

**Serious and Persistent Mental Illness  
in Texas Medicaid:  
Descriptive Analysis and Policy Options  
Final Report**

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**Executive Summary**

The primary goals of this project were to: 1) obtain and link Medicaid and Medicare acute care data from the Texas Health and Human Services Commission (HHSC), long term services and support data from the Texas Department of Assistive and Disability Services (DADS), local mental health authority (LMHA) and state hospital data from the Texas Department of State Health Services (DSHS), and hospital discharge data from DSHS; 2) use the linked data to describe the severe and persistent mental illness population using state services and their utilization patterns and costs; and 3) interview providers and health plan administrators, and review literature and websites, to identify service delivery issues and best practices for this population.

To achieve the first objective the UTSPH research team has been working with the Institute for Healthcare Quality and Efficiency (IHCQE), DADS, and DSHS staff to gain institutional review board approvals, data use agreements, determine techniques for data transfer and receipt, understand the structure and content of each data set, and link them for analysis. As of the writing of this report, three of five data sets -- Medicaid acute care, Medicare acute care, and LMHA/state hospital data -- have been obtained and linked. Approvals have been obtained to receive the remaining two data sets, and data consolidation and transfer processes are ongoing.

Preliminary analyses of the linked data have been completed and findings are reported here with respect to the number and characteristics of individuals with SPMI who are in each database, their enrollment patterns, and their medical conditions.

Interviews were carried out with representatives of nine LMHAs and one health plan administrator in order to understand service gaps and how care might more optimally be arranged and funded. There was also a focus on the transition of behavioral health intensive case management and rehabilitation services to managed care. Provider representatives were selected to include those in rural as well as urban service areas, in established integrated care systems,

and providing care to persons dually diagnosed with intellectual disability as well as mental illness.

Thirty-one recent review articles summarizing evidence-based clinical best practices for people with SPMI were identified and examined. The summaries focused on outpatient care and the array of services that could be adopted by a care team, treatment center, or local mental health authority. Literature summarizing opportunities for reforming care for this population created by the Affordable Care Act, as well as under Medicaid waiver programs, was also reviewed. A web search was conducted to discover innovative state models of health service delivery and/or financing for the SPMI population. Results were reviewed and summarized.

## **Findings**

### ***SPMI Population***

Using the Medicaid claims/encounters and enrollment data, and defining a Medicaid enrollee with SPMI as an individual who had at least one Medicaid service claim or encounter for schizophrenia, major depression, or bipolar disorder, there were 288,355 adults with SPMI  $\geq$  18 years old, enrolled in Medicaid during 2010-2012.<sup>1</sup> This represented 4.3% of the total enrolled Medicaid population for that period and 10.8% of the total adult ( $\geq$  18 years old) Medicaid population.

Compared to the Medicaid adult population, enrollees with SPMI were more likely to be White (42.6% versus 28.1%), and less likely to be Hispanic (26.9% versus 46.8%), less likely to be female (64.8% versus 73.2%), and more likely to qualify for SSI (72.2% versus 27.0%). On average, SPMI enrollees were approximately five years older than non-SPMI enrollees (46.6 years versus 41.0 years). Of Texas Medicaid patients with SPMI, 42.3% were also enrolled in Medicare (dual eligibles) between 2010 and 2012, with 31.5% using LMHA/state hospital services. Nine percent (9.0%) were both dual eligibles and used LMHA/state hospital services. Persons with SPMI who were dual eligible were more likely to be White (49.3% versus 37.7%),

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<sup>1</sup> Our definition is similar to that used in the research literature to identify the SPMI population using coded claims/encounter data. The definition may be adjusted as more data are acquired to reflect other diagnostic categories, severity of illness, and/or intensity of service use.

and less likely to be African American (20.0% versus 23.5%) or Hispanic (24.3% versus 28.9%). They were approximately 11 years older than SPMI patients not in Medicare (58.8 years versus 37.6 years). Those who used LMHA/state hospital services were approximately seven years younger (42.0 years versus 48.7 years) than those who did not, and were more likely to be African American (27.5% versus 19.5%), and less likely to be White (38.3% versus 44.6%) or Hispanic (22.8% versus 28.9%). Patients in both groups were more likely to be SSI eligible.

Medicaid enrollees with SPMI were enrolled for an average of 21.2 months during the three year period; 9.8% had at least one gap in enrollment and another 1% had multiple gaps. The average length of enrollment gaps was 7.3 months. SPMI enrollees over the age of 65, non-SSI enrollees, women, and African-Americans and Hispanics were more likely to have gaps in coverage.

Texas Medicaid enrollees with SPMI were more likely than non-SPMI enrollees to have one or more of 13 major medical comorbidities (49.1% versus 36.4%), and more likely to have two or more of these comorbidities (27.2% versus 19.4%). Texas Medicaid enrollees with SPMI patients enrolled in Medicare were more likely than non-Medicare enrolled SPMI patients to have comorbidities (77.8% versus 42.2%, respectively, had one or more of the comorbidities), while patients using LMHA/state hospital services were less likely to have comorbidities (47.6% versus 61.8%).

### ***Best Practices***

The interviews with LMHA providers indicated the following concerns and suggested responses.

Concerns:

- Service coverage and payment rigidities.
- Delays in processes of approval and payment for services.
- Low reimbursement rates.
- Overall burden and lack of standardization of performance reporting requirements.
- Requirement that counselors seeking reimbursement for cognitive-behavioral therapy pass the DSHS CBT competency test.
- Lack of coverage of wide-range of service needs of the SPMI/IDD population.

- Resource gaps and barriers to care, particularly in rural areas.

Suggested Responses:

- Designate one state agency to conduct oversight of care to people with SPMI.
- Review performance metrics and determine methods for streamlining and standardizing.
- Develop separate performance metrics for the population of people with SMI/IDD.
- Continue and expand state support for integrating physical and behavioral healthcare, expand and integrate peer specialists and community health workers into behavioral healthcare, and expand availability of telemedicine and medical transportation, particularly in rural areas.
- Provide incentives for clinics to hire bilingual staff.
- Conduct a collaborative study to examine the health benefits of Medicaid enrollees with SPMI moving from SPMI-specific care into integrated care.
- Pilot a pay-for-performance model in integrated clinics for care of SPMI patients.

The selected articles identified through the literature search provide evidence supporting the following types of services and service arrangements as best practices in care for patients with SPMI.

- Integrate regular medical care with psycho-education and support groups.
- Deliver services by telemedicine.
- Develop care components that empower patients and provide training in self-care.
- Develop interventions aimed at sustaining or repairing the social life of the patient, including housing assistance, occupational training, community mental health teams, and crisis intervention services.

### ***Policy Options***

Results from the web search of policy innovations in other states revealed the following types of strategies for improving care of the SPMI population:

- Reforms in Medicaid and/or Medicare payment and coverage,

- Task forces/advisory councils/oversight commissions to oversee state programs serving persons with an SPMI diagnosis, and
- Data analytic centers to provide consistent, comprehensive data collection and evaluation of state programs.

Potential opportunities created by the Affordable Care Act and related changes in federal laws and regulations related to Medicaid are the following:

- Coverage requirements for preventive healthcare services, including screening for alcohol abuse problems and depression, require Medicaid plans designed for the expansion populations to cover these services without cost-sharing, while for traditional Medicaid populations the federal government will pay for an additional one percent of the cost.
- Medicaid Health Home initiatives receive additional federal funds to integrate preventive and wrap-around services into whole-person care teams.
- The Centers for Medicare and Medicaid Services (CMS) State Innovation Models (SIM) Initiative. Provides funding support for the development and testing of state-based models for multi-payer payment and healthcare delivery system transformation. Projects can focus on high risk populations with behavioral health problems.
- Changes in CMS rules for home and community based waivers eliminate institutional level of care requirement, expands the population that can be served, expands financial eligibility requirements, offers more flexibility to states to target services to specific populations based on diagnosis, age, disability, or coverage group, expands the services states can provide under this option
- Changes in CMS rules allowing reimbursement for preventive services provided by non-licensed practitioners (CHWs, peer counselors, etc.).

## **Conclusions and Recommendations**

Based on the preliminary analyses completed with the data sets received, the total number and characteristics of enrollees with an SPMI diagnosis in Texas Medicaid were reported, their most prevalent diagnoses and co-morbidities, enrollment gaps, predictors of enrollment gaps, their enrollment in SSI and Medicare, and their use of LMHA/state hospital services.

From the experience acquiring these data sets, a number of challenges were identified that suggested the need for streamlining and standardizing access to and linkage of state databases. The following recommendations are offered to improve the state's capacity for more comprehensive evaluation of state programs serving people with SPMI.

1. A data center for healthcare administrative data sets including staff dedicated to receiving and managing these data, and providing technical assistance to internal and external researchers and analysts.
2. The data center should develop a standard process for external analysts to access these data.
3. The center should collaborate with external analysts/institutions that have the capacity and expertise to handle these functions, and have the capacity and expertise to conduct statewide research projects with these data, including as requested by state agencies.

The qualitative information obtained from provider and payer interviews and literature and web searches provided a number of important concerns and potential strategies for improving services to the SPMI population. Since cross-system data analyses have not yet been conducted, and additional interviews with payers and providers are to be completed, it is premature to draw broad conclusions or make specific recommendations regarding clinical best-practices or policy options at this time.

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**I. Data Acquisition and Linkage**

With assistance from the board and staff of the IHCQE, and the staff of the HHSC, DADS, and DSHS, the UT SPH research team has been obtaining state-level healthcare administrative data sets in order to assess the services delivered by various state agencies to people with serious and persistent mental illness (SPMI). The process of acquiring the data sets involves multiple steps including: obtaining all required IRB approvals from participating institutions to request, obtain, and analyze data sets; requesting the data sets from various state agencies and offices and developing signed agreements to receive them; receiving and securely maintaining the data sets; understanding and preparing the data sets for analysis; and making the data available to analysts. The process has been complicated by the diversity of requirements and procedures in the different agencies. In some cases it has been challenging to learn what steps are involved and who should be contacted to develop data-sharing agreements and IRB approvals. Brief descriptions of the data acquisition processes, challenges, and current status are provided here.

The first step was obtaining IRB approval from the UT Health Science Center Houston Institutional Review Board. Following that, parallel processes were undertaken to access each of the data sets:

***Medicaid Acute Care***

UT SPH had the necessary approval to receive Medicaid data from HHSC, and had some of the Medicaid files. Medicaid NorthSTAR data was obtained and linked during the study.

Current files: The Medicaid administrative dataset includes eligibility, enrollment, encounter and claims information for individuals enrolled in the program from September 2007 through August 2012, although data from NorthSTAR is available only for 2011 and 2012. In 2011, Medicaid covered approximately 14% of the individuals in Texas. The dataset includes individuals enrolled in the Medicaid program on a monthly basis.

The claims files have information for all medical claims for individuals in fee for service (FFS) plans as well as PCCM. For those under capitation the information on utilization is in a format known as Encounter files. The Medicaid data include information on types of services used (inpatient, outpatient, professional, and pharmacy), dates of service, primary and secondary diagnosis, procedures, providers and dollar amounts charged and paid.

### ***Medicare Acute Care***

UT SPH had approval from HHSC to receive Texas Medicare data. However, it was determined that an HHSC amendment to the DUA was needed. The revised DUA was developed, reviewed by legal staff at UT SPH and HHSC, and signature-approval obtained from officials at both institutions.

Current files: The Medicare administrative data files are for all Texas Medicare beneficiaries (enrollees) for calendar years (CY) 2010 through 2013. Only data from 2010 through 2012 were analyzed for this report. The dataset includes demographic, enrollment, inpatient, outpatient (including durable medical equipment etc.), and skilled nursing data. If individuals are enrolled in a Medicare Part D (pharmacy) plan, those data are available as well. Utilization data are available for individuals enrolled in Medicare Parts A and B (Medicare FFS). This comprises approximately 80% or more of Texas Medicare beneficiaries during this period. For individuals enrolled in Medicare Part C (Medicare Advantage), data are limited to beneficiary summary information, including demographic data and enrollment data. The data for inpatient, outpatient, skilled nursing, or other provider claims services are not complete. Individuals may also have Medicare Part D (pharmacy) data if they were also enrolled in a Medicare Part D plan during this period. The Medicare data include information on types of services used, dates of service, primary and secondary diagnosis, procedures, providers, and dollar amounts charged and paid.

### ***DADS Long Term Services and Supports***

A DUA was developed and approved by the legal departments of UT SPH and DADS. An “action memo” was developed from the appropriate DADS office. A data security plan was completed and approved by the UT Health Sciences Center Chief Information Security Office and DADS IT staff and other DADS officials. The data are being prepared for transfer.

### ***DSHS LMHA and State Hospital Data***

With the assistance of staff at DSHS, the following data request and IRB forms were submitted to obtain 2010 to 2012 LMHA and state hospital utilization and payment data for the Medicaid SPMI population.

- 1) Approval-to-Apply Request to Deputy Commissioner;
- 2) Medicaid Clients Variable List with requested variables for clients with Medicaid IDs;
- 3) Research Protocol;
- 4) Initial IRB Application Form;
- 5) Documentation of Training in the Conduct of Research with Human Subjects;
- 6) Disclosure of Potential Conflicts of Interest;
- 7) Request for Waiver of Consent or Authorization – HIPPA;
- 8) IHCQE Letter of Support.

The data request and IRB forms were provided by DSHS staff to the UT SPH team in mid-February and prepared and submitted in mid-March. The data request and IRB forms were reviewed by DSHS staff and forwarded for approval in mid-April. The data request was approved by the Executive Committee in June. The HIPAA Waiver of Authorization was approved in mid-May and the IRB application was approved in June. All approval signatures on all forms and the final approval letter were obtained in late July. The data were pulled by DSHS staff and transferred to UT SPH in October 2014.

Current files: The LMHA/state hospital data contains encounters and services for all Texas Medicaid enrollees for 2010 through 2012. Data include demographic, level of care, inpatient, outpatient, and pharmacy services received. This includes information on types of services used, dates of service, primary diagnosis, procedures, providers, and event costs. Although these files were restricted to Texas Medicaid enrollees, they include data on LMHA/state hospital services received by those individuals during gaps in their Medicaid enrollment.

### ***Texas Hospital Discharge Data***

A UT SPH request to obtain THCIC hospital discharge data for linkage to Medicaid claims was initially declined. Another request for IHCQE to obtain the data was developed and a plan for DSHS staff to perform the linkage. The IHCQE request was submitted and approved. The linkage process involved UT SPH generating a list of Medicaid-enrolled individuals and

DSHS staff performing the linkage with hospital discharge data. DSHS staff are completing the linkage at the time of writing this report.

## **Summary and Recommendations**

With the support of the IHCQE and the Meadows Foundation, the UT SPH in Houston has been acquiring and linking state-level administrative data to determine the patterns of care and costs for Medicaid members with an SPMI diagnosis that are provided through multiple agencies. The process of obtaining the data sets has been slow and difficult, despite the good will and assistance from the involved agencies. For each agency, there is a separate, unique process for ascertaining executive approval, ascertaining IT security approval, and ascertaining institutional review board approval. In some cases there are statutory barriers, for example data usage fees, that further impede access to data.

In order to assess health care performance, the long-term goal of the State of Texas should be to have comprehensive and integrated administrative data sets of high quality that is available for policy analysts, both inside and outside state government, to evaluate the functioning of publically-funded healthcare programs and services, and to evaluate the impact of administrative and policy changes. From our experience acquiring data sets for evaluation of services to the population of people with SPMI, the following preliminary recommendations are offered:

1. A central data repository center for state-level administrative data sets should be established; this should include staff dedicated to receiving and managing these data, and providing technical assistance to internal and external researchers and analysts.
2. The center should develop a single process for accessing these data by external investigators.
3. The center should collaborate with academic institutions that have the capacity and expertise to handle these functions, and have the capacity and expertise to conduct statewide research projects with these data, including as requested by state agencies.

## **II. Analysis of Medicaid Claims, Encounter, and Enrollment Data**

### **Identification of Cases**

In the Medicaid data set, persons with SPMI were identified based on primary SPMI diagnosis code for Medicaid services noted in the Medicaid claims and encounter data during state fiscal years 2010 through 2012. Our analysis plan has been restricted to adults, so we have only developed analyses for persons 18 and older. The diagnosis codes used for case identification are shown below in Table 1. They are commonly used in the SPMI-related literature and focus on the three most severe diagnostic categories: schizophrenia, major depression, and bipolar disorder. If desired, other diagnosis categories can be included in future analyses.

When we began this project, we reviewed existing literature to identify a consensus criteria set for identifying a population of individuals with an SPMI diagnosis in administrative data; our findings were that there is no consensus, but the varied criteria were fairly concordant. Our definition is representative of those used thus far. In the future, this can be adjusted, including targeting those with more debilitating illness, or those with greater utilization intensity.

We used primary diagnoses only for identifying the Texas Medicaid SPMI population. There are notable reporting differences between the claims and encounter files, with secondary diagnosis codes not reliably available in the encounter data. The primary diagnosis code is the only consistent diagnostic indicator across both the claims and encounter data files.

**Table 1. ICD-9 Codes Used to Identify Medicaid Enrollees with SPMI**

<b>ICD-9 Codes</b>	<b>Description</b>
Schizophrenia, including schizoaffective disorder	295.0x Simple type schizophrenia
	295.1x Disorganized type schizophrenia
	295.2x Catatonic type schizophrenia
	295.3x Paranoid type schizophrenia
	295.4x Schizophreniform disorder
	295.5x Latent schizophrenia
	295.6x Schizophrenic disorders, residual type

	295.7x	Schizoaffective disorder
	295.8x	Other specified types of schizophrenia
	295.9x	Unspecified type schizophrenia
Major depressive	296.2x	Major depressive affective disorder single episode
	296.3x	Major depressive affective disorder recurrent episode
	311	Depressive disorder not elsewhere classified
Bipolar disorder	296.0x	Bipolar disorder, single manic episode
	296.1x	Manic affective disorder recurrent episode
	296.4x	Bipolar disorder, most recent episode (or current) manic
	296.5x	Bipolar disorder, most recent episode (or current) depressed
	296.6x	Bipolar disorder, most recent episode (or current) mixed
	296.7x	Bipolar disorder, most recent episode (or current) unspecified
	296.8x	Bipolar disorder/atypical manic disorder/atypical depressive disorder/other and unspecified bipolar disorders, other
	296.9x	Unspecified episodic mood disorder/other specified episodic mood disorder

## Individuals with SPMI

As Table 2 shows, there were 288,355 separate individuals,  $\geq 18$  years old, who had at least one claim or encounter with a primary SPMI diagnosis in 2010 to 2012. This population represents 10.8% of the adult Medicaid population. As noted above, data obtained for NorthSTAR enrollees were only available for 2011 and 2012. Medicaid patients identified as SPMI through the NorthSTAR data represent approximately 3% of SPMI patients included in this report. As we gather and analyze additional data sets, as planned and underway, we may determine that there are more individuals who fit the SPMI definition.

The diagnostic breakdown of this population of Medicaid patients with SPMI is shown in Table 2. Major depression accounted for almost half (43.6%) of all cases, followed by individuals with bipolar disorder (31.2%). This category includes individuals with either a bipolar diagnosis alone, or with both depression and bipolar diagnoses. Depression is a component of bipolar disorder, consequently the joint identification of these categories is likely identifying bipolar individuals, with providers on some occasions or settings choosing to code depression for that patient. We have kept those with a diagnosis of both bipolar disorder and depression separate in this analysis in order to reflect how they were identified in the data.

**Table 2. Number of Individuals with SPMI, by Year and Overall, for Texas Adult Medicaid Enrollees: State Fiscal Years 2010, 2011, and 2012.**

	2010	2011	2012	2010-2012
<b>Schizophrenia</b>	24,230	26,062	25,029	29,828 <sup>b</sup>
	14.3% <sup>a</sup>	12.3%	10.8%	10.3%
<b>Major Depression</b>	68,820	88,490	97,574	125,600
	40.7%	41.8%	42.0%	43.6%
<b>Bipolar Disorder</b>	29,828	35,097	35,670	46,665
	17.6%	16.6%	15.4%	16.2%
<b>Schizophrenia and Major Depression</b>	7,792	9,490	10,557	12,135
	4.6%	4.5%	4.5%	4.2%
<b>Schizophrenia and Bipolar Disorder</b>	8,032	9,780	11,014	12,648
	4.8%	4.6%	4.7%	4.4%
<b>Major Depression and Bipolar Disorder</b>	21,533	29,784	36,199	43,355
	12.7%	14.1%	15.6%	15.0%
<b>All 3 SMI categories</b>	9,002	12,832	16,305	18,124
	5.3%	6.1%	7.0%	6.3%
<b>Total</b>	169,237 <sup>b</sup>	211,535	232,348	288,355
	3.6% <sup>c</sup>	4.2% <sup>c</sup>	4.5% <sup>c</sup>	4.3% <sup>c</sup>
	10.0% <sup>d</sup>	11.8% <sup>d</sup>	12.5% <sup>d</sup>	10.8% <sup>d</sup>

<sup>a</sup> Except where noted, percentages are relative to the column totals.

<sup>b</sup> The column and row totals represent the unique (unduplicated) patients with an SPMI diagnosis. Individual cells do not sum to the row totals since a patient can have diagnoses in multiple years.

<sup>c</sup> Percent of total Texas Medicaid enrollees.

<sup>d</sup> Percent of adult Medicaid enrollees.

## Demographic Characteristics

The demographic characteristics of the population of people with SPMI in the Texas Medicaid data are shown in Table 3. Compared to the Texas Medicaid population with SPMI, the adult Medicaid enrollees not in the SPMI category were less likely to be White (28.1% versus 42.6%), more likely to be Hispanic (46.8% versus 26.9%), more likely to be female (73.2% versus 64.8%), and much less likely to have been a recipient of SSI, defined as at least one month of SSI eligibility (27.0% versus 72.2%). On average, non-SPMI enrollees were approximately five years younger than enrollees with SPMI ( $41.0 \pm 22.0$  years versus  $46.6 \pm 19.4$  years).

Among the enrollees with SPMI, those with a bipolar diagnosis were younger than those with a diagnosis of schizophrenia or major depression. The majority of the population with SPMI were female (64.8%), except for those diagnosed with schizophrenia (without depression or bipolar disorder), who were more likely to be male (61.4%). Whites tended to predominate across all diagnostic groups, with the exception of schizophrenia, where African-American patients were more prevalent than White patients (37.7% and 31.2%, respectively). Overall, almost three-quarters of the population of people with SPMI (72.2%) had a history of SSI eligibility (defined as at least one month of SSI enrollment after their index date), and the remainder were in other eligibility categories including enrollees eligible through disability, CHIP, or through a Medicare supplement (QMB, SLMB, MQMB). The percentage of cases that were SSI eligible was highest for those with a schizophrenia diagnosis (> 87.0%).

## Enrollment Patterns

Several indicators of Medicaid enrollment were calculated for the population of Medicaid enrollees with SPMI. These include the average number of months enrolled, the percentage of possible months enrolled after the index diagnosis date (or the start of 2010), the number with gaps in enrollment, and the number with dis-enrollment from the Medicaid program. The length of enrollment for each individual with SPMI was calculated from the date of the index SPMI diagnosis, if known, or from the beginning of 2010 for those who were enrolled and who had an

SPMI diagnosis prior to the beginning of state fiscal year 2010. The average lengths of enrollment are shown in Table 4 by diagnostic category. Overall, Medicaid enrollees with SPMI were enrolled for an average of 22.1 ( $\pm 12.4$ ) months, or >80.0% of the months they could have been enrolled from their index diagnosis date (or the beginning of 2010) to the end of the data period (Figure 1).

**Table 3. Demographic Characteristics of the Identified Adult Texas Medicaid Enrollees with SPMI, by Diagnosis**

	SPMI	Schizophrenia	Major Depression	Bipolar Disorder	Schizophrenia and Major Depression	Schizophrenia and Bipolar Disorder	Depression + Bipolar Disorder	All 3 SMI
<b>Number</b>	288,355	29,828	125,600	46,665	12,135	12,648	43,355	18,124
<b>Avg Age</b>	46.6 (19.4)	47.5 (14.7)	51.8 (21.7)	38.8 (15.8)	50.9(16.4)	43.3 (14.4)	40.2 (17.4)	44.1 (15.0)
<b>Sex (%)</b>								
Female	64.8%	38.6%	72.5%	64.8%	52.0%	49.0%	71.8%	57.2%
Male	35.2%	61.4%	27.5%	35.2%	48.0%	51.0%	28.2%	42.8%
<b>Race (%)</b>								
White (not Hispanic)	42.6%	31.2%	42.9%	47.9%	36.2%	38.2%	47.2%	42.0%
African-American (not Hispanic)	22.0%	37.7%	17.6%	20.8%	30.4%	32.6%	17.8%	27.0%

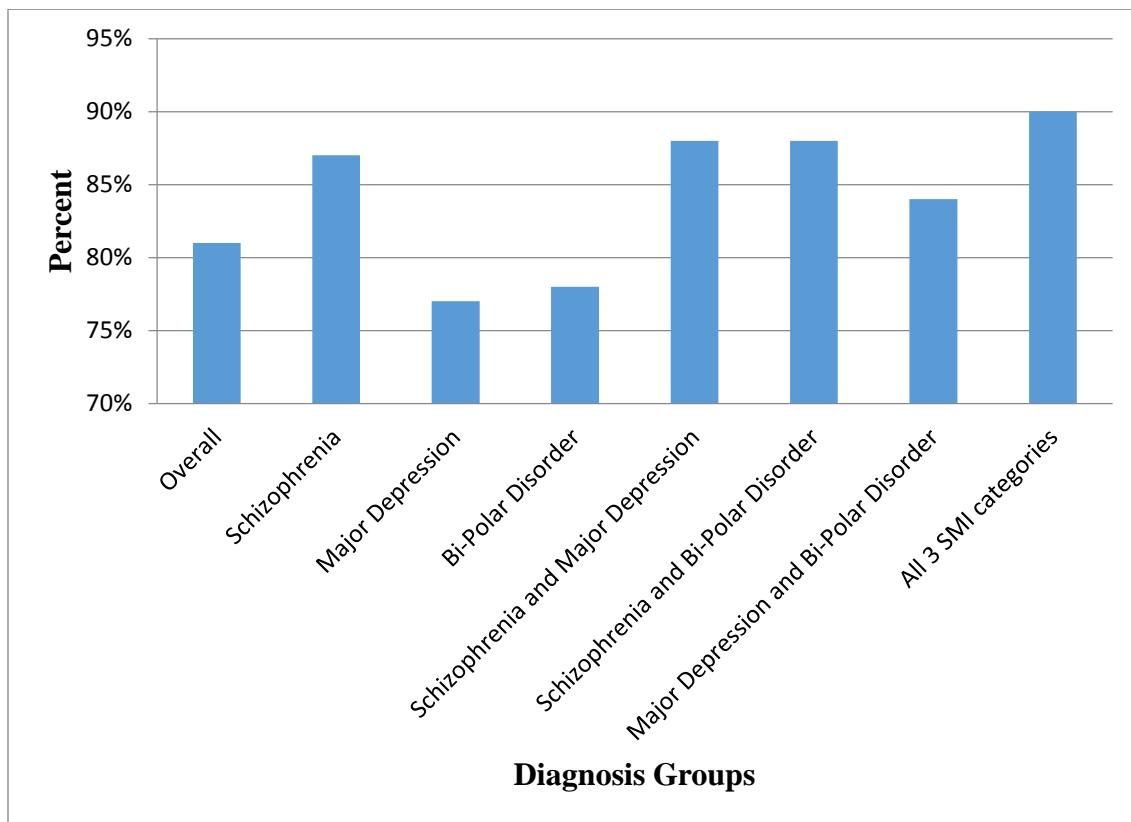
Hispanic	26.9%	18.6%	32.9%	21.0%	24.8%	18.0%	27.0%	22.0%
American Indian or Alaskan Native	0.3%	0.3%	0.3%	0.3%	0.3%	0.4%	0.3%	0.3%
Asian or Pacific Islander	1.0%	2.0%	1.0%	0.7%	1.2%	1.3%	0.5%	1.0%
Omitted /Inappropriate code	7.1%	10.1%	5.3%	9.3%	7.1%	9.5%	7.0%	7.7%
<b>SSI (%)</b>								
SSI	72.2%	87.7%	67.1%	65.0%	89.5%	87.4%	68.0%	89.1%
Other	27.8%	12.3%	32.9%	35.0%	10.5%	12.6%	32.0%	10.9%

The length of enrollment and percent of possible months enrolled varied across diagnosis groups, with patients diagnosed with schizophrenia (with or without accompanying SPMI diagnoses) enrolled the longest (25.0 months to 28.3 months) and with the highest percentage of possible months of enrollment (87.0% to 90.0%). Patients with major depression or bipolar disorder were enrolled for shorter periods (18.4 months and 19.7 months, respectively), and for a lower percentage of possible months (77.0% and 78.0%, respectively).

**Table 4. Number of Enrolled Months, by Diagnosis**

Diagnosis	N Obs	Mean	Std Dev	Median	Lower Quartile	Upper Quartile
Overall	288,355	22.1	12.4	23	10	36
Schizophrenia	29,828	25.0	12.1	29	14	36
Major Depression	125,600	18.4	12.2	17	7	30
Bipolar Disorder	46,665	19.7	12.4	19	8	33
Schizophrenia and Major Depression	12,135	28.3	10.5	36	22	36
Schizophrenia and Bipolar Disorder	12,648	28.1	10.5	36	22	36
Major Depression and Bipolar Disorder	43,355	26.1	11.0	30	17	36
All 3 SMI categories	18,124	30.5	8.8	36	27	36

**Figure 1. Percent of Possible Months Enrolled, 2010-2012, by Diagnostic Category**

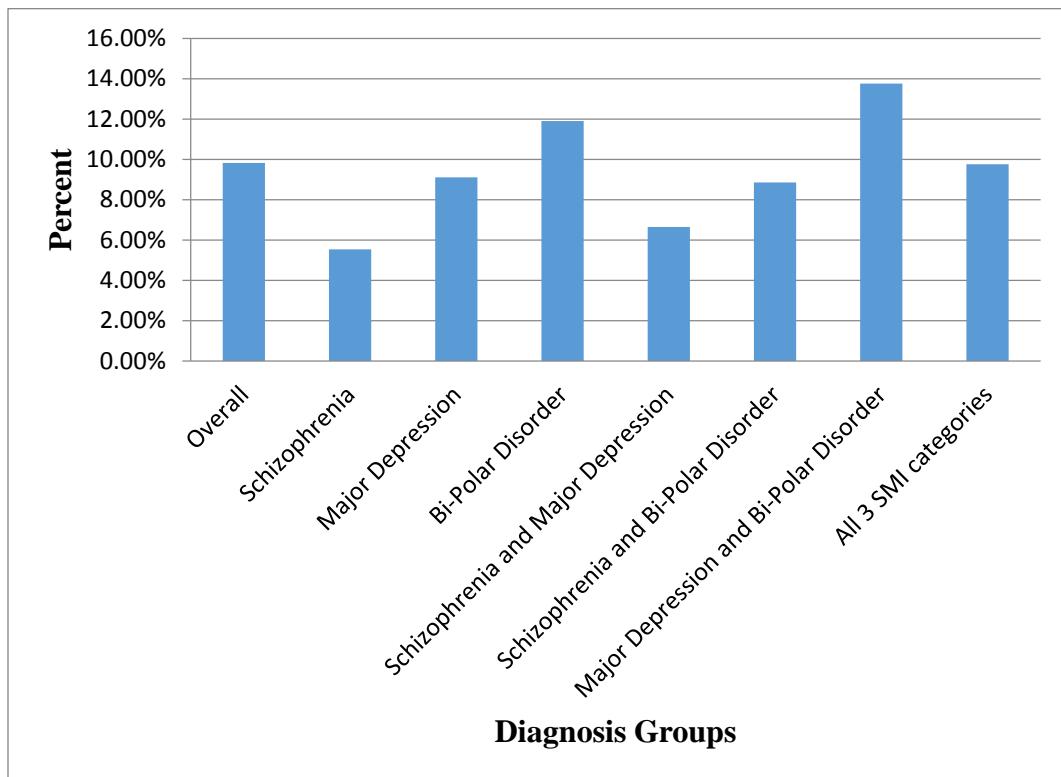


We defined a gap in enrollment as a lapse in Medicaid enrollment of more than one month, with re-enrollment following that lapse. Patients who had not re-enrolled in Medicaid by the end of the data period are included in the dis-enrollment percentages, not in the re-enrollment group. The percentages of Medicaid enrollees with SPMI who had at least one gap in enrollment are shown in Figure 2, and the percentages of those with more than one gap are shown in Figure 3. The average length of a gap was 7.3 ( $\pm 5.8$ ) months. Overall, 9.8% of the enrollees with SPMI had at least one gap, while 1.1% had multiple gaps. The pattern across diagnosis categories is comparable whether examining any gaps (one or more) or multiple gaps (more than one). Patients with schizophrenia as one of their diagnoses are the least likely to experience any gaps (from 5.5% to 9.8%) or multiple gaps (0.3% to 0.8%), while patients with bipolar disorder as one of their diagnoses are the most likely to experience any gap (9.8% to 13.8%) and multiple gaps (0.8% to 2.0%).

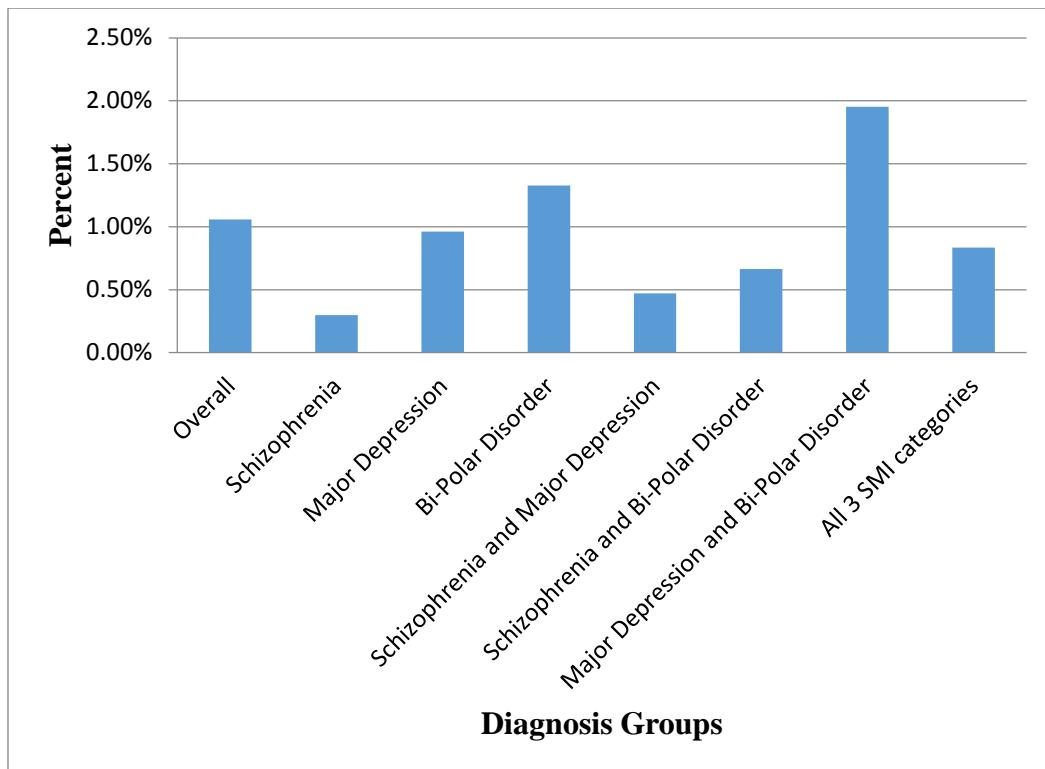
Among the individual-level characteristics examined (age, race/ethnicity, sex, and Medicaid eligibility category), the strongest predictors of gaps in enrollment were: being over the

age of 65 versus ages 18-64 (odds ratio = 5.1), and being non-SSI versus SSI (OR = 4.2). Sex and race/ethnicity differences were also significant predictors, but less impressive; women were more likely than men to have enrollment gaps (OR = 1.9), and African-Americans and Hispanics were more likely than Whites to have gaps (ORs = 1.2 and 1.3, respectively).

**Figure 2. Percent of Enrollees with Gaps in Enrollment, by Diagnostic Category**

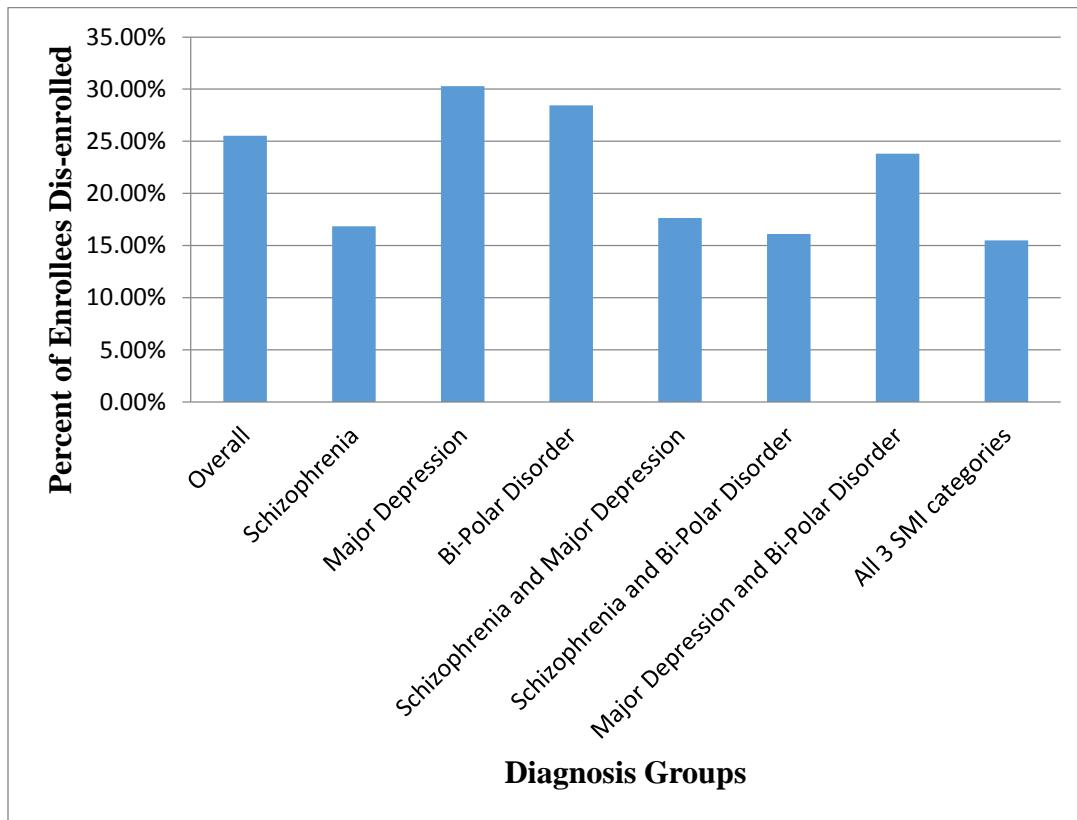


**Figure 3. Percent of Enrollees with Multiple(>1) Gaps, by Diagnostic Category**



Patients were considered to have dis-enrolled if they were not enrolled during the final month of state fiscal year 2012. Overall, 25.9% of Medicaid enrollees with SPMI who were enrolled some time during the study period had dis-enrolled by the end of 2012. Patients with schizophrenia (alone or in combination with other SPMI conditions) were the least likely to have dis-enrolled (14.1% to 17.8%), while patients who had major depression alone or bipolar disorder alone were the most likely to have dis-enrolled (30.5% and 28.4%, respectively). As with enrollment gaps, non-eligibility for SSI was a strong predictor for dis-enrollment (OR = 3.3).

**Figure 4. Percent of Enrollees Dis-enrolled from Medicaid at End of Data Period, by Diagnostic Category**



### **Medical Comorbidities**

Care for patients with SPMI is complicated by high rates of medical comorbidities (Birnbaum & Powell 2007). One objective of this project was to estimate the comorbidity burden for Texas Medicaid enrollees diagnosed with SPMI. We identified a set of 13 potential comorbidities based on the existing literature (see Table 5). This literature varies in how comorbidities are grouped. For the purposes of this project, we identified groups of patients with individual comorbidities using the ICD-9 and ICD-10 codes groupings identified as related to mortality in the SPMI and/or general population (National Vital Statistics Report, 2009; Piatt et al 2010). Given the years under examination, almost all comorbidities were identified using the ICD-9 code groupings. We included a 14<sup>th</sup> diagnosis category of Accidents (Unintentional

Injury) since Accidents are cited as one of the top causes of death for both SPMI patients and the general population (National Vital Statistics Report, 2009; Piatt et al 2010).

**Table 5. Comorbidity Groups and Associated ICD-9 and 10 Diagnosis Codes.**

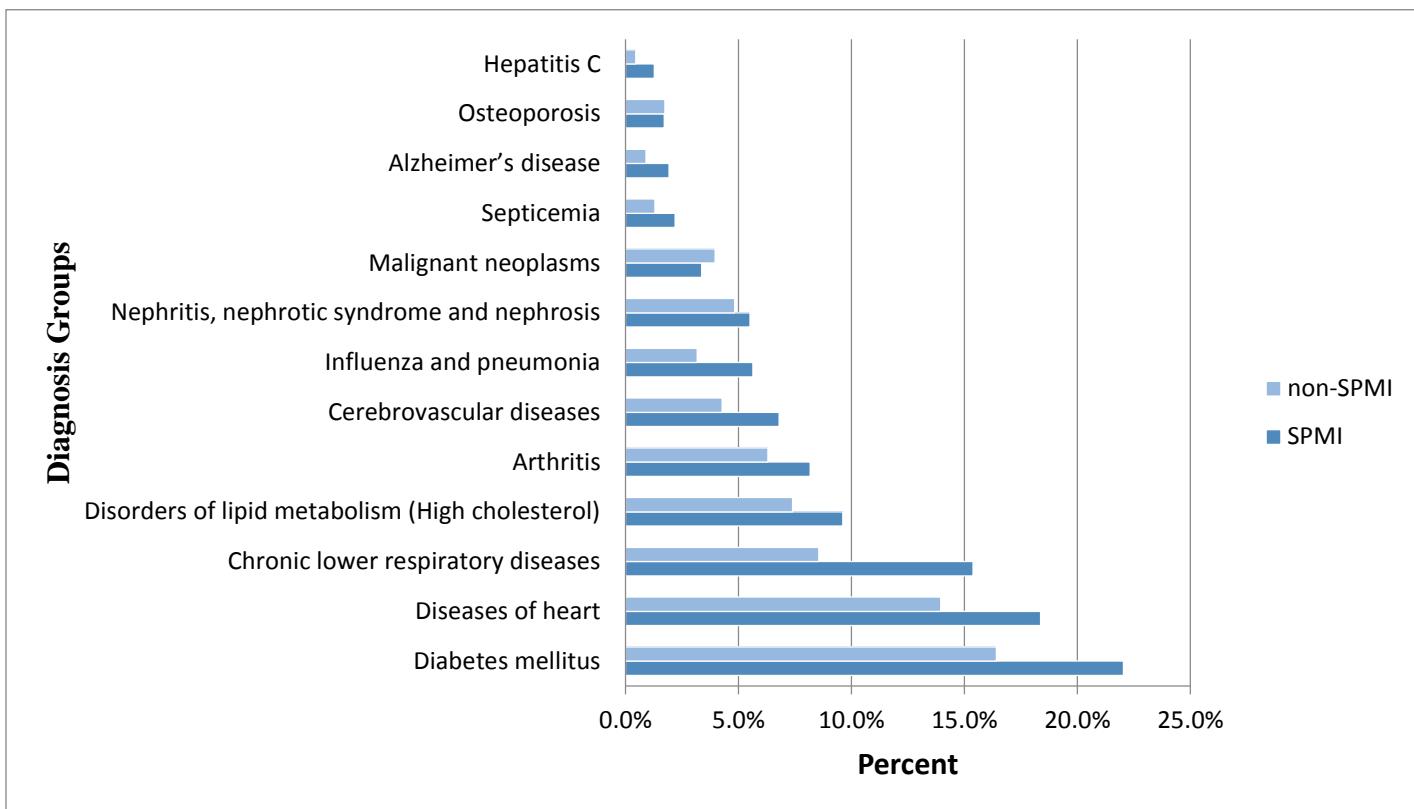
	Comorbidity	ICD10	ICD9
<b>1</b>	<b>Diabetes mellitus</b>	E10–E14	250
<b>2</b>	<b>Diseases of heart</b>	I00–I09,I11,I13,I20–I51	390-398 , 402 , 404 , 410 , 411 , 412 - 417 , 420 , 421 , 422 -429
<b>3</b>	<b>Chronic lower respiratory diseases</b>	J40–J47	490 -494 , 496
<b>4</b>	<b>Disorders of lipid metabolism (High cholesterol)</b>	E78,E88.1	272
<b>5</b>	<b>Arthritis</b>	M05,M06,M08,M13	714.0-714.3,715
<b>6</b>	<b>Cerebrovascular diseases</b>	I60–I69	430-434, 436-438
<b>7</b>	<b>Nephritis, nephrotic syndrome and nephrosis</b>	N00–N07,N17–N19,N25–N27	580 -589
<b>8</b>	<b>Influenza and pneumonia</b>	J10–J18	487-488.1,480-486
<b>9</b>	<b>Malignant neoplasms</b>	C00–C97	140-175 , 179 -208
<b>10</b>	<b>Septicemia</b>	A40–A41	038
<b>11</b>	<b>Alzheimer's disease</b>	G30	331.0
<b>12</b>	<b>Osteoporosis</b>	M80,M81	733.0
<b>13</b>	<b>Hepatitis C</b>	B17.1 ,B18.2,B19.2	070.41 , 070.44, 070.51,070.54, 070.7
<b>14</b>	<b>Accidents (unintentional injuries)</b>	V01–X59,Y85–Y86	E800-E807 , E826-E848 , E850-E888 , E890-E929

Preliminary estimates of the percentages of adult Texas Medicaid patients with and without SPMI who were diagnosed with each comorbidity in each of our study years (2010 to 2012) are shown in Table 6. Figure 5 provides a graphical comparison of the patients with and without SPMI for 2012. The rates of comorbidities are higher for patients with SPMI for 11 of the 13 medical comorbidities, with the relative rankings of the rates roughly consistent for both patient groups. Diabetes mellitus is the most common comorbidity in both patient groups, followed by diseases of the heart. Patients with and without SPMI appear to have comparable rates of malignant neoplasms and osteoporosis, and patients without an SPMI diagnosis have slightly higher rates of accidental injuries.

**Table 6. Distribution of medical comorbidity, Medicaid enrollees with and without SPMI.**

Rank	Comorbidity	SPMI			non-SPMI		
		2010	2011	2012	2010	2011	2012
1	<b>Diabetes mellitus</b>	23.1%	22.2%	22.0%	14.4%	15.3%	16.4%
2	<b>Diseases of heart</b>	19.0%	18.8%	18.4%	13.3%	13.7%	14.0%
3	<b>Chronic lower respiratory diseases</b>	16.9%	15.9%	15.4%	8.9%	8.7%	8.5%
4	<b>Disorders of lipid metabolism (High cholesterol)</b>	11.7%	11.0%	9.6%	7.8%	7.8%	7.4%
5	<b>Arthritis</b>	9.1%	8.9%	8.2%	6.2%	6.4%	6.3%
6	<b>Cerebrovascular diseases</b>	7.4%	7.1%	6.8%	4.0%	4.1%	4.3%
7	<b>Influenza and pneumonia</b>	7.1%	6.3%	5.6%	4.6%	3.6%	3.2%
8	<b>Nephritis, nephrotic syndrome and nephrosis</b>	5.3%	5.5%	5.5%	4.0%	4.4%	4.8%
9	<b>Malignant neoplasms</b>	3.4%	3.4%	3.4%	3.5%	3.8%	4.0%
10	<b>Septicemia</b>	2.2%	2.2%	2.2%	1.1%	1.2%	1.3%
11	<b>Alzheimer's disease</b>	2.2%	2.2%	1.9%	0.9%	0.9%	0.9%
12	<b>Osteoporosis</b>	2.0%	2.0%	1.7%	1.8%	1.9%	1.7%
13	<b>Hepatitis C</b>	1.8%	1.6%	1.3%	0.5%	0.5%	0.5%
	<b>Accidents (unintentional injuries)</b>	52.6%	52.8%	53.1%	57.7%	57.3%	57.7%

**Figure 5. Percentages of SPMI and non-SPMI Patients with Individual Comorbidities in FY2012**



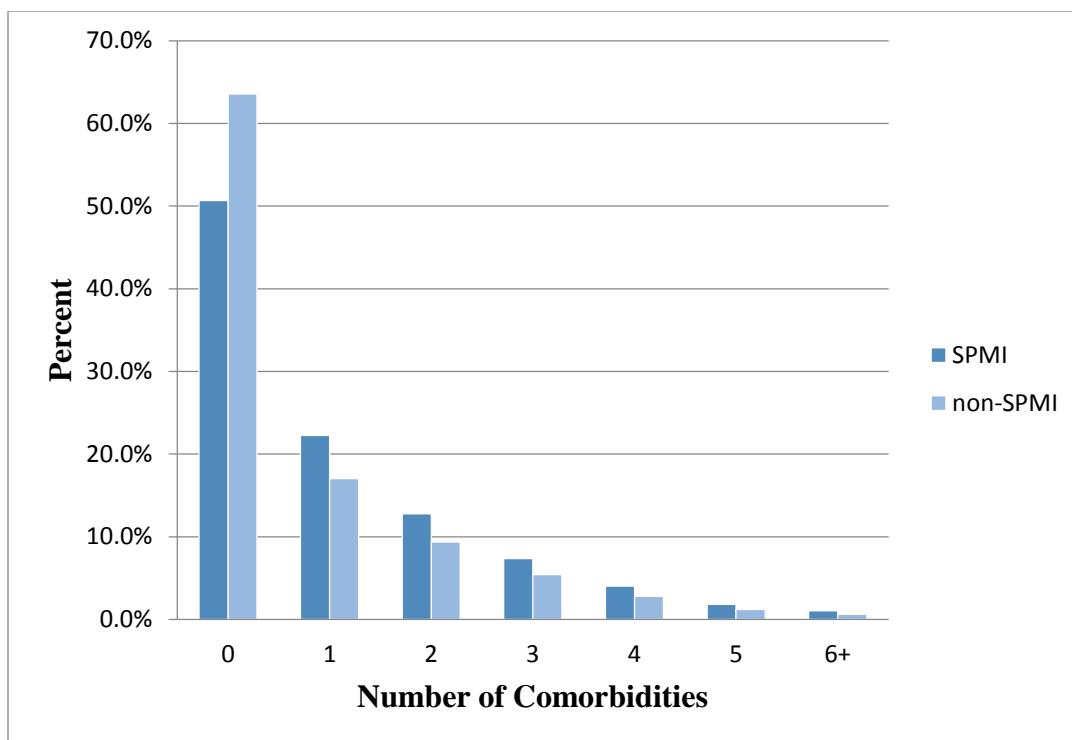
Given the higher percentages of individual comorbidities, it was not surprising that Medicaid patients with SPMI had greater overall comorbidity burden for the 13 medical comorbidities we examined (Table 7 and Figure 6). In 2012, about half of Medicaid patients with SPMI (49.3%) had any of the 13 medical comorbidities we examined, compared to 36.4% of the Medicaid patients without SPMI. More than a quarter of SPMI patients (27.1%) had 2 or more of the 13 medical comorbidities, compared to 19.4% of Medicaid patients without SPMI.

Finally, Medicaid patients with a diagnosis of major depression, either alone or with a diagnosis of schizophrenia, tended to have a higher likelihood of having each of the individual medical comorbidities compared to patients without a diagnosis of major depression (Table 8).

**Table 7. Overall comorbidity burden for Texas Medicaid patients with and without SPMI.**

Number of Comorbidities	SPMI			non-SPMI		
	2010	2011	2012	2010	2011	2012
<b>0</b>	46.8%	49.0%	50.7%	64.9%	64.5%	63.6%
<b>1</b>	23.7%	22.7%	22.3%	16.4%	16.3%	17.0%
<b>2</b>	13.7%	13.1%	12.8%	8.7%	9.1%	9.4%
<b>3</b>	8.0%	7.7%	7.4%	5.3%	5.4%	5.4%
<b>4</b>	4.4%	4.2%	4.0%	2.8%	2.8%	2.8%
<b>5</b>	2.1%	2.0%	1.8%	1.3%	1.3%	1.2%
<b>6</b>	0.9%	0.9%	0.8%	0.5%	0.5%	0.5%
<b>7</b>	0.3%	0.3%	0.2%	0.2%	0.2%	0.1%
<b>8</b>	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%
<b>9</b>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>10</b>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>11</b>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Total N</b>	169,237	211,535	232,348	1,155,798	1,126,309	1,084,684

**Figure 6: Distribution of Comorbidity Burden for SPMI and non-SPMI Patients in FY2012**



**Table 8: Medicaid SPMI diagnosis percentages by medical comorbidities (2010-2012)**

Comorbidity		Schizophrenia	Major Depression	Bipolar Disorder	Schizophrenia and Major Depression	Schizophrenia and Bipolar Disorder	Major Depression and Bipolar Disorder	All 3 SMI categories
1	<b>Diseases of heart</b>	17.2% <sup>a</sup>	30.7%	13.6%	34.3%	22.2%	24.8%	35.6%
2	<b>Malignant neoplasms</b>	3.2%	6.5%	2.8%	5.3%	3.9%	4.5%	4.4%
3	<b>Cerebrovascular diseases</b>	5.6%	14.1%	4.5%	15.0%	7.3%	9.9%	13.3%
4	<b>Chronic lower respiratory diseases</b>	15.4%	20.7%	17.7%	27.2%	24.2%	28.2%	36.4%
5	<b>Diabetes mellitus</b>	22.3%	28.3%	14.3%	35.3%	24.5%	22.2%	33.3%
6	<b>Alzheimer's disease</b>	1.5%	4.7%	0.8%	4.9%	1.2%	2.0%	2.3%
7	<b>Influenza and pneumonia</b>	6.5%	12.8%	6.3%	14.3%	9.7%	13.0%	15.8%
8	<b>Nephritis, nephrotic syndrome and nephrosis</b>	5.0%	10.5%	3.6%	10.0%	6.1%	6.7%	9.3%
9	<b>Septicemia</b>	2.3%	5.4%	1.6%	5.8%	2.9%	3.8%	5.3%
10	<b>Disorders of lipid metabolism (High cholesterol)</b>	16.4%	16.5%	10.4%	22.9%	17.9%	16.1%	20.4%
11	<b>Osteoporosis</b>	1.6%	4.7%	1.4%	3.8%	1.8%	2.8%	3.0%
12	<b>Arthritis</b>	7.4%	15.8%	6.8%	15.2%	10.2%	13.3%	16.3%
13	<b>Hepatitis C</b>	1.8%	1.7%	2.2%	2.9%	2.8%	3.3%	4.6%
	<b>Accidents (unintentional injuries)</b>	55.5%	65.3%	59.1%	75.0%	70.8%	78.5%	82.2%
	<b>Total</b>	29828	125600	46665	12135	12648	43355	18124

<sup>a</sup> All percentages are of column totals.

### **Dual Medicare-Medicaid Enrolled Patients with SPMI**

A primary focus of our project was the identification of cross-system utilization of medical care by Texas Medicaid patients with SPMI. Of the 288,355 Texas Medicaid patients diagnosed with SPMI between 2010 and 2012, we identified 122,003 (42.3%) who were also enrolled in Medicare during the 2010-2012 period (Table 9). The patients enrolled in Medicare were older on average than those not enrolled in Medicare, and more likely to be white and less likely to be African American or Hispanic (Table 9). The rate of SSI eligibility during the 2010-

2012 period as whole was substantially higher for Medicaid SPMI patients who were enrolled in Medicare than for those who were not (82.1% versus 65.0%).

**Table 9. Demographic characteristics of the identified adult Texas Medicaid enrollees with SPMI by Medicare versus non-Medicare enrollment (2010-2012)**

	<b>Medicare</b>	<b>Non-Medicare</b>
<b>Number (%)<sup>a</sup></b>	122,003 (42.3%)	166,352 (57.7%)
<b>Avg Age (SD)</b>	58.8 (18.7)	37.6 (14.4)
<b>Sex (%)</b>		
Female	63.8% <sup>b</sup>	65.5%
Male	36.2%	34.5%
<b>Race (%)</b>		
White (not Hispanic)	49.3%	37.7%
African-American (not Hispanic)	20.0%	23.5%
Hispanic	24.3%	28.9%
American Indian or Alaskan Native	0.4%	0.3%
Asian or Pacific Islander	1.1%	0.9%
Omitted /Inappropriate code	4.9%	8.7%
<b>SSI (%)</b>		
SSI	82.1%	65.0%
Other	17.9%	35.0%

<sup>a</sup> Row percentage

<sup>b</sup> Except where noted, all percentages are of column totals.

A substantial proportion of all diagnosis groups were enrolled in Medicare at some point during the 2010-2012 period (Table 10). Medicare enrollment was lowest for Medicaid patients with Bipolar disorder (31.7%-34.7%) compared to those with either Major Depression or Schizophrenia (41.9%-50.0%).

**Table 10. Medicaid SMI diagnosis percentages for Medicare versus non-Medicare enrollment (2010-2012)**

<b>SMI diagnosis group</b>	<b>Medicare</b>	<b>Non-Medicare</b>
----------------------------	-----------------	---------------------

<b>Schizophrenia</b>	44.4% <sup>a</sup>	55.6%
<b>Major Depression</b>	47.6%	52.4%
<b>Bipolar Disorder</b>	31.7%	68.3%
<b>Schizophrenia and Major Depression</b>	50.0%	50.0%
<b>Schizophrenia and Bipolar Disorder</b>	41.9%	58.1%
<b>Major Depression and Bipolar Disorder</b>	34.7%	65.3%
<b>All 3 SMI categories</b>	43.2%	56.8%
<b>Overall</b>	42.3%	57.7%

<sup>a</sup> Percentages are row percentages.

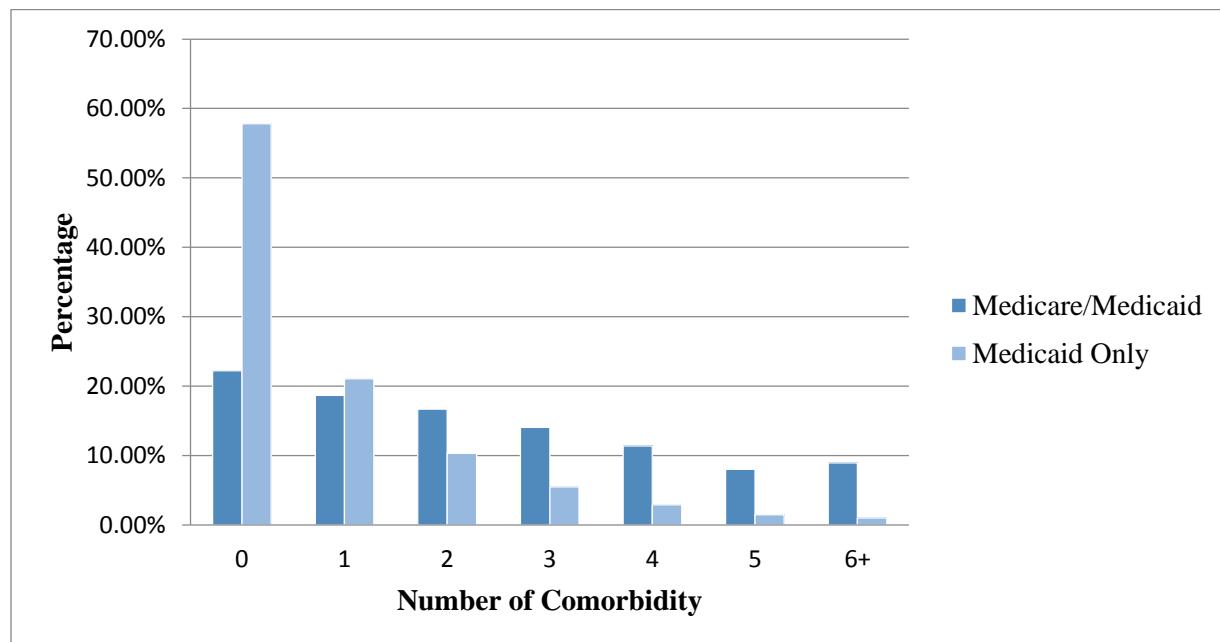
While the ordering of medical comorbidities within each group was similar, Texas Medicaid patients with SPMI diagnoses who were enrolled in Medicare were substantially more likely to have each of the individual medical comorbidities, as well as unintentional injuries, compared to patients not enrolled in Medicare (Table 11). Consequently, Medicare enrolled patients were also more likely to have a higher overall comorbidity burden (Figure 7). Of the patients enrolled in Medicare, 77.8% had at least one of the 13 medical comorbidities we examined, compared to 42.2% of those who were not, and 9.0% of Medicare enrollees had 6 or more of the comorbidities compared to 1.0% of those not enrolled in Medicare (Figure 7).

For the individual comorbidities, the absolute difference in percentage between those patients enrolled in Medicare and those not enrolled was greatest for diseases of the heart (difference = 26.5%, or 41.0% versus 14.6%, respectively; Table 11), while the relative risk (RR) was greatest for Alzheimer's disease (RR = 22.2, or 6.8% versus 0.3%, respectively; Table 11).

**Table 11: Medical comorbidities and Medicare versus non-Medicare enrollment (2010-2012)**

Comorbidity		Medicare	Non-Medicare	Absolute Difference	Relative Risk
1	<b>Chronic lower respiratory diseases</b>	28.4%	17.7%	10.7%	1.61
2	<b>Diabetes mellitus</b>	37.5%	15.7%	21.8%	2.39
3	<b>Diseases of heart</b>	41.0%	14.6%	26.5%	2.82
4	<b>Disorders of lipid metabolism (High cholesterol)</b>	27.2%	7.8%	19.4%	3.47
5	<b>Influenza and pneumonia</b>	17.1%	6.9%	10.2%	2.47
6	<b>Arthritis</b>	23.9%	4.8%	19.2%	5.04
7	<b>Cerebrovascular diseases</b>	19.2%	4.6%	14.6%	4.20
8	<b>Nephritis, nephrotic syndrome and nephrosis</b>	13.9%	3.6%	10.2%	3.82
9	<b>Malignant neoplasms</b>	7.7%	3.0%	4.7%	2.56
10	<b>Septicemia</b>	7.3%	1.9%	5.4%	3.86
11	<b>Hepatitis C</b>	3.0%	1.9%	1.1%	1.59
12	<b>Osteoporosis</b>	6.6%	0.8%	5.8%	7.90
13	<b>Alzheimer's disease</b>	6.8%	0.3%	6.5%	22.17
	<b>Accidents (unintentional injuries)</b>	72.3%	63.1%	9.3%	1.15
	<b>Total</b>	122,003	166,352		

**Figure 7: Comorbidity burden by Medicare versus non-Medicare enrollment (2010-2012)**



### **Medicaid Patients with SPMI Diagnoses Using LMHA/State Hospital Services**

Of the 288,355 Texas Medicaid patients diagnosed with SPMI between 2010 and 2012, we identified 90,824 (31.5%) who also used LMHA/state hospital services during the 2010-2012 period (Table 12). Approximately 9.0% of Medicaid patients with SPMI diagnoses used both Medicare and LMHA/state hospital services.

Unlike the Medicare enrolled patients described above, the patients who used LMHA/state hospital services were slightly younger on average than those who did not (42.0 versus 48.7 years old, respectively), less likely to be White and Hispanic, and more likely to be Black (Table 12). On the other hand, patients who used LMHA services, like those enrolled in Medicare, were more likely to be SSI eligible during the 2010-2012 period compared to patients not using LMHA/state hospital services (81.9% versus 67.8%; Table 12).

A substantial proportion of most diagnosis groups used LMHA/state hospital services at some point during the 2010-2012 period (Table 13). However, LMHA/state hospital use was substantially lower for Medicaid patients with Major Depression compared to those with either Schizophrenia or Bipolar Disorder (Table 13).

**Table 12. Demographic characteristics of the identified adult Texas Medicaid enrollees with SPMI by LMHA use versus non-LMHA use (2010-2012)**

	<b>LMHA</b>	<b>Non-LMHA</b>
<b>Number (%)<sup>a</sup></b>	90,824 (31.5%)	197,531 (68.5%)
<b>Avg Age (SD)</b>	42.0 (13.3)	48.7 (21.3)
<b>Sex (%)</b>		
Female	60.2% <sup>b</sup>	66.9%
Male	39.8%	33.1%
<b>Race (%)</b>		
White (not Hispanic)	38.3%	44.6%
African-American (not Hispanic)	27.5%	19.5%
Hispanic	22.8%	28.9%
American Indian or Alaskan Native	0.3%	0.4%
Asian or Pacific Islander	0.9%	1.0%
Omitted /Inappropriate code	10.2%	5.7%
<b>SSI (%)</b>		
SSI	81.9%	67.8%
Other	18.1%	32.2%

<sup>a</sup> Row percentage

<sup>b</sup> Except where noted, all percentages are of column totals.

**Table 13. SPMI diagnosis percentages by LMHA use versus non-LMHA use (2010-2012)**

<b>SMI diagnosis group</b>	<b>LMHA</b>	<b>Non-LMHA</b>
<b>Schizophrenia</b>	58.8% <sup>a</sup>	41.2%
<b>Major Depression</b>	16.8%	83.2%
<b>Bipolar Disorder</b>	41.0%	59.0%
<b>Schizophrenia and Major Depression</b>	41.1%	58.9%
<b>Schizophrenia and Bipolar Disorder</b>	51.2%	48.9%
<b>Major Depression and Bipolar Disorder</b>	32.5%	67.6%
<b>All 3 SMI categories</b>	41.9%	58.1%
<b>Overall</b>	31.5%	68.5%

<sup>a</sup> Percentages are row percentages.

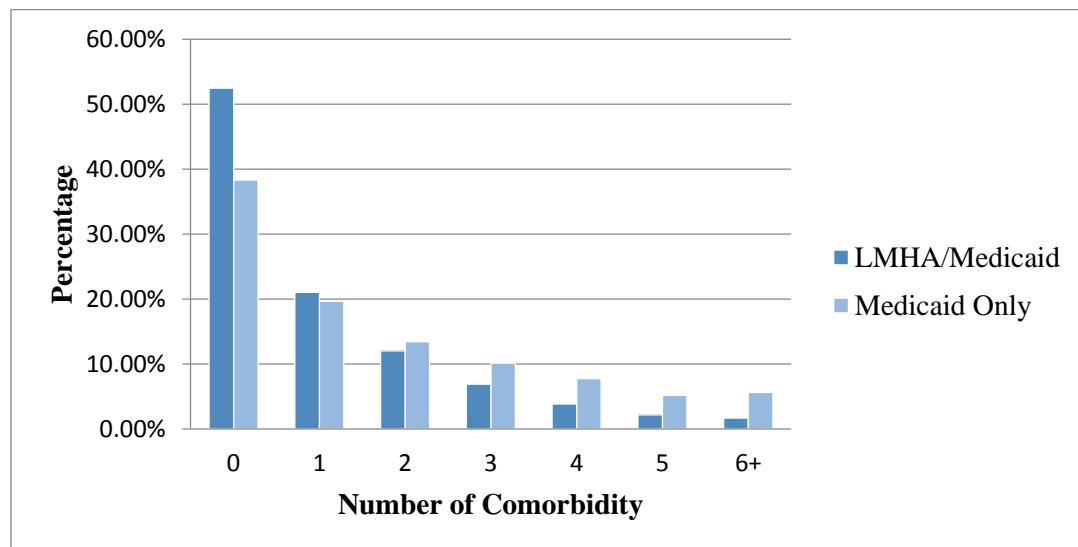
The relative ordering of medical comorbidities among the patients who did and did not use LMHA services was comparable (Table 14). Except for hepatitis C infection, Texas Medicaid patients who used LMHA services were less likely to have medical comorbidities than patients who did not use LMHA services. Consequently, LMHA using patients were less likely to have as much comorbidity burden as non-LMHA patients (Figure 8), with 47.6% of LMHA using patients having one or more of the 13 medical comorbidities assessed (1.7% had six or more), compared to 61.8% of the patients not using LMHA services (5.6% had six or more).

For the individual comorbidities, the absolute difference in percentage between those patients who used LMHA services and those who did not was greatest for diseases of the heart (difference = -13.7%, or 16.4% versus 30.1%, respectively; Table 14), while the relative risk (RR) was most different for cerebrovascular disease (RR = .34, or 4.9% versus 13.6%, respectively) and nephritis, nephrotic syndrome and nephrosis (RR = .38, or 3.8% versus 9.9%, respectively; Table 11).

**Table 14: Medical comorbidities by LMHA versus non-LMHA use (2010-2012)**

<b>Comorbidity</b>		<b>LMHA</b>	<b>Non-LMHA</b>	<b>Absolute Difference</b>	<b>Relative Risk</b>
1	<b>Diseases of heart</b>	16.4%	30.1%	-13.6%	0.55
2	<b>Diabetes mellitus</b>	18.3%	28.0%	-9.7%	0.65
3	<b>Chronic lower respiratory diseases</b>	20.4%	23.0%	-2.6%	0.89
4	<b>Disorders of lipid metabolism (High cholesterol)</b>	13.7%	17.1%	-3.4%	0.80
5	<b>Arthritis</b>	9.0%	14.7%	-5.7%	0.61
6	<b>Cerebrovascular diseases</b>	4.6%	13.6%	-9.0%	0.34
7	<b>Influenza and pneumonia</b>	7.0%	13.2%	-6.2%	0.53
8	<b>Nephritis, nephrotic syndrome and nephrosis</b>	3.8%	9.9%	-6.1%	0.38
9	<b>Malignant neoplasms</b>	3.0%	5.9%	-2.8%	0.52
10	<b>Septicemia</b>	1.6%	5.3%	-3.8%	0.29
11	<b>Alzheimer's disease</b>	0.3%	4.3%	-4.0%	0.07
12	<b>Osteoporosis</b>	1.5%	4.1%	-2.6%	0.36
13	<b>Hepatitis C</b>	3.1%	2.0%	1.1%	1.54
	<b>Accidents (unintentional injuries)</b>	63.7%	68.5%	-4.8%	0.93
	<b>Total</b>	90824	197531		

**Figure 8. Comorbidity burden by LMHA use versus non-LMHA use (2010-2012)**



### **Summary and Next Steps**

In 2010-2012, Medicaid enrollees treated with an SPMI diagnosis accounted for approximately 10.5% of all adults enrolled in Texas Medicaid. The most prevalent diagnoses were major depression, bipolar disorder, or both for the same patient. Compared to Medicaid enrollees without SPMI, enrollees with SPMI were older, more likely to be White and male, and have Medicaid eligibility through SSI. About 10% of the SPMI population had one enrollment gap during the study period, and very few had more than one gap. Patients with major depression and bipolar disorder were more likely to experience gaps in Medicaid enrollment, were more likely to dis-enroll from Medicaid, and, on average, had shorter periods of enrollment over the three-year data study period than patients with schizophrenia. Medicaid enrollees with schizophrenia plus either major depression or bipolar disorder had enrollment experiences that looked more like other schizophrenia-diagnosed patients with regard to gaps in enrollment or dis-enrollment than they resembled patients in either of the other diagnostic groups. Being younger than age 65 and not having SSI were the strongest individual predictors of enrollment gaps. Not having SSI was also the strongest predictor of being dis-enrolled at the end of the study period.

Medicaid patients with SPMI were more likely than Medicaid patients without SPMI to have at least one of the 13 prevalent medical comorbidities we examined, and 27.2% had two or

more. SPMI patients were most likely to have diabetes mellitus (23.1%, 22.2%, and 22.0% in 2010, 2011, and 2012, respectively). These findings were comparable to data reported for New York Medicaid enrollees with SPMI (Birnbaum & Powell 2007).

A substantial number of Texas Medicaid patients diagnosed with SPMI diagnoses were also enrolled in Medicare and/or used LMHA/state hospital services during the 2010-2012 period. Forty-two percent (42.3%) were enrolled in Medicare during that time period, and 31.5% used LMHA/state hospital services. Nine percent (9.0%) were both Medicare-enrolled and used LMHA/state hospital services during the period.

These Medicare-enrolled and LMHA/state hospital-using groups of patients looked very different from each other demographically. Patients enrolled in Medicare were older than those not enrolled in Medicare, more likely to be white, and less likely to be African American or Hispanic. Patients who used LMHA/state hospital services were younger than those who did not, less likely to be white or Hispanic, and more likely to be African American. Both groups, however, were more likely to be SSI eligible for Medicaid. Patients diagnosed with schizophrenia were more likely to use LMHA/state hospital services, while patients diagnosed with bipolar disorder were less likely to be Medicare-enrolled, and those diagnosed with major depression were less likely to use LMHA/state hospital services.

The two patient groups also looked very different in term of medical comorbidities. Medicare enrolled patients had substantially higher medical comorbidity burden, with the total comorbidity burden and the risk of having any of the individual medical comorbidities higher for the Medicare-enrolled patients, with the reverse true for patients using LMHA/state hospital services (with the single exception of hepatitis C infection).

The Medicaid data set poses several challenges for analysis. These primarily arise from the nature of two types of utilization data: claims-based records (“Claims files”) and healthcare encounter records (“Encounter files”). Claims data represent traditional, recognized “fee-for-service” payment arrangements for providers, while encounter data are a replacement method for reporting service delivery under managed-care arrangements; because of the varied coverage and reimbursement arrangements that define managed-care Medicaid care, the concept of claims files no longer sufficed to represent care, and the encounter methodology was developed to record service delivery. Thus, encounter data are similar but not the same as claims data, and analyses

require some caveats and accommodations to represent healthcare utilization (cf. Mathematica October 19, 2011, *Collecting, Using, and Reporting Medicaid Encounter Data: A Primer for States*). For this project, issues include:

- structural differences such as differences in formatting and variable naming; and
- content differences, i.e., the type of data included.

Structural differences increase the effort in producing a unified data set. For example, identification of common data elements in the two sources, and understanding whether the rules or procedures for using those data elements differ. Content differences restrict our ability to use common analytic approaches for the data in the Claims and Encounters sources. Some of these issues could be addressed by the state Medicaid system adopting standard naming and formatting procedures for common items across the data sets. Other issues are based in how services are reimbursed, and are not as easily remedied at the data set level.

Many Medicaid enrollees in Texas have health care use reported in both claim and encounter data sets for a given year, with a complete accounting of Medicaid utilization and outcomes not obtainable from either claims data or encounter data alone. Further, a substantial percentage of the patients with SPMI diagnoses we examined here were either also enrolled in Medicare, or used LMHA services, or both. We were able to identify and link Medicaid patients who used Medicare and LMHA services to those data sets. However, while Medicare and LMHA utilization and administrative data contain similar information to the Medicaid data, they have different organizational structures from the Medicaid data and from each other, and differences in data content. Consequently, incorporating these data into analyses of healthcare utilization for Texas Medicaid patients poses similar (although not identical) structural and content issues to combining the Claims and Encounters data within Medicaid.

Based on our experiences to-date with these data sets, we recommend that the state pursue these efforts:

1. creation of a cross-walk of data elements in the Medicaid claims and encounters files, as well as with the data elements in administrative and utilization files from other service systems used by Medicaid patients (e.g., Medicare and LMHA data);
2. standardization of procedures regarding content and use of the data elements; and

3. development of a technical guide and technical expertise for analysts seeking to examine health care use among Medicaid enrollees in Texas. This recommendation is consistent with Sunset Commission 2014, Issue 4: Require HHSC to regularly evaluate the appropriateness of data, automate its data reporting processes, and comprehensively evaluate the Medicaid program on an ongoing basis; Sunset Commission 2014, Issue 7: Direct the Health and Human Services Commission to elevate oversight and management of data initiatives, including creation of a centralized office with clear authority to oversee strategic use of data.

### **III. Interviews with LMHA and MCO Representatives on Concerns and Solutions**

The 83<sup>rd</sup> Legislature provided over \$300 million in new funding for state fiscal year 2013-2014 to improve behavioral health services, but Texas remains among the states with the lowest per capita spending on behavioral health services. There is a serious shortage of public hospital beds for patients with behavioral health problems, and this creates pressure on hospital emergency rooms and the criminal justice system. Emergency rooms cope with growing numbers of patients with behavioral health problems, and a substantial number of prisoners in the criminal justice system suffer from undetreated behavioral health conditions. Behavioral health issues are among the most frequent reasons for hospital readmissions.

Over the past several legislative sessions, the HHSC has been directed to implement expansions of the capitated managed care model in Texas Medicaid. The inclusion of more populations and services within the STAR, STAR+PLUS, STAR Health, and North STAR Managed Care Organization (MCO) capitation structure increased dramatically during the study period investigated here (2010 to 2012). In 2011, the percentage of the Medicaid population enrolled in MCO plans was 71%. As of November 2013, 81% of Medicaid enrollees were covered by MCOs and the percentage is expected to exceed 90% for 2015. Major expansions affecting the population of people with SPMI in 2014 include: STAR+PLUS statewide expanded to the rural counties, mental health rehabilitation and targeted case management added to managed care, and clients with IDD transferring into managed care for acute care services as are individuals receiving various DADS waiver program services. The MCOs subcontract with behavioral healthcare organizations (BHOs) or have an internally managed BHO-like unit that oversees and manages the behavioral health services.

Mental health rehabilitation and case management services were included in the managed care cap with MCOs since September 2014. The MCOs are expected to follow the same service and provider definitions outlined in the Texas State Plan Amendment for those services. Those are reflected in the relevant sections of the UMCM entitled Mental Health Rehabilitative Services Qualified Providers and Mental Health Targeted Case Management Qualified Providers. MCOs have flexibility in reimbursing providers of these services as outlined in individual contracts between the MCO and provider entity. HHSC encourages MCOs to adopt creative reimbursement methodologies and alternative payment structures to facilitate outcome

based payment that rewards quality. While MCOs sometimes adopt a "fee-for-service like model" of reimbursement for services, other times they develop "pay-for-quality" type structures that place MCOs at risk (or provide incentives) for performance that is based on outcomes. Additionally, MCOs are not tied to fee-for-service rates and may alter reimbursement amounts to providers. MCOs are able to implement creative reimbursement methodologies. HHSC ensures MCOs maintain an adequate network of providers, and HHSC closely monitors the rate of approved and denied claims to ensure providers are being reimbursed for services carved-in under SB58. Health plans are required to submit plans for alternative payment structures and creative reimbursement methodologies that reward quality.

Some approaches for improved behavioral health service models are also being offered by the approximately 400 behavioral health projects funded under the Medicaid 1115 Waiver DSRIP program. The projects include crisis stabilization, care transition, clinic expansion, health education/self-management, integrated care, and jail diversion. Sponsors of DSRIP projects receive funding only after accomplishing specific metrics and milestones. Substantial funding has been received during the first two years of the Waiver for most DSRIP projects merely based on planning and implementing the projects. During the remaining years, funding will be based on service delivery targets and on documented outcomes. These projects are facilitating new collaborations between hospitals, physicians, public health, mental health and other healthcare providers which would not have otherwise existed. For some of these projects, full implementation and documentation of outcomes will require additional time beyond the five years of the existing waiver. As of the time of this report, there exists the possibility for this 1115-waiver program to be extended, but the likelihood of that extension is not yet known.

Transition to the MCO model has required a great deal of collaborative effort between the state, the LMHAs, and the MCOs. MCOs have been incentivized to find ways to reimburse/support effective care while managing expenditures per covered client. For the most part, it seems that the MCOs are establishing traditional fee-for-service arrangements with the local mental health authority providers, and offering the same service coverage and provider rules, which may limit the flexibility for providers to be innovative.

To understand policy-based limits to optimal care under current arrangements, interviews were carried out, in August 2014, with representatives of nine different LMHAs, a tenth LMHA

representative in September, and one MCO representative in December. These LMHAs were selected to include those with rural coverage areas, with established integrated care, and to include those providing care to persons dually diagnosed with intellectual disability as well as serious and persistent mental illness. As a means for encouraging candid feedback, the interviewees were assured that no content or comment will be associated with a specific interviewee, or with his or her organization. While the interviews covered a wide range of content, this report includes only leading issues, and those that may be amenable to legislative or state administrative changes.

## **Concerns Related to LMHAs Providing Care to Enrollees with SPMI**

### **The Rigidity of Fee-for-Service Payment**

Some believe that they have not been able to provide very effective, tailored care. The LMHAs have found it difficult to hire staff, including peers with SPMI, to serve as community health workers or as certified peer specialists. Under the standing state rules, these two categories of trained, but not licensed, healthcare providers are restricted in the delivery of mental health rehabilitation and intensive case management services.

The LMHAs have also found it difficult to obtain funding for a variety of services, such as transportation support, that have strategically been very helpful for clients. The disability of mental illness can impact daily functioning and social functioning in ways that are uniquely different from medical illness and disability. LMHAs need guidance in understanding what desired services are reimbursable, and determining helpful services that need new mechanisms for reimbursement. LMHAs could be incentivized to provide flexible care, with payment partly based on outcomes as well as based on reimbursement for services delivered.

### **Reimbursement**

Providers expressed a range of concerns about how complete and prompt reimbursement might be from the affiliated MCOs. This includes: concern over being paid retroactively for the times when a great deal of services are needed promptly before coverage has been established for a potential client; not being reimbursed at all for services provided to eventually ineligible clients; and the burden of monitoring claims completion across more than one MCO payer. Low reimbursement rates are a concern, particularly in areas of the state where the local economy is

strong, in rural areas where potential employees with certain skill sets are rare, and for bilingual staff, who have appealing alternative employment prospects.

### **Performance Metrics**

To satisfy requirements of various revenue streams, LMHAs are concerned about accommodating several performance metric requirements, creating a great administrative burden. There is a concern that counselors seeking reimbursement for cognitive-behavioral therapy must pass DSHS' CBT competency requirements. Interviews noted that this is a significant barrier to hiring counselors. Otherwise, any state-licensed counselor is fully within normal practice to deliver CBT, if sufficiently trained somewhere in their education.

### **Solutions Related to LMHAs Providing Care to Enrollees with SPMI**

Greater flexibility in funding would allow service plans to be individually tailored, would allow different personnel be hired for key strategic needs, and could allow LMHAs to manage the challenges of rural care. Policies should support long-term, continuous patient-provider relationships. Modest reimbursement levels often fail to encourage recruitment and retention of providers and support staff. This suggestion also supported by Sunset Commission 2014, Issue 5: Require HHSC to streamline the Medicaid provider enrollment and credentialing processes.

The state should continue the community health worker program. Navigators are greatly needed as the system, and options, become more complicated. LMHAs could be differentially compensated for native-language care. This could be an incentive accorded by population served, or by bilingual staff employed. This recommendation is supported by Sunset Commission 2014, Issue 6: Require HHSC to promote increased use of incentive-based payments by managed care organizations, including development of a pilot project.

The state, the MCOs, and LMHAs should collaboratively review the array of performance metrics and determine the relevance and importance of each. This recommendation is supported by Sunset Commission 2014, Issue 4: Require HHSC to regularly evaluate the appropriateness of data, automate its data reporting processes, and comprehensively evaluate the Medicaid program on an ongoing basis.

Performance metrics could be used to incentivize effective care delivery, as well as to ensure compliance with required service delivery standards. This recommendation is supported by Sunset Commission 2014, Issue 6: Require HHSC to promote increased use of incentive-based payments by managed care organizations, including development of a pilot project.

DSHS could review the CBT-approval process and consider changing or discontinuing. This recommendation is supported by Sunset Commission 2014, Issue 5: Require HHSC to streamline the Medicaid provider enrollment and credentialing processes.

### **Concerns Related to Care for Dually-Diagnosed IDD/SPMI Population**

There is a significant challenge for people with dual-diagnosis IDD/SPMI. It is a requirement of standard care that providers need time with the patient to build trust and to ascertain the chain of events that sustain good times, and that lead to spans of problematic behavior – poor self-care, aggression, etc. At times of problematic behavior, or when patients present to the system, rapid response is necessary. Delays associated with eligibility assessment and approval of services can reduce the quality of care. The MCO arrangement may penalize this appropriate type of care, and foster worse course of illness and worse course of care.

The style of care that works for people with SPMI does not always apply to those with IDD as well. Medication checks may take longer and one to two psychiatric visits per hour may be required. The communication and analysis of problems, side effects, drug response, etc., are more challenging for people with dual IDD/SPMI diagnosis. Engaging activities such as day treatment, and assistance and education for family and staff, are necessary. Families do not become experts in managing IDD overnight, and staff often do not necessarily have the strong education in this area.

The long-term benefits of care for people with dual-diagnosis take longer to realize and may have different performance standards. The value of good care is not very obvious, since the more obvious cost-offsets, such as reduced emergency room visits, may not be captured on shorter time spans. The outcomes to be sought for a Medicaid enrollee with both IDD and SPMI diagnoses include better family functioning, a better atmosphere in the residential facility, and better quality of life for the patient. Thus, it is challenging to apply the clinically appropriate performance measures.

Quality care cannot easily be assessed by usual service delivery measures, such as the number of counseling sessions or medication-check visits in a given period of time. The DADS method of conducting site visits may fit better than the DSHS style of service-delivery-in-a-time-frame type of performance standards. At the same time, interviewees clearly noted a problem with inconsistencies in the ways that DADS site visitors apply rules.

The challenges of care are worse in rural areas. Skilled personnel and facilities are rare, travel is a necessary but un-billable challenge for staff, and travel options are limited for patients.

### **Solutions Related to Care for Dually-Diagnosed IDD/SPMI Population**

Standards/expectations for DADS site surveys should be made more uniform and predictable. Surveyors and local mental health authority personnel could undergo joint training. Oversight of care for people with IDD and SPMI diagnoses should be in one state agency, rather than split across DSHS and DADS. Interviews emphasized that the previous state arrangement, with both “MH” and “MR” in the same agency, seemed to work better, as the challenges and resources of each “side” were better known to all. This recommendation is consistent with Sunset Commission 2014, Issue 1: Consolidate the five HHS system agencies into one agency called the Health and Human Services Commission with divisions established along functional lines and with a 12-year Sunset date; Sunset Commission 2014, Issue 3: Consolidate administration of Medicaid functions at HHSC.

Develop methods for promoting and supporting optimal care in rural areas. These might include improved technology in rural areas, and building local workforce, in place or traveling/visiting, in rural places. Examine the degree that people with SPMI in rural areas are under-treated, relative to suburban or urban areas. This recommendation is consistent with Sunset Commission 2014, Issue 4: Require HHSC to regularly evaluate the appropriateness of data, automate its data reporting processes, and comprehensively evaluate the Medicaid program on an ongoing basis.

### **Concerns Related to Integrated Care**

Patients with SPMI appreciate integrated care. Three of the interviewed LMHAs that have adopted integrated care noted that they have had success in chronic medical illness management, with better management of HbA1c, blood pressure, cholesterol, smoking cessation,

and other outcomes. It was noted that BMI is more difficult to impact, and it was hypothesized that this partly could be due to the weight issues associated with the currently, widely used selection of “atypical antipsychotics.”

Cost-offset may take years to manifest. For those moving from SPMI-specific care settings to integrated care, there is likely a portion of medical comorbidity that has been neglected, and so some “catch-up” effect may boost costs in the short term, but prevented morbidity should be a long-term outcome. One organizational arrangement for boosting revenue is to establish a relationship with FQHCs for medical care provision. FQHC Medicaid reimbursement rates are higher; however, FQHCs are not allowed to bill for telemedicine, so one valuable SPMI care tool is not incentivized when integrated care is done with an FQHC.

Integrated care may be achieved by teaming up with small group practices or individual practices. Many of these have not yet transitioned to the electronic medical record. This then fails to benefit from the potential efficiency of electronic data sharing and billing. Well-managed, stable patients with SPMI could be transferred to primary care. The local mental health authority could be available for stepped care when needed, or for consultation/liaison. Interviewees reported, however, that primary care providers are very hesitant to accept this arrangement.

### **Solutions Related to Integrated Care**

There may be a significant medical health benefit from integrated care. This should be encouraged by payment/reimbursement models. For example, LMHAs could have a “pay-for-performance” arrangement, with payment for achieving goals in chronic care clinical management. This recommendation is consistent with Sunset Commission 2014, Issue 6: Require HHSC to promote increased use of incentive-based payments by managed care organizations, including development of a pilot project.

Actively investigate opportunities for local mental health authority/FQHC collaboration. The state could examine the possibility of allowing FQHCs to be reimbursed for telemedicine.

The state should develop analytic capacity to examine the health profile of Medicaid enrollees with SPMI moving from SPMI-specific care into integrated care. This could identify long-term clinical benefits of integrated care. Ideally, the mortality and morbidity disparity for

people with SPMI might be reduced. Similarly, the state could combine published clinical data with state Medicaid enrollee data to assess the problem of atypical antipsychotic-associated weight gain. This recommendation is consistent with Sunset Commission 2014, Issue 1: Consolidate the five HHS system agencies into one agency called the Health and Human Services Commission with divisions established along functional lines and with a 12-year Sunset date; Sunset Commission 2014, Issue 3: Consolidate administration of Medicaid functions at HHSC; Sunset Commission 2014, Issue 4: Require HHSC to regularly evaluate the appropriateness of data, automate its data reporting processes, and comprehensively evaluate the Medicaid program on an ongoing basis.

Providers in small-group practices or solo practice could be assisted to move to electronic medical records. This could encourage them to partner with LMHAs, and so broaden the reach of integrated care. This recommendation is consistent with Sunset Commission 2014, Issue 3: Consolidate administration of Medicaid functions at HHSC; Sunset Commission 2014, Issue 5: Require HHSC to streamline the Medicaid provider enrollment and credentialing processes. The state could investigate why primary care providers are hesitant to enroll patients with SPMI. It could be the fear of having to handle a psychiatric crisis, or this could be due to stigma. This could be investigated, piloted, or financially encouraged. This recommendation is consistent with Sunset Commission 2014, Issue 5: Require HHSC to streamline the Medicaid provider enrollment and credentialing processes; Sunset Commission 2014, Issue 6: Require HHSC to promote increased use of incentive-based payments by managed care organizations, including development of a pilot project.

### **Concerns Related to Care in Rural Areas**

Transportation services are very weak for patients in rural areas. In suburban and urban areas, public transportation can be used. Also, in rural areas, Medicaid-supported transportation helps, but is not well-suited for people with serious and persistent mental illness. It requires planning to meet the 24-hour advance notice, and it requires the patient to be in transit or waiting in the clinic for most of the day; for some people with SPMI, this type of excursion is very distressful.

Telemedicine parameters could be expanded. Many providers could benefit from delivering care from a range of settings, and patients can benefit from being able to participate

from home in many services, without the requirement to be at a clinic, or to have a healthcare staff person accompanying the visit.

There is not a payment mechanism for travel mileage or time, and payment rates do not compensate for the great time devoted to travel. The prevailing concept is that healthcare providers are reimbursed solely for a clinical service delivered with a patient. That is not equitable when striving to provide care in rural areas. Also, it is often a challenge for the traveling staff, including community health workers, to fund the vehicle maintenance required for the extensive travel.

## Rural Care Solutions

An overall boost to funding for behavioral health per capita, approaching that of other states, would be a great support for delivering effective care, regardless of funding arrangement. The cost-offsets to be gained across multiple public-payer arenas, including indigent care costs and costs in the legal system, can be profound. At this point, the state's data systems are not in place to detect these cross-system effects, and so the value of higher mental health funding cannot be detected empirically. Travel Reimbursement innovations could be piloted.

HHSC could prompt or require the development of MCO-provider pay arrangements that are more sophisticated than a basic fee-for-service model. Bundled payments for service episodes or for patients in some recognized categories or profiles might be options. Pay-for-Performance incentives could be awarded from the MCO to a local mental health authority for various goals such as low hospitalization rate, low emergency room use, low polypharmacy rates, and achievements in medical benchmarks such as control of HbA1c, blood pressure, cholesterol, or body mass index. This recommendation is consistent with Sunset Commission 2014, Issue 6: Require HHSC to promote increased use of incentive-based payments by managed care organizations, including development of a pilot project.

Dialog should continue between the state, the medical care organizations, and the LMHAs to clarify expectations and need, to address the range of worries noted by the local mental health authority staff, and to identify and solve problems as they emerge.

Some outcomes-based incentive plans are in place or under development, but these may not be extensive enough; performance-based measures may currently be, and in the near future

be, limited to such things as portion of patients with a depression diagnosis who have a current/recent antidepressant prescription, or the portion with a preventable hospital admission.

## **Summary**

Leading solutions from the provider interviews can be grouped into the following three categories, with examples of each noted and the related Sunset Commission recommendation:

### **Monitoring**

Designate one state agency to conduct oversight of care to patients with SPMI. This recommendation is consistent with Sunset Commission 2014, Issue 1: Consolidate the five HHS system agencies into one agency called the Health and Human Services Commission with divisions established along functional lines and with a 12-year Sunset date.

Review the array of performance metrics and determine methods for streamlining and standardizing performance metric reporting across payers. This recommendation is consistent with Sunset Commission 2014, Issue 4: Require HHSC to regularly evaluate the appropriateness of data, automate its data reporting processes, and comprehensively evaluate the Medicaid program on an ongoing basis.

Develop separate, appropriate performance metrics for those with both SPMI and IDD diagnoses.

### **Funding**

Continue and expand state support for integrating physical and behavioral healthcare.

Continue state support for the community health worker program. Continue and expand state support for telemedicine in rural areas. Continue and expand state support for medical transportation for patients and providers in rural areas. Provide incentives for clinics to hire bilingual staff. This recommendation is consistent with Sunset Commission 2014, Issue 6: Require HHSC to promote increased use of incentive-based payments by managed care organizations, including development of a pilot project.

### **Program Development**

Conduct collaborative study to examine the health benefits for patients with SPMI moving from SPMI-specific care into integrated care. Pilot a pay-for-performance model with

integrated clinics. This recommendation is consistent with Sunset Commission 2014, Issue 6: Require HHSC to promote increased use of incentive-based payments by managed care organizations, including development of a pilot project.

#### **IV. Clinical Best Practices for SPMI Care**

A literature search was conducted to find reviews and summaries of evidence-supported best practices for people in the community with serious and persistent mental illness. The search was limited to studies addressing outpatient care, and to the array of services that would be adopted by a care team, treatment center, or community. The purpose was to identify the service delivery strategies and psychosocial interventions that complement recognized psychiatric and psychotherapeutic interventions.

A review of approximately 3,500 abstracts identified 31 articles that specifically provided evidence-based reviews addressing best practices for outpatient care of serious and persistent mental illness. Those were categorized into five distinct topics: Integrated Care; Spectrum of Services; Crisis Intervention and Continuity of Care; Recovery and Patient Empowerment; and Treatment Implementation.

These findings are limited to the peer-reviewed literature from 2009 to the present. There may be valid reviews from before 2009, and there may be valid studies not captured in the peer-reviewed literature, such as reports developed and self-published by various professional organizations, developed into continuing education formats, or published as monographs. Those may provide further evidence. However, it is most likely that these review articles capture the majority of recognized evidence basis for outpatient service delivery strategies and psychosocial interventions.

##### **Integrated Care**

The problem of healthcare fragmentation is widely noted, and integrated care is recognized as a solution. Evidence supports integrated care for improvement in several health behaviors (weight management, physical activity, nutrition, alcohol use, smoking): people with mental health conditions improved those healthcare habits and medical conditions, when addressed directly via an integrated model (Happel et al., 2012). Physical health monitoring, alone, such as monitoring blood glucose levels, is not sufficient to translate into clinical outcomes (Tosh et al., 2014).

For substance abuse/dependence, there was no indication that adding a discrete substance abuse psychosocial intervention (motivational interviewing, etc.) to the care of people with SPMI

boosted outcomes such as abstinence (Hunt et al. 2013), although most studies had poor design. These studies did not cover integrated care. Another review evaluated “psychosocial interventions,” including integrated care and intensive case management, for substance abuse in populations with SPMI (Cleary et al. 2008); they found little or no evidence of efficacy. So, evidence is not strong for various substance use interventions built into care for SPMI, but evidence on substance abuse care delivered in an integrated care setting is scant.

## **Spectrum of Services**

In addition to psychiatric medication management, a range of services, such as case management and psychosocial rehabilitation, are recognized as valuable components of serious mental illness care. However, limited resources or coverage often causes care to be scaled back to little more than medication management.

Good support has been found for housing as an intervention for successful mental illness care (Kyle and Dunn, 2008). Housing support may come in many forms, such as financial support or placement in specific housing dedicated for those with SPMI and housing need. Across studies, these positively affected outcomes have included clinical indicators, quality of life, and healthcare utilization.

Regarding day centers for people with SPMI (Catty et al. 2007), data are inconclusive: there were mixed results, and studies had weak study designs, had poorly assessed outcomes, and were quite heterogeneous. The impact for some patients is often quite evident, so this remains an area of care deserving more rigorous evaluation.

Data are inconclusive for psychiatric rehabilitation. Well-delivered programs have shown beneficial outcomes, but the care delivered under the concept “psychiatric rehabilitation,” and the outcomes observed, are too diffuse to be declared as evidence-based (Farkas and Anthony, 2010). Attention should therefore be devoted to well-designed and well-delivered interventions. These can be delivered from a range of personnel and in a range of formats, and so can be difficult to document and evaluate. “Psychiatric rehabilitation” should also be distinguished from psychosocial interventions. Terms are not used consistently.

For life skills/occupational therapy, there is fairly good evidence (Gibson et al. 2011) that, for people with SPMI, focused training can improve social skills, activities of daily living

competence/completion, and “life skills” (shopping, money management, etc.). Another review (Tungpunkom and Nicol 2008), that was specifically focused on life skills, found no evidence of superior outcomes for intervention versus care as usual groups. Such skills interventions may need to be targeted to those with clear deficits/need, and be strongly delivered.

### **Crisis Intervention and Continuity of Care**

SPMI may often lead to crises such as decompensation, suicidality, or homelessness. These often disrupt continuity of care, as does transition from one setting, such as a hospital, to another. Evidence indicates that “community mental health teams” for psychiatric crises can lower hospital admission rates and improve satisfaction with care (Malone et al. 2007). This review did not show differences for other outcomes, including emergency room use and primary care visits. Community mental health teams may be very appropriate for a specific range of problems – those that otherwise would lead to a hospital admission.

Various forms of crisis intervention have strong evidence for positive outcomes including continued involvement in treatment, subjective wellness, and subjective family burden (Murphy et al. 2012). The findings noted in this review were similar to an earlier review (Joy et al. 2006).

There is good evidence of efficacy for jail diversion-focused intensive case management when a substance use intervention was included (Loveland and Boyle, 2007), but findings were not strong otherwise (Sirotich 2009).

The concept of psychiatric advance directives is compelling, and may stand on its own sensibility. In advance directives for psychiatric decompensation, a person with an SPMI indicates the care to which he or she consents, in advance while of sound mind and judgment, in lieu of providing judgment at the time of crisis care decision-making, or depending upon typical “imminent danger” standards for others to pre-empt autonomous decision-making. A review of studies by Nicaise et al (2013) found that existing research studies are few, and they cover different aspects, barring general conclusions at this point.

### **Patient Empowerment and Recovery**

Prototypically, psychiatric care may often follow a style where the healthcare professionals decide the treatment plan, based on diagnosis and other assessment, then prescribe a care plan, with little or no genuine input or collaboration from the patient. In contrast, many believe that a patient should have as much autonomy and choice as possible.

The few well-conducted studies of mutual-support groups (Pistrang et al 2008) have shown strong long-term results such as increased adherence and improved symptom management.

Published studies show impressive results for psychoeducation for schizophrenia (Xia, et al., 2011): recipients have lower non-compliance, lower relapse, and lower re-admission. Studies assessing global functioning, social functioning, quality of life, and satisfaction with care have shown benefit in these dimensions.

There are few studies showing any effect for stigma reduction interventions; those with positive effects do not seem to have long-term effects (Corrigan et al. 2012). In these studies, it appears that interpersonal interaction, such as peer SPMI testimony, are more impactful than interventions that merely rely on transmission of information.

Patient-carried, user-held medical records, versus caregiver-based medical records, do not seem to yield benefits (Farrelly 2013).

### Treatment Implementation

The essence of treatment is composed of provider-patient decision-making and patient adherence to care. These essentials can be achieved, and promoted, in a variety of ways.

Telemedicine, by visual or phone, has efficacy for a range of psychotherapeutic applications where psychotherapy is known to work otherwise (Mohr et al. 2013).

A range of pragmatic medication adherence interventions, such as devoting serious attention to side effects and building medication-taking routines, have been noted to be helpful, but largely are dependent on specific circumstances (Velligan et al. 2010; Velligan et al. 2009).

### Conclusion

This survey of clinical best practices, based on comprehensive peer-reviewed review articles, indicates how SPMI care might optimally be arranged. Clinical activities that seem worthy of inclusion in regular care include psycho-education and support groups. Also, delivery of services by telemedicine is generally supported. These components of care are those that shift the power more toward the patient, and this empowerment may be a vital dimension of care.

Interventions aimed at sustaining or repairing the daily social life of the patient, including a focus on housing, occupational training, community mental health teams, and crisis intervention services, have good evidence for achieving desired outcomes. These are labor-intensive, but may be the level of intensity needed to foster recovery, a return to normal life functioning, for people with SPMI.

It seems that modest interventions, such as adding a substance abuse component or health screening activities, are not sufficient for reaping strong outcomes. It is likely that such efforts must be implemented very thoroughly, and firmly integrated into care.

There are a host of reasonable and well-recognized interventions, such as adherence interventions, that do not have the level consistent empirical evidence to be recognized as clinical best practices, when reviewed in totality. For these, research designs are often not very strong, implementation quality varies, and there are not enough published high-quality studies to support a firm summary statement about efficacy.

Organizations should practice flexibility in service mix, and should probably commit to a sustained, outcomes-focused effort when adding activities and services, and should benefit by monitoring whether obtained results match or approach the results of well-conducted, published interventions. Brownson and colleagues (2009) provide strong guidance for adoption and implementation of evidence-based practices. Overall, the mix of services ought to be in the context of an outcome-oriented care system, with recovery-oriented, and patient-oriented, outcome assessments built into practice.

## **V. Federal and State Policy Options for Improving Care of People with SPMI**

### **Federal Opportunities for Reform and Innovation**

States can apply to conduct Medicaid-funded health care delivery in a Medicaid Managed Care model, rather than a fee-for-service reimbursement model, across the state. This is established by a Section 1915(b) waiver. States can apply for a Section 1915(c) waiver to establish Medicaid Home and Community Based Services, by which the state can provide long-term care shifted to home and the local community, rather than institution-based care. This program allows reimbursement for a range of care and services necessary for this patient population to be sustained in these community settings, rather than in long-term care settings. Costs are reduced by shifting care from more-costly institutional care.

States can establish a 1915(a)(c) waiver program to establish Medicare/Medicaid Integrated Care for Dual-Eligibles. For those who are eligible for both Medicare and Medicaid, state can receive higher billing rates, or a greater range of services, for some forms of care by selecting the program that provides greater reimbursement or greater range of care.

The ACA created the Center for Medicare and Medicaid Innovation (“the Innovation Center”), a new department within the Centers for Medicare and Medicaid Services (CMS). The Innovation Center administers a number of programs designed to encourage the development of innovative models of healthcare delivery.

One of the programs is the State Innovation Models (SIM) Initiative. This program provides funding support for the development and testing of state-based models for multi-payer payment and healthcare delivery system transformation with the aim of improving health system performance for residents of participating states. The projects are broad-based and can focus on high risk populations with chronic conditions including behavioral health problems.

Section 2703 of the Affordable Care Act establishes the opportunity for states to establish Medicaid-supported care via “Health Homes,” where the full range of chronic illness care, including behavioral health, can be addressed by one care team. Health homes must provide six core services. For the first two years of implementation, the federal government will pay for 90% of the cost of the six core services provided through the program. Also, services can be billed at a

better federal match rate relative to prevailing Medicaid rates. A state has the option of converting some care, but not all care systems state-wide, to this model of care.

In a version of the Health Home, states can establish Medical Home Networks/Medical Home Neighborhoods that are similar to Medical Homes, but have a more expanded array of services in the network of affiliated providers, such as specialist and hospital providers. This is also done under Section 2703 of the Affordable Care Act.

A 2012 report (Kaye 2012) noted that, while many or most states have enrolled significant percentages of their Medicaid populations in capitated managed care, few have brought both medical and behavioral health care under the cap. A 2014 report (Navigant Consulting, 2014) noted that, while much of Medicaid has moved to capitated managed care, the vast majority of dual-eligible Medicare/Medicaid recipients are still in fee-for-service arrangements.

Pharmacy control strategies for Medicaid enrollees receiving behavioral health services have been a focus of Medicaid managed care programs in several states. These programs were reviewed by the Health Law and Policy Clinic of Harvard Law School and the Treatment Access Program (2011). They noted several strategies that have been used for controlling costs, but acknowledge that these can have unintended consequences and lead to higher costs in the long run. These strategies include: restrictive or preferred formulary; prior-authorization systems; copay/cost-sharing; limits on number of prescriptions per month; preferences for generics; prescription algorithms; participation in Medicaid and other rebate programs; and purchasing coalitions. Additional strategies include provider prescribing education and feedback, case management programs to review prescription profile for those receiving polypharmacy; and “value-based insurance design,” with variable co-pays providing choice while encouraging specific choices.

### **State Strategies for Improving Care for People with SPMI**

Beyond the noted federal-state innovation opportunities, states have developed other strategies for SPMI care. To discover these, a web search was conducted using the terms “SPMI” or “SMI” or “chronic mental illness,” and the name of each state. The first 40 search results were

investigated for possible web pages describing innovative state models for addressing the quality of care for people with SPMI.

Many states have created behavioral health advisory boards, task forces, or commissions specific to mental health generally, or specifically to SPMI. These are generally tasked to conduct needs assessments and review progress, and then report findings or recommendations to the state's executive or legislative branch, or to healthcare providers, or to the public, generally. Advisory board composition varies, but most include a range of stakeholders that may include legislators, representatives from advocacy organizations, consumers, representatives from public and private healthcare providers, legal experts, and others.

At least one state, New York, has established an initiative to gather and analyze a broad set of mental health care utilization data. This State Office of Mental Health Enterprise Data Warehouse was established circa 2000.

In summary, states have used the mechanisms of task forces/advisory boards, or data-analytic centers, to address the quality of care for people with SPMI. Beyond data and results for the federally-supported innovations, such as Medicaid-waiver programs, state innovations are few, and not well-represented on the web.

## **Conclusions**

Texas is conducting a variety of Medicaid, Medicare, and ACA-related initiatives to improve the quality of care while managing costs. These initiatives generally promote a move away from fee-for-service payment to bundled and capitation payment for behavioral health services, and promote various strategies for integrating care or providing care in less costly settings. Further analysis is required to discover whether these efforts are sustaining or improving quality of care, saving money, or both. It has been noted that Texas has a limited analytic ability to assess the outcomes gained, at the state level and across system, by program changes and innovations.

Most other states are also taking advantage of these federal-state program opportunities to carry out similar activities and initiatives. Many states have also developed additional strategies for improving the quality of SPMI care. Many have adopted advisory committees and task forces

addressing Medicaid care or mental health care. The next step is to focus more directly on which states are adopting these programs, how they seem to be working, and what activities are being addressed by the various advisory committees and task forces. States are recognized as crucibles of policy innovation, and these task forces may be revealing worthwhile strategies for addressing serious and persistent mental illness.

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