

MILLIMAN CLIENT REPORT

Behavioral Health Home Cost-Efficiency Evaluation – CY 2017

State of Michigan, Department of Health and Human Services

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I. Background

Milliman, Inc. (Milliman) has been retained by the State of Michigan, Department of Health and Human Services (MDHHS) to provide actuarial and consulting services related to the Medicaid behavioral health home pilot (state plan amendment # 14-0008), which covers individuals with a serious and persistent mental health condition (also referred to as serious mental illness (SMI)) in up to three identified regions in the State of Michigan. MDHHS designated community mental health service programs (CMHSPs) as Health Homes that serve as the central point for directing patient-centered care among beneficiaries with a serious and persistent mental health condition and high rates of inpatient hospitalization or emergency department (ED) use. The purpose of this report is to provide MDHHS with documentation of the cost-efficiency evaluation for the behavioral health home pilot program. It is our understanding that this report will ultimately be submitted to the Centers for Medicare and Medicaid Services (CMS).

II. Executive Summary

The State of Michigan submitted a state plan amendment to CMS in 2014 for the behavioral health home pilot, which became effective on July 1, 2014. This program requires ongoing annual monitoring of costs associated with those enrolled in the health home (intervention group) and those not enrolled in the health home (control group). For purposes of this evaluation, control group 1 includes beneficiaries identified as SMI in the pilot regions who were not enrolled in a health home and control group 2 includes beneficiaries identified as SMI in non-pilot regions.

Table 1 illustrates the behavioral health home evaluation for calendar year (CY) 2017, which includes a comparison of total per member per month (PMPM) cost in CY 2016 and CY 2017 for the intervention group and both control groups. The intervention and control group beneficiaries identified in the CY 2017 evaluation period were limited to those with six or more months of eligibility in both CY 2016 and CY 2017 to gain better consistency in the two years of experience under comparison. From CY 2016 to CY 2017, the enrollment in health homes in the state of Michigan has significantly decreased because Washtenaw County is no longer participating in the program. This impacts both average monthly members and the composite PMPM for the Intervention Group below.

FIGURE 1: Membership and PMPM cost comparison by group

	<u>AVERAGE MONTHLY MEMBERS</u>			<u>COMPOSITE PMPM</u>		
	<u>CY 2016</u>	<u>CY 2017</u>	<u>% CHANGE</u>	<u>CY 2016</u>	<u>CY 2017</u>	<u>% CHANGE</u>
Intervention Group	146	146	(0.40%)	\$1,361.17	\$1,368.98	0.60%
Control Group 1	13,632	13,646	0.10%	898.59	899.25	0.10%
Control Group 2	387,751	388,290	0.10%	852.54	879.73	3.20%

Appendix A illustrates a more detailed cost model comparison of the CY 2016 and CY 2017 experience for the intervention group and both control groups.

III. Methodology

The following sections provide the methodology and assumptions used for this analysis.

DATA SOURCES

As the actuary contracted by MDHHS to provide consulting services and associated financial analyses for many aspects of the Michigan Medicaid program, Milliman intakes and summarizes eligibility and encounter claims data on a monthly basis from Optum, MDHHS's data administrator. Through this process, Milliman maintains a historical claims and eligibility database with information from October 1, 2012 through current information.

Milliman also received from MDHHS a list of the beneficiaries enrolled in a behavioral health home during the evaluation period.

INTERVENTION AND CONTROL GROUP LOGIC

The evaluation of the behavioral health home program compares experience for beneficiaries enrolled in a health home (intervention group) to similar beneficiaries not enrolled in a health home (control groups). The pilot regions with CMHSPs initially operating health homes include Grand Traverse, Manistee, and Washtenaw counties. Beginning in CY 2017, Washtenaw no longer is participating in the health home, and thus has no enrollment in the Intervention Group. The following logic was used to create these groups:

- **Intervention group**
 - Eligible in a pilot region
 - Enrolled in health home
 - SMI diagnosis during evaluation period (CY 2017)
- **Control group 1**
 - Eligible in a pilot region
 - Not enrolled in health home
 - SMI diagnosis during evaluation period (CY 2017)
- **Control group 2**
 - Eligible in a non-pilot region
 - Not enrolled in health home
 - SMI diagnosis during evaluation period (CY 2017)

Appendix B reflects the list of diagnosis codes used to identify a serious mental illness. Beneficiaries were identified as SMI if they had one SMI diagnosis during the evaluation period from a non-assessment service.

For purposes of this evaluation, we have limited the SMI beneficiaries identified during the evaluation period and included in the intervention or control groups to those with six or more months of eligibility in **both** CY 2016 and CY 2017 to gain better consistency in the groups between the comparison periods. Table 2 illustrates the average monthly members with an SMI diagnosis in the intervention and control groups as well as the average monthly members included in the evaluation.

FIGURE 2: Impact of six-month eligibility requirement

	AVERAGE MONTHLY MEMBERS		
	INITIAL	LIMITED	% REDUCTION
Intervention Group	146	146	(0.50%)
Control Group 1	22,642	13,646	(39.70%)
Control Group 2	626,013	388,290	(37.90%)

Based on discussions with MDHHS, we have not made any adjustments to normalize for differences between the intervention and control group populations.

EXPENDITURE LOGIC

After we limited the beneficiaries to include in the intervention and control groups, we merged the corresponding eligibility file with the CY 2016 and CY 2017 fee-for-service claims and managed care encounter data by member and incurred month to create the applicable claims file. The claims used for purposes of this analysis reflect all Medicaid services, including medical, pharmacy, behavioral health, and long-term supports and services.

Mental health and substance abuse encounter data from the Specialty Services and Supports Waiver was repriced using the statewide unit cost reported by the prepaid inpatient health plans (PIHPs) for the applicable time period. We have not made any other adjustments to the fee-for-service claims or encounter data for purposes of this analysis.

IV. Limitations

The services provided for this project were performed under the signed contract between Milliman and MDHHS approved February 27, 2017.

The information contained in this letter, including the appendices, has been prepared for the State of Michigan, Department of Health and Human Services and their consultants and advisors. It is our understanding that this letter may be utilized in a public document. To the extent that the information contained in this letter is provided to third parties, the letter should be distributed in its entirety. Any user of the data must possess a certain level of expertise in actuarial science and healthcare modeling so as not to misinterpret the data presented.

Milliman makes no representations or warranties regarding the contents of this letter to third parties. Likewise, third parties are instructed that they are to place no reliance upon this letter prepared for MDHHS by Milliman that would result in the creation of any duty or liability under any theory of law by Milliman or its employees to third parties.

In performing this analysis, we relied on data and other information provided by MDHHS and its vendors. We have not audited or verified this data and other information. If the underlying data or information is inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete.

We performed a limited review of the data used directly in our analysis for reasonableness and consistency and have not found material defects in the data. If there are material defects in the data, it is possible that they would be uncovered by a detailed, systematic review and comparison of the data to search for data values that are questionable or for relationships that are materially inconsistent. Such a review was beyond the scope of our assignment.

Differences between our projections and actual amounts depend on the extent to which future experience conforms to the assumptions made for this analysis. It is certain that actual experience will not conform exactly to the assumptions used in this analysis. Actual amounts will differ from projected amounts to the extent that actual experience deviates from expected experience.

Guidelines issued by the American Academy of Actuaries require actuaries to include their professional qualifications in all actuarial communications. The authors of this report are members of the American Academy of Actuaries, and meet the qualification standards for performing the analyses in this report.

Appendix 1: Cost Model Comparison

**State of Michigan, Department of Health and Human Services
Health Homes Annual Change
CY 2017 (FFY 2018) Evaluation**

	Intervention Group			Control Group 1			Control Group 2			Total/Composite		
	CY 2016	CY 2017	% Change	CY 2016	CY 2017	% Change	CY 2016	CY 2017	% Change	CY 2016	CY 2017	% Change
Average Monthly Members	146	146	(0.4%)	13,632	13,646	0.1%	387,751	388,290	0.1%	401,529	402,082	0.1%
Paid PMPM												
Physical Health												
Inpatient Hospital	\$ 295.48	\$ 224.06	(24.2%)	\$ 300.76	\$ 296.46	(1.4%)	\$ 278.41	\$ 289.79	4.1%	\$ 279.18	\$ 289.99	3.9%
Emergency Room	76.04	74.47	(2.1%)	33.88	32.66	(3.6%)	35.71	35.25	(1.3%)	35.66	35.18	(1.4%)
Other	276.47	321.51	16.3%	176.16	188.02	6.7%	199.32	206.13	3.4%	198.56	205.56	3.5%
Physical Health Composite	\$ 647.99	\$ 620.04	(4.3%)	\$ 510.81	\$ 517.14	1.2%	\$ 513.44	\$ 531.17	3.5%	\$ 513.40	\$ 530.73	3.4%
Mental Health												
Inpatient	\$ 22.01	\$ 59.69	171.2%	\$ 21.54	\$ 21.07	(2.2%)	\$ 22.61	\$ 26.71	18.2%	\$ 22.57	\$ 26.53	17.6%
Other	685.18	668.06	(2.5%)	354.13	348.10	(1.7%)	303.90	308.70	1.6%	305.74	310.16	1.4%
Mental Health Composite	\$ 707.19	\$ 727.75	2.9%	\$ 375.67	\$ 369.17	(1.7%)	\$ 326.50	\$ 335.41	2.7%	\$ 328.31	\$ 336.70	2.6%
Substance Abuse	\$ 5.99	\$ 21.19	253.9%	\$ 12.11	\$ 12.93	6.8%	\$ 12.59	\$ 13.14	4.4%	\$ 12.58	\$ 13.14	4.5%
Composite	\$ 1,361.17	\$ 1,368.98	0.6%	\$ 898.59	\$ 899.25	0.1%	\$ 852.54	\$ 879.73	3.2%	\$ 854.29	\$ 880.57	3.1%

Appendix 2: SMI Diagnosis Listing

State of Michigan
 Department of Health and Human Services
 Specialty Services and Supports Waiver
 Serious Mental Illness Diagnosis Codes

<i>ICD-9 Diagnosis Code</i>	<i>Description of Diagnosis</i>
290	Dementias
293	Transient mental disorders due to conditions classified elsewhere
294	Persistent mental disorders due to conditions classified elsewhere
295	Schizophrenic disorders
296	Episodic mood disorders
297	Delusional disorders
298	Other nonorganic psychoses
300.00	Anxiety state, unspecified
300.01	Panic disorder without agoraphobia
300.02	Generalized anxiety disorder
300.11	Conversion disorder
300.21	Agoraphobia with panic disorder
300.22	Agoraphobia without mention of panic attacks
300.3	Obsessive-compulsive disorders
300.4	Dysthymic disorder
300.7	Hypochondriasis
300.81	Somatization disorder
300.89	Other somatoform disorders
301.13	Cyclothymic disorder
301.7	Antisocial personality disorder
301.83	Borderline personality disorder
307.80	Psychogenic pain, site unspecified
307.81	Tension headache
307.89	Pain disorders related to psychological factors; other
309.0	Adjustment disorder with depressed mood
309.24	Adjustment disorder with anxiety
309.28	Adjustment disorder with mixed anxiety and depressed mood
309.4	Adjustment disorder with mixed disturbance of emotions and conduct
309.81	Posttraumatic stress disorder
309.9	Unspecified adjustment reaction
311	Depressive disorder, not elsewhere classified
312.30	Impulse control disorder, unspecified
312.34	Intermittent explosive disorder
312.90	Unspecified disturbance of conduct
313.81	Oppositional defiant disorder
314.00	Attention deficit disorder without mention of hyperactivity
314.01	Attention deficit disorder with hyperactivity

State of Michigan
 Department of Health and Human Services
 Specialty Services and Supports Waiver
 Serious Mental Illness Diagnosis Codes

<i>ICD-10 Diagnosis Code</i>	<i>Description of Diagnosis</i>
F01	Vascular dementia
F02	Dementia in other diseases classified elsewhere
F03	Unspecified dementia
F04	Amnesic disorder due to known physiological condition
F05	Delirium due to known physiological condition
F06	Other mental disorders due to known physiological condition
F07	Personality and behavioral disorders due to known physiological condition
F09	Unspecified mental disorder due to known physiological condition
F20	Schizophrenia
F21	Schizotypal disorder
F22	Delusional disorders
F23	Brief psychotic disorder
F24	Shared psychotic disorder
F25	Schizoaffective disorders
F28	Other psychotic disorder not due to a substance or known physiological condition
F29	Unspecified psychosis not due to a substance or known physiological condition
F30	Manic episode
F31	Bipolar disorder
F32	Major depressive disorder, single episode
F33	Major depressive disorder, recurrent
F34	Persistent mood [affective] disorders
F39	Unspecified mood [affective] disorder
F40	Phobic anxiety disorders
F41	Other anxiety disorders
F42	Obsessive-compulsive disorder
F43	Reaction to severe stress, and adjustment disorders
F44	Dissociative and conversion disorders
F45	Somatoform disorders
F48	Other nonpsychotic mental disorders
F50	Eating disorders
F51	Sleep disorders not due to a substance or known physiological condition
F52	Sexual dysfunction not due to a substance or known physiological condition
F53	Puerperal psychosis
F54	Psychological and behavioral factors associated with disorders or diseases classified elsewhere
F55	Abuse of non-psychoactive substances
F59	Unspecified behavioral syndromes associated with physiological disturbances and physical factors
F60	Specific personality disorders
F63	Impulse disorders
F64	Gender identity disorders
F65	Paraphilias
F66	Other sexual disorders
F68	Other disorders of adult personality and behavior
F69	Unspecified disorder of adult personality and behavior
F93	Emotional disorders with onset specific to childhood
F94	Disorders of social functioning with onset specific to childhood and adolescence
F95	Tic disorder
F98	Other behavioral and emotional disorders with onset usually occurring in childhood and adolescence
F99	Mental disorder, not otherwise specified
F43	Reaction to severe stress, and adjustment disorders
F90	Attention-deficit hyperactivity disorders
F91	Conduct disorders