CHCS

Center for
Health Care Strategies, Inc.

FACES OF MEDICAID
DATA SERIES

Multimorbidity Pattern Analyses and Clinical Opportunities: *Drug and Alcohol Disorders*

December 2010

Cynthia Boyd, MD, MPH*
Bruce Leff, MD*
Carlos Weiss, MD, MHS*
Jennifer Wolff, PhD*
Rebecca Clark
Thomas Richards, MS

The Johns Hopkins University
**Co-Principal Investigators.*

This set of tables is part of the analysis, *Faces of Medicaid: Clarifying Multimorbidity Patterns to Improve Care Management*, which was undertaken by the Center for Health Care Strategies and The Johns Hopkins University School of Medicine and Bloomberg School of Public Health to help policymakers identify intervention strategies with the potential to both improve quality and reduce costs for Medicaid beneficiaries with multiple chronic conditions. For the full report, visit **www.chcs.org**.

Made possible through support from Kaiser Permanente.

Contents

*The **Center for Health Care Strategies** (CHCS) is a nonprofit health policy resource center dedicated to improving health care quality for low-income children and adults, people with chronic illnesses and disabilities, frail elders, and racially and ethnically diverse populations experiencing disparities in care. CHCS works with state and federal agencies, health plans, providers and consumer groups to develop innovative programs that better serve Medicaid beneficiaries with complex and high-cost health care needs. Its program priorities are: enhancing access to coverage and services; improving quality and reducing racial and ethnic disparities; integrating care for people with complex and special needs; and building Medicaid leadership and capacity.*

Overview

This set of tables is part of the *Faces of Medicaid* analysis, *Clarifying Multimorbidity to Improve Targeting and Delivery of Clinical Services for Medicaid Populations*, undertaken by the Center for Health Care Strategies (CHCS) and The Johns Hopkins University School of Medicine and Bloomberg School of Public Health. The analysis sought to help policymakers identify intervention strategies with the potential to both improve quality and reduce costs for adult Medicaid beneficiaries with multiple chronic conditions.

The following tables summarize multimorbidity data on drug and alcohol disorders for adult Medicaid-only beneficiaries with disabilities and inventory potential clinical opportunities for addressing multimorbidity associated with drug and alcohol disorders. For this analysis, "multimorbidity patterns" are defined as the specific and often multiple conditions that a person has (e.g., a person with depression, hypertension, chronic pain, and asthma), as opposed to a simple tally of the number of conditions that someone has (e.g., a person with five chronic conditions). The tables are intended to aid policymakers in identifying subgroups of Medicaid beneficiaries who stand to benefit from targeted care management and tailoring intervention strategies to improve health outcomes and reduce costs. Contents include:

1. ***Multimorbidity Summary Table (Table 1)***: This table lists the five most costly patterns of multimorbidity (based on total annual costs, excluding long-term care expenditures) for drug and alcohol disorders. These data can be used to help prioritize care management opportunities to improve outcomes and control costs. Prevalence, costs, and hospitalization rates are summarized for:

    - Beneficiaries who *only* have the specific drug and alcohol disorders pattern, without additional comorbidities.
    - Beneficiaries who have the specific drug and alcohol disorders pattern *plus* potentially other comorbidities. In other words, all individuals in this group have the conditions specified in the stated multimorbidity pattern, but any individual may have other conditions as well. This broader approach has a greater likelihood of capturing all individuals with drug and alcohol disorders and the identified comorbidities in the population.

2. ***Multimorbidity Pattern Table (Table 2)***: This table details the 16 most prevalent multimorbidity patterns for drug and alcohol disorders, including prevalence, cost, and hospitalization data for each. Data include beneficiaries who *only* have the specific conditions in each multimorbidity pattern.

3. ***Clinical Opportunities Table (Table 3)***: A series of literature searches was conducted for the multimorbidity patterns that the analysis identified as high-priority opportunities from a prevalence, clinical, and cost perspective. In addition to presenting actionable, clinical opportunities for Medicaid stakeholders responsible for care management program design, these clinical opportunities tables also help identify gaps in knowledge around clinical management of these conditions. Literature is categorized as follows:

    - Clinical "pearls" that offer recommendations relevant to an aspect of care for individuals with the specified multimorbidity pattern;
    - Single disease-specific models that address processes important to caring for individuals with multimorbidity, such as care coordination and medication management;
    - Relevant clinical practice guidelines and systematic reviews; and
    - Evidence-based models for the specific multimorbidity pattern.

Table 1: Drug and Alcohol Disorders Multimorbidity Summary

This table lists the five most costly patterns of multimorbidity -- based on total annual costs, excluding long-term care expenditures -- for drug and alcohol disorders. These data can be used to help prioritize care management opportunities to improve outcomes and control costs.

Medicaid-Only Adult Beneficiaries with Disabilities, Under Age 65

	Multimorbidity Pattern	Prevalence among beneficiaries with drug and alcohol disorders	Prevalence among overall population	Per capita cost	Percent of total annual costs among beneficiaries with drug and alcohol disorders	Percent of total annual costs among overall population	Per capita hospitalizations
	Drug and Alcohol Disorders						
1	+ Depressive Disorders, Antipsychotic or Mood Stabilizer Drugs, Schizophrenia	1.10%	0.14%	$17,934	1.07%	0.24%	0.91
		13.09%	1.70%	$28,056	19.88%	4.50%	2.30
2	Drug and Alcohol Disorders only (no comorbidities from conditions considered)	4.43%	0.57%	$4,082	0.98%	0.22%	0.28
		100.00%	12.97%	$18,477	100.00%	22.63%	1.31
3	+ Depressive Disorders, Antipsychotic or Mood Stabilizer Drugs, Anxiety Disorder or Benzodiazepam Use, Schizophrenia	0.89%	0.11%	$19,368	0.93%	0.21%	1.36
		8.48%	1.10%	$30,668	14.07%	3.18%	2.79
4	+ Depressive Disorders, Antipsychotic or Mood Stabilizer Drugs	1.19%	0.15%	$10,716	0.69%	0.16%	0.43
		36.17%	4.69%	$24,402	47.77%	10.81%	1.73
5	+ Antipsychotic or Mood Stabilizer Drugs, Schizophrenia	0.81%	0.11%	$14,792	0.65%	0.15%	0.57
		16.49%	2.14%	$26,352	23.51%	5.32%	2.02

Co-occurring conditions that were considered include: Depressive disorders, hypertension, coronary heart disease, asthma and/or chronic obstructive pulmonary disease, back or spine disorders, antipsychotic or mood stabilizer drugs, drug and alcohol disorders, diabetes, anxiety disorder or benzodiazepam use, congestive heart failure, hepatitis or chronic liver disease, stroke, prednisone use, dizziness, gastrointestinal bleed, anticoagulation drugs (warfarin), chronic renal failure/end stage renal disease, HIV or AIDS, and personality disorders.

KEY

- ☐ Beneficiaries with only drug and alcohol disorders and the specified multimorbidity pattern (no other comorbidities).
- ▭ Beneficiaries with drug and alcohol disorders, the specified multimorbidity pattern, and potentially other additional comorbidities, varying by individual.

Table 2: Drug and Alcohol Disorders Multimorbidity Patterns

This table presents the 16 most prevalent co-occurring conditions for drug and alcohol disorders (columns in the left half), and prevalence, hospitalization, and cost data for each pattern (columns in the right half). These data reveal patterns that are prime for targeted interventions across a number of variables of interest: population prevalence, per capita costs, and annual hospitalization rates. For each pattern, these variables are calculated for individuals who have the specified conditions and no other comorbidities. The condition columns are ordered from most prevalent (left) to least prevalent (right) in the drug and alcohol disorder population. A checkmark represents the presence of the specified condition. Unless noted, all cost estimates exclude long-term care costs.

Medicaid-Only Adult Beneficiaries with Disabilities, Under Age 65

	Drug and Alcohol Disorders +																								
	Depressive disorders	Hypertension	Antipsychotic or mood stabilizer drugs	Anxiety disorder or benzodiazepam use	Coronary heart disease	Asthma and/or chronic obstructive pulmonary disease	Chronic pain	Back or spine disorders	Diabetes	Hepatitis or chronic liver disease	Congestive heart failure	Schizophrenia	Stroke	Prednisone use	Chronic renal failure/end stage renal disease	HIV or AIDS	Personality disorders	Developmental disorders	Pattern Prevalence, %[1]	Cumulative Prevalence, %	Annual Hospitalization Rate Per Capita	Per Capita Costs, excl. Long-term Care	% Total Annual Costs, excl. Long-term Care[2]	Cumulative % of Total Annual Costs, excl. Long-term Care	% Total Annual Long-term Care Costs	Very High-Cost Prevalence, %[3]	High-Cost Prevalence, %[4]
1																			4.43%	4.43%	0.28	$4,082	0.98%	0.98%	1.36%	1.03%	6.19%
2	✓																		1.38%	5.81%	0.36	$5,772	0.43%	1.41%	0.48%	1.33%	8.99%
3	✓		✓																1.19%	7.00%	0.43	$10,716	0.69%	2.10%	0.75%	2.07%	18.57%
4	✓		✓									✓							1.10%	8.10%	0.91	$17,934	1.07%	3.17%	0.69%	7.40%	35.49%
5	✓		✓	✓															1.03%	9.14%	0.56	$11,228	0.63%	3.80%	0.55%	4.40%	25.10%
6	✓			✓															0.89%	10.03%	0.37	$6,161	0.30%	4.10%	0.21%	1.15%	10.11%
7	✓		✓	✓								✓							0.89%	10.92%	1.36	$19,368	0.93%	5.03%	0.93%	12.45 %	43.47%
8		✓																	0.85%	11.76%	0.44	$5,519	0.25%	5.28%	0.37%	1.64%	9.57%
9						✓													0.83%	12.60%	0.48	$6,123	0.28%	5.55%	0.22%	1.98%	12.44%
10					✓														0.82%	13.41%	0.45	$4,843	0.21%	5.77%	0.17%	1.61%	9.70%
11			✓									✓							0.81%	14.22%	0.57	$14,792	0.65%	6.42%	0.56%	5.82%	25.62%
12								✓											0.71%	14.94%	0.26	$3,931	0.15%	6.57%	0.15%	1.21%	5.11%
13	✓		✓	✓			✓	✓											0.63%	15.56%	0.85	$16,524	0.56%	7.13%	0.34%	9.30%	35.89%
14										✓									0.62%	16.18%	0.75	$8,765	0.29%	7.42%	0.28%	4.99%	18.44%
15			✓																0.57%	16.74%	0.31	$7,626	0.23%	7.66%	0.59%	2.03%	13.62%
16							✓												0.49%	17.24%	0.75	$11,127	0.30%	7.95%	0.22%	8.28%	16.89%

KEY

- Index condition with no comorbidity in identified conditions.
- Patterns with the top three highest total annual costs.
- Patterns with the top three highest annual hospitalization rates.
- Patterns with the top three high-cost prevalence rates.

[1] Prevalence of this pattern among beneficiaries with drug and alcohol disorders.
[2] $4.5 billion, excluding Long-Term Care costs, was spent by Medicaid on 243,747 disabled Medicaid-only beneficiaries with drug and alcohol disorders. Results are presented for the top 16 out of 18,169 total patterns observed for people with drug and alcohol disorders.
[3] The proportion of beneficiaries with this specific multimorbidity pattern who are represented among beneficiaries in the top 1st to 5th percentile of costs in the overall population of Medicaid-only adult beneficiaries with disabilities.
[4] The proportion of beneficiaries with this specific multimorbidity pattern who are represented among beneficiaries in the top 5.01st to 20th percentile of costs in the overall population of Medicaid-only adult beneficiaries with disabilities.

Table 3: Drug and Alcohol Disorders Clinical Opportunities

The following table inventories evidence-based models of care for drug and alcohol disorders and associated multimorbid patterns, including references published since 2000. This resource provides an actionable complement to the multimorbidity cost and prevalence data presented earlier. It is intended to guide Medicaid stakeholders in tailoring implementation strategies to improve care for beneficiaries with these multimorbidity patterns.

A bibliography of citations alphabetized by author is available at **www.chcs.org**.

Clinical pearl for specific multimorbidity pattern	Single-disease focused clinical care delivery model for multimorbid patients	Clinical practice guidelines or systematic review for multimorbidity pattern	Model for specific multimorbidity pattern
Drugs and Alcohol Disorders + Depressive Disorders			
Donald 2005. See below.	Harpole 2005. Describes effectiveness of IMPACT, a multidisciplinary depression treatment program. Effectiveness of the program was not affected by the presence of comorbid medical illness.	Slade 2007. Best practices for the treatment of patients with mental and substance use illnesses in the emergency department.	Graham 2004. Outlines experience of implementing an integrated treatment approach for clients with co-existing severe mental health and substance use problems.
Clark 2007. Describes locations and patterns of psychiatric and substance abuse treatment for Medicaid beneficiaries with co-occurring mental and substance use disorders in five states.	Collins 2010. Outstanding report from Milbank Memorial Fund on evolving models of behavioral health integration in primary care. Broad applications. Well referenced.	Donald 2005. Review of integrated versus non-integrated management and care of patients with co-occurring mental health and substance use disorders. Equivocal findings on superiority of integrated models.	Oslin 2003. Randomized trial of telephone-based disease management program for the acute management of depression and at-risk drinking. Improved outcomes demonstrated.
Davis 2008. Thoughtful review suggests that there are fewer differential effects based on comorbidity than suggested by earlier studies. The review also suggests that early treatment of depression in dual-diagnosed patient may be appropriate.		Drake 2008. Systematic review of psychosocial research on psychosocial interventions for patients with co-occurring severe mental and substance use disorders.	Burnam 2006. Review of clinical and systems approaches to care for patients with substance abuse with mental disorders.
Curran 2007. Veterans with substance use and depression were 4.1 times more likely to relapse.		Cleary 2008. Cochrane review of psychosocial interventions for people with both severe mental illness and substance misuse. No compelling evidence to support any one treatment over another.	Watkins 2006. Group-level randomized trial in managed care testing outcomes associated with a quality improvement program involving therapy or medication for patients with depression and comorbid substance use. The quality improvement program had positive effect on depression outcomes.
		Davis 2008. See above.	Grothues 2008. Randomized trial of brief intervention in general practice for patients with problem drinking and comorbid depression or anxiety. Intervention ineffective.
		Practice guideline for the treatment of patients with substance use disorders. American Psychiatric Association. Discusses treatment of substance use in context of depression and other psychiatric illness.	

Clinical pearl for specific multimorbidity pattern	Single-disease focused clinical care delivery model for multimorbid patients	Clinical practice guidelines or systematic review for multimorbidity pattern	Model for specific multimorbidity pattern
Drugs and Alcohol Disorders + Antipsychotic or Mood Stabilizer Drug			
Donald 2004. See below.	Collins 2010. See above.	Slade 2007. See above.	Graham 2004. See above.
Horsfall 2009. See below.		Donald 2004. See above.	Burnam 2006. See above.
Kemp 2009. Prospective study of medical and substance use comorbidity in bipolar disorder found that rapid cycling with co-occurring substance use is harbinger of serious medical problems.		Drake 2008. See above.	Craig 2008. See below.
		San 2007. Review of use of antipsychotics in treatment of patients with schizophrenia and comorbid substance abuse disorders. Studies suggest that second generation antipsychotics, particularly clozapine, may be effective for this group.	
		Yatham 2005. Canadian guidelines for management of patients with bipolar disorder advocates for incorporation of chronic disease management models in the care of these patients.	
Drugs and Alcohol Disorders + Schizophrenia			
Donald 2004. See below.	Price 2007. Pilot of advanced practice nurse helping move from inpatient to community care.	Slade 2007. See above.	Graham 2004. See above.
Horsfall 2009. Describes limitations of current evidence base for treatment of patients with psychosis and co-occurring substance use disorders. Successful treatments (whether integrated or parallel models) require coordination, team approach, multidisciplinary, specialist-trained personnel, variety of program types and long-term follow-up.	Collins 2010. See above.	Ziedonis 2005. Consensus recommendations from Presidential Commission and SAMHSA on treatment of schizophrenia and addiction. Excellent source.	Burnam 2006. See above.
Minkoff 2001. Describes the results of a 1998 report "Co-occurring Disorders in Managed Care Systems: Standards of Care, Practice Guidelines, Workforce Competencies, and Training Curricula." This report describes a number of important findings and "pearls."		Smelson 2008. Review of studies involving US FDA-approved medications for co-occurring substance abuse problems among individuals with schizophrenia and approaches to care of this population.	Craig 2008. Randomized trial of case managers trained to manage substance abuse disorders among patients with severe mental illness. Produced significant improvements in symptoms and level of met needs, but not in substance use, at no additional cost.
		Green 2007. Review of pharmacological strategies for optimal treatment of substance use disorder and schizophrenia.	

Clinical pearl for specific multimorbidity pattern	Single-disease focused clinical care delivery model for multimorbid patients	Clinical practice guidelines or systematic review for multimorbidity pattern	Model for specific multimorbidity pattern
		Donald 2004. See above.	Minkoff 2001. See above.
Drugs and Alcohol Disorders + Schizophrenia *(continued)*			
		Drake 2008. See above.	Bellack 2006. Behavioral treatment for drug abuse in people with severe persistent mental illness is efficacious. (BTSAS)
		San 2007. See above.	Craig 2008. Integrated treatment for severe mental illness and substance abuse improved symptoms and level of met needs, at no additional cost. Did not change quality of life or substance use.
		Cleary 2008. Cochrane review of psychosocial interventions for people with both severe mental illness and substance misuse. 25 randomized trials reviewed. No compelling evidence that any one psychosocial treatment over another reduces substance use by people with serious mental illness.	Petrakis 2004. Naltrexone may be an effective treatment for alcohol abusing people with schizophrenia.
		American Psychiatric Association 2007. Practice guideline for the treatment of patients with substance use disorders.	Haddock 2003. CBT for substance abuse and schizophrenia was better than usual care at comparable cost.
			BarrowClough 2001. Motivational interviewing, CBT, and family intervention improved outcomes for people with comorbid schizophrenia and substance abuse.
Drugs and Alcohol Disorders + Anxiety Disorder or Benzodiazepine Use			
Donald 2004. See above.	Collins 2010. See above.	Slade 2007. See above.	Graham 2004. See above.
Brunette 2003. Prescription benzodiazepine use common among patients with co-occurring severe mental illness and a substance abuse disorder and not associated with improvements in outcomes. Alternatives to this treatment for anxiety in this population should be considered.		Donald 2004. See above.	
		Drake 2008. See above.	Burnam 2006. See above.
		Wilson 2008. Cochrane intervention protocol on pharmacotherapy for anxiety disorders and comorbid alcohol dependency.	Grothues 2008. See above.

Clinical pearl for specific multimorbidity pattern	Single-disease focused clinical care delivery model for multimorbid patients	Clinical practice guidelines or systematic review for multimorbidity pattern	Model for specific multimorbidity pattern
Drugs and Alcohol Disorders + Hypertension			
Taylor 2009. Analysis of 10 databases via systematic review and meta-analysis. Risk for hypertension increases linearly with alcohol consumption.	Whitlock 2004. USPSTF summary of effectiveness of behavioral counseling interventions in primary care to reduce risky / harmful alcohol use by adults.	Campbell 2009. Lifestyle modifications to prevent and control hypertension – recommendations on alcohol consumption.	Stewart 2008. Reduction in alcohol consumption has a potent anti-hypertensive effect in alcoholics with hypertension.
Drugs and Alcohol Disorders + Hypertension *(continued)*			
Bryson 2008. Alcohol misuse, as measured by a brief screening questionnaire, was associated with increased risk of nonadherence.	Kaner 2007. Cochrane review of effectiveness of brief alcohol intervention in primary care populations. Brief interventions are beneficial.		Rose 2008. Primary care intervention to improve alcohol screening and counseling for hypertensive patients. Positive results.
Jarvis 2007. Alcoholics have high rates of cardiovascular disease risk factors.	McQueen 2009. Cochrane review of brief interventions for heavy alcohol users admitted to general hospital wards. Data inconclusive at this time.		
	McKay 2005. Telephone-based continuing care for alcohol and cocaine dependence. 24-month outcomes suggest this is effective.		
	Sobell 2009. Randomized trial of group versus individual cognitive-behavioral motivational intervention of substance abusers. Both methods equally effective.		
	Mertens 2008. Study suggests that chemical dependency treatment may benefit from disease management approach.		
	Weisner 2001. Randomized trial of integrated primary medical care with addiction treatment. Positive health outcomes and reduced costs.		
	Butler 2008. Comprehensive review of integrating mental health / substance abuse and primary care. Positive outcomes achieved. "Reasonably strong body of evidence to encourage integrated care."		
	Brown 2007. Randomized trial of telephone and mail intervention for alcohol use disorders. Positive outcomes at three months.		
	Coviello 2006. Randomized trial of outreach case management for methadone patients. Intervention effective.		
	Hesse 2007. Cochrane review of case management for persons with substance use disorders supports the use of case management linked with other services.		

Clinical pearl for specific multimorbidity pattern	Single-disease focused clinical care delivery model for multimorbid patients	Clinical practice guidelines or systematic review for multimorbidity pattern	Model for specific multimorbidity pattern
	Collins 2010. See above.		
Drugs and Alcohol Disorders + Coronary Heart Disease			
Safaei 2008. Outcomes of coronary artery bypass surgery among current opiate users were poorer compared with past users and non-users.	Whitlock 2004. See above.	McCord 2008. Statement from American Heart Association on management of cocaine-associated chest pain and myocardial infarction.	
Jarvis 2007. See above.	Kaner 2007. See above.		
	McQueen 2009. See above.		
	McKay 2005. See above.		
	Sobell 2009. See above.		
	Mertens 2008. See above.		
	Weisner 2001. See above.		
	Butler 2008. See above.		
	Brown 2007. See above.		
	Coviello 2006. See above.		
	Hesse 2009. See above.		
	Collins 2010. See above.		
Drugs and Alcohol Disorders + Asthma / COPD			
	Whitlock 2004. See above.		
	Kaner 2007. See above.		
	McQueen 2009. See above.		
	McKay 2005. See above.		
	Sobell 2009. See above.		
	Mertens 2008. See above.		
	Weisner 2001. See above		
	Butler 2008. See above.		
	Brown 2007. See above.		
	Coviello 2006. See above.		
	Hesse 2009. See above.		
	Collins 2010. See above.		