condition	n	% MH	Condition	n	% MH
Hypertension	656	35.4%	Hypertension	2,152	82.1%
Tobacco Use	521	28.1%	Anemia	1,686	64.4%
Diabetes	489	26.4%	Alzheimer's Disease and Related Disorders or Senile Dementia	1,437	54.8%
Rheumatoid Arthritis/Osteoarthritis	454	24.5%	Hyperlipidemia	1,356	51.8%
Ischemic Heart Disease	398	21.5%	Ischemic Heart Disease	1,224	46.7%
Hyperlipidemia	325	17.5%	Rheumatoid Arthritis/ Osteoarthritis	1,065	40.6%
Anemia	288	15.5%	Diabetes	1,019	38.9%
Chronic Obstructive Pulmonary Disease	256	13.8%	Heart Failure	962	36.7%
Chronic Kidney Disease	244	13.2%	Chronic Kidney Disease	845	32.3%
Heart Failure	240	12.9%	Cataract	781	29.8%

Table 16 shows the prevalence of the top ten condition pairs for individuals with at least one mental health condition. For the Medicaid-first group, seven of the ten most prevalent pairs have depression as one component, coupled with either the less common mental health conditions or the most common non-mental health conditions. The Medicare-first group was significantly different, with eight of the top ten condition pairs not relating to mental health at all.

Table 16. Top 10 Condition Pairs for Maryland New Duals with a Mental Health Condition by Payer, 2008

Medicaid-first			Medicare-first		
Condition	**n**	**% MH**	**Condition**	**n**	**% MH**
Depressive Disorders, Hypertension	493	26.6%	Anemia, Hypertension	1,530	58.4%
Bipolar Disorder, Depressive Disorders	427	23.0%	Depressive Disorders, Hypertension	1,395	53.2%
Depressive Disorders, Tobacco Use	404	21.8%	Alzheimer's Disease and Related Disorders or Senile Dementia, Hypertension	1,315	50.2%
Anxiety Disorders, Depressive Disorders	371	20.0%	Hyperlipidemia, Hypertension	1,234	47.1%
Depressive Disorders, RA/OA (Rheumatoid Arthritis/Osteoarthritis)	368	19.8%	Hypertension, Ischemic Heart Disease	1,158	44.2%
Depressive Disorders, Diabetes	365	19.7%	Anemia, Depressive Disorders	1,117	42.6%
Depressive Disorders, Ischemic Heart Disease	314	16.9%	Alzheimer's Disease and Related Disorders or Senile Dementia, Anemia	1,114	42.5%
Diabetes, Hypertension	311	16.8%	Diabetes, Hypertension	954	36.4%
Hyperlipidemia, Hypertension	265	14.3%	Hypertension, RA/OA (Rheumatoid Arthritis/Osteoarthritis)	953	36.4%
Hypertension, Ischemic Heart Disease	258	13.9%	Anemia, Ischemic Heart Disease	947	36.1%

Discussion

Mental health conditions were present in over a third of all in new duals in the study population, regardless of payer. Females and rural dwellers were slightly more likely to have a mental health condition than males and urban dwellers, while whites and younger individuals were much more likely to have a mental health condition than their non-white and older counterparts. Although these population differences are statistically significant, it is clear that mental health issues are not limited to a specific demographic group.

By far the most prevalent mental health condition was depression, which affected almost a quarter of all new duals in Maryland and about two thirds of new duals with a mental health diagnosis. Bipolar disorders, anxiety disorders, and schizophrenia were less common, and

conduct disorders, personality disorders, and post-traumatic stress disorder were relatively rare. Just over half of all individuals with a mental health condition had only one mental health condition, and a quarter had two co-occurring conditions.

Mental health conditions affected individuals in all demographic groups, although there were some differences in the prevalence of specific conditions. For instance, females were more likely than males to have depression,anxiety, or PTSD, while males were more likely to have any of the other conditions. Younger individuals were more likely to have any mental health condition, despite the higher prevalence of schizophrenia in the older population. Younger individuals were also more likely to have more than one mental health condition, with over half of them having two or more co-occurring conditions. Whites were also more likely than other races to have more than one co-occurring mental health condition. Every mental health condition covered in this study was more common in whites. Non-whites had a higher prevalence of schizophrenia and other psychotic disorders, even with a lower probability of being flagged with the condition by the algorithm than whites. The prevalence rate of anxiety disorders and conduct disorders was slightly higher in rural dwellers.

The average Medicaid-first individual with at least one mental health condition cost about 15 percent more than the average individual without a mental health condition, although this difference varied drastically depending on the condition. The most costly individuals were those with schizophrenia, who cost over 50 percent more than their mentally healthy counterparts. Medicare-first individuals with at least one mental health condition cost about 75 percent more than the average individual without a mental health condition, although again this difference varied drastically depending on the condition. Individuals with the most common condition, depression, spent about twice as much as the mentally healthy comparison group.

The co-occurrence of non-mental health conditions varied drastically between Medicaid-first and Medicare-first groups. Medicaid-first individuals were much less likely to have a co-occurring non-mental health condition than Medicare-first individuals. Hypertension was the most common condition, affecting about a third of the Medicaid-first population and over four fifths of the Medicare-first population. This was followed by tobacco use and diabetes in the Medicaid-first population, and anemia and Alzheimer's/dementia in the Medicare-first group. For the Medicaid-first group, seven of the ten most prevalent pairs have depression as one component, while in the Medicare-first group eight of the top ten condition pairs were not related to mental health at all.

While increasing attention is being paid to the topic of individuals with multiple chronic conditions, as evidenced by the commitment of the United States Department of Health and Human Services' (HHS's) strategic framework to examine implications of co-occurring conditions, this report's focus on mental illness offers new insight to those who serve older adults and those with disabilities. Many studies addressing the topic have limited the conditions examined to somatic health, and those that address mental health conditions have narrowed the list of illnesses of interest. The concurrent interaction of both somatic and mental health can be

very complex as some clusters of conditions have synergistic interactions but others do not (Wolff, Starfield, & Anderson, 2002). The HHS framework indicates that health outcomes of individuals with serious mental illnesses and other behavioral health problems warrant special attention because of the co-occurrences of those conditions with other chronic conditions (HHS, 2010).

Based on CMS's Office of Information Products and Data Analytics' Geographic Variation Dashboard,[6] Maryland's prevalence for most somatic chronic conditions is very much in line with national averages. In 2012, of the reported mental health conditions, Maryland's dually eligible population had less prevalence of depression that the national average (26.32 percent compared to 28.41 percent) and slightly higher prevalence of schizophrenia/psychoses (11.58 percent compared to 11.14 percent). Given these findings, the mental illness prevalence results of this study are likely to be generalizable to other states. However, a recent report (Lochner, Goodman, Posner, & Parekh, 2013) found that, for Medicare beneficiaries with multiple chronic conditions in Maryland, hospital readmissions and Medicare spending are much higher compared to other states. This has important implications for QIOs as they seek to improve the effectiveness, efficiency, economy, and quality of services delivered to beneficiaries.

The purpose of this analysis was to give an overview of individuals with mental health conditions within Maryland's dually eligible population. Furthermore, the paper demonstrates for Medicare QIOs the methods and benefits of using the CCW condition flags to conduct similar analyses for their state's unique population. The findings presented here could form the basis for more detailed examinations, such as hospital admission patterns and emergency department use, specific cost drivers, and in-depth analysis of specific mental illnesses. With an overall prevalence rate of 37.6 percent in this study population, it is clear that further study of mental health conditions would be warranted. Additional research targeting state-level variation focusing on mental health conditions among those with multiple chronic conditions could benefit HHS's vision of achieving optimum health and quality of life for individuals with multiple chronic conditions. In this manner, the health disparities of individuals with mental health conditions could be better addressed and reduced.

[6] http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Dashboard/Chronic-Conditions-State/CC_State_Dashboard.html

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Appendix A. Medicaid Claims Grouping Logic

Using the Research Data Assistance Center's (RESDAC) Medicare identifiable data file descriptions,[7] we examined The Hilltop Institute's Medicaid claims files to attempt to include those claims that most closely replicate the grouping used in Medicare categories.

Inpatient—UB92 institutional claims with a claim type of "Inpatient Hospital"

Skilled Nursing Facility—UB92 institutional claims with a provider type of "Nursing Home"

Outpatient—UB92 institutional claims with a claim type of "Outpatient Hospital"

Home Health Agency—HCFA1500 medical claims with a category of service of "Home Health Agency"

Carrier—HCFA1500 medical claims with the following provider types:

- Lithotripsy Facility
- Laboratories, Medical
- Psychologist
- Physician
- Nurse Anesthetists (Indiv. or Group)
- Nurse Midwife (Indiv. or Group)
- Nurse Practitioner (Indiv. or Group)
- Nurse Psychotherapist (Indiv. or Group)
- Mental Health Group Provider
- Mental Hygiene Administration Services
- Clinic, Abortion
- Clinic, Children and Youth
- Clinic, Drug Abuse (Methadone)
- Clinic, Family Planning
- Clinic, Federally Qualified Health Centers

[7] RESDAC's Medicare identifiable data file descriptions are available from http://www.resdac.org/medicare/file_descriptions.asp#inpatient.

- Clinic, Local Health Department
- Clinic, Maryland Qualified Health Centers
- Clinic, Rural Health
- Clinic, General
- Ambulatory Surgical Centers
- ADAA Certified Addictions Outpatient Program
- EPSDT Therapeutic Intervention
- EPSDT Therapeutic Nursery
- Dialysis Facilities
- Children's Medical Services Provider
- Diabetes Education
- Dietician/Nutritionist
- Social Worker
- Ambulance Services

Additional claims were included with a category of service indicating clinical labs.

Hospice—HCFA1500 medical claims with a category of service of "Hospice Services"

Durable Medical Equipment—HCFA1500 medical claims with a category of service of "Durable Medical Equipment"

Appendix B. List of CCW Conditions

Chronic Condition Categories

Acquired Hypothyroidism
Acute Myocardial Infarction
Alzheimer's Disease
Alzheimer's Disease, Related Disorders, or Senile Dementia
Anemia
Asthma
Atrial Fibrillation
Benign Prostatic Hyperplasia
Cancer, Colorectal
Cancer, Endometrial
Cancer, Breast
Cancer, Lung
Cancer, Prostate
Cataract
Chronic Kidney Disease
Chronic Obstructive Pulmonary Disease
Depression
Diabetes
Glaucoma
Heart Failure
Hip/Pelvic Fracture
Hyperlipidemia
Hypertension
Ischemic Heart Disease
Osteoporosis
Rheumatoid Arthritis/Osteoarthritis
Stroke/Transient Ischemic Attack

Mental Health and Tobacco Use Clinical Condition Categories

Anxiety Disorders
Bipolar Disorder
Conduct Disorders and Hyperkinetic Syndrome
Depressive Disorders
Personality Disorders
Post-Traumatic Stress Disorder
Schizophrenia and Other Psychotic Disorders
Tobacco Use

Disability Condition Algorithms

Autism Spectrum Disorders
Cerebral Palsy
Cystic Fibrosis and Other Metabolic Developmental Disorders
Epilepsy
Intellectual Disabilities and Related Conditions
Learning Disabilities
Mobility Impairments
Multiple Sclerosis and Transverse Myelitis
Muscular Dystrophy
Other Developmental Delays
Sensory—Deafness and Hearing Impairment
Sensory—Blindness and Visual Impairment
Spina Bifida and Other Congenital Anomalies of the Nervous System
Spinal Cord Injury
Traumatic Brain Injury and Nonpsychotic Mental Disorders due to Brain Damage

Glossary

Chronic condition category: Claims-based algorithm to indicate that treatment for a condition appears to have taken place using clinical criteria, coverage criteria, and specified time periods.

Chronic Condition Data Warehouse (CCW): A research database designed to make Medicare, Medicaid, Assessments, and Part D Prescription Drug Event data more readily available to support research designed to improve the quality of care and reduce costs and utilization.

Chronic condition: A long-lasting illness that is associated with persistent and recurring health problems, along with duration measured in months and years, not days and weeks.

Clinical condition category: Additional condition algorithms, that are of interest to the study of Medicaid-only and Medicare-Medicaid dually enrolled beneficiaries added as a result of the Affordable Care Act, focusing on mental disorders.

Comorbidity: The presence of more than 1 distinct condition in an individual. Also known as co-occurring conditions.

Disability: Requiring assistance with daily activities because of health, sensory, cognitive, and emotional conditions interacting with the social and physical environments.

Disability-related condition category: Fifteen additional condition categories related to intellectual, developmental, and physical disability developed with the assistance of subject matter experts that impact the Medicaid-only, Medicare-only, and dual eligible populations.

Dual eligible: Dual eligibles are individuals who are entitled to Medicare Part A and/or Part B and are eligible for some form of Medicaid benefit.

Morbidity: Disease; any departure, subjective or objective, from a state of physiological or psychological health and well-being.

New enrollee: Either a Medicare beneficiary who received either partial or full Medicaid benefits in CY 2008 but did not have evidence of simultaneous Medicare-Medicaid enrollment in CYs 2006 or 2007, or a Medicaid beneficiary who received Medicare benefits in CY 2008 but did not have evidence of simultaneous Medicare-Medicaid enrollment in CYs 2006 or 2007.

Prevalence: The number or proportion of cases or events or attributes among a given population.

Social Security disability: An inability to engage in any substantial gainful activity due to medically determinable physical or mental impairment, which can result in death or be expected to last for a continuous period of at least twelve months.

Urbanicity: Urban rural distinction made by the Maryland Rural Council. Rural jurisdictions share common characteristics that set them apart from their suburban and urban counterparts, such as geographic isolation, lack of transportation, and lack of access to and availability of health care. The state definition of rural is articulated in the Annotated Code of Maryland and includes 18 of the 24 jurisdictions in Maryland.

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