



HEALTH CARE AND HUMAN SERVICES POLICY, RESEARCH, AND CONSULTING—WITH REAL-WORLD PERSPECTIVE.

## Evaluation of the CMSP Behavioral Health Pilot Project

### *Final Report*

Prepared for: CMSP Governing Board

Submitted by: The Lewin Group

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## REPORT SUMMARY

### A. Introduction & Background

California's County Medical Services Program (CMSP) operates in 34 rural counties throughout California, providing health care services for adults who are indigent but not eligible for Medi-Cal, the State's Medicaid program. Although CMSP coverage for behavioral health care has always been limited<sup>1</sup>, the CMSP Governing Board's analysis of claims data revealed that more than a third of the total cost for the program was for beneficiaries who had behavioral health (mental health or substance abuse) conditions. This suggested that the lack of coverage for behavioral health treatment possibly negatively affected the health of CMSP members with these conditions, thereby increasing the need for more costly services and raising costs for the CMSP program.

In response to these findings, the CMSP Governing Board initiated the behavioral health pilot project to test the effectiveness of providing mental health counseling services integrated with primary care in improving health, utilization, and cost outcomes. The pilot reimburses pilot sites for providing an additional set of mental health and substance abuse services, defined as short-term (10 mental health visits and/or 20 substance abuse visits per calendar year) behavioral health services. The pilot allowed reimbursement for these new services on the same day as primary care visit, to encourage immediate referrals and maintain continuity of care and coordination. (Current CMSP policy does not allow for more than one non-emergency medical visit per day.)

Fourteen primary care providers throughout California were selected as pilot sites. The pilot program began in March 2008 and continued through the end of February 2011. The Governing Board engaged The Lewin Group to evaluate impacts of the pilot over the project period. This report summarizes the final findings from the evaluation, following three interim reports (in October 2008, April 2009, and April 2010).

### B. Evaluation Methods

The evaluation combined multiple methods and data sources, including:

- Descriptive analysis of psychiatric assessment data, to describe pilot participant characteristics;
- Pre/post analysis of changes in Duke Health Profile scores for pilot participants, to assess changes in participants' health;
- Comparison of CMSP claims data over the course of the pilot for a sample of 1,649 pilot participants (the study cohort) with 1,649 matched control group members, to analyze impacts on utilization and costs;

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<sup>1</sup> CMSP coverage for mental health and substance abuse is limited to the following: 1) services from psychiatrists and other physicians, 2) inpatient mental health hospitalizations (10 days per fiscal year), 3) prescription medications (including antidepressants, anti-anxiety, anti-mania, and anti-psychotic medications), and 4) 21-day heroin detoxification (CMSP Governing Board, CMSP Behavioral Health Pilot RFP, Retrieved December 20, 2010, from: [http://www.cmspcounties.org/pdf\\_files/BHRFP.pdf](http://www.cmspcounties.org/pdf_files/BHRFP.pdf)).

- Written surveys of grantees, administered at three points in time over the pilot (March 2008, August 2009, and September 2010), to understand program changes behind the numbers; and
- Telephone interviews with each grantee, conducted after the first survey, to expand on findings from the surveys.

### C. Key Findings

The sections below summarize enrollment and participation trends, participant characteristics, and findings related to each of the six goals of the program specified by the CMSP Governing Board.<sup>2</sup>

**Enrollment, Participation, and Participant Characteristics:** The pilot sites reported serving a total of 2,339 participants from 2008 through October 2010. Not all persons who were assessed for the pilot and found eligible for follow-up counseling services went on to obtain those services through CMSP. Of the 1,313 members of the study cohort with counseling sessions reported in the claims data, the majority received individual mental health counseling; few received group counseling for mental health problems or substance abuse counseling. Grantees reported several challenges related to recruitment and referrals of CMSP beneficiaries into the pilot, service availability and access, and retaining pilot participants, all of which combined to contribute to challenges with increasing enrollment and participation for several grantees.

Assessment results indicated that 81% of pilot participants (including anyone with an assessment and/or counseling session during the pilot during the study period) had moderate to serious mental health conditions (GAF score 41-60), which was the level of functioning of the target population for the pilot program. Another 6.2% had scores below this level, indicating more serious impairment. The most commonly diagnosed conditions were depression (40%), anxiety (38%), and substance abuse (23%). Many participants reported problems with a number of psychosocial and environmental problems, most frequently related to financial (79%), occupation (71%), primary support (60%), and social environment (56%).

**Goal 1: Stabilize participants' health.** Grantees administered the Duke Health Profile (the Duke), a 17-item self assessment instrument used to generate scores on 11 dimensions of "Health Related Quality of Life" on a scale of 0 to 100, to participants prior to treatment sessions. Unsurprisingly, given the focus of the pilot on CMSP members with behavioral health problems, the Duke scores for pilot participants showed significantly higher levels of anxiety and depression compared to standard scores from a reference group of typical adult primary care patients used to develop the instrument. The scores illustrate, moreover, that participants joining the pilot project were significantly worse off on all dimensions of the Duke, not just those focused on mental health. For participants with 2 or more visits, average scores for pilot participants showed statistically significant improvement on 10 of 11 measures (all but "perceived health"), while for the smaller sample with 5 or more visits, statistically significant improvement was seen on 7 of the 11 measures. Because Duke scores were not available for the

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<sup>2</sup> CMSP Governing Board, CMSP Behavioral Health Pilot Project RFP. Retrieved December 20, 2010, from: [http://www.cmspcounties.org/pdf\\_files/BHRFP.pdf](http://www.cmspcounties.org/pdf_files/BHRFP.pdf).

control group, the extent to which this improvement was due to the pilot or other factors is unclear. The size of improvements in Duke scores was between 1.6 and 5.4 points (on a scale of 0 to 100) among participants with 2 or more visits and between 1.8 and 7.6 points among those with 5 or more visits. For 9 of the 11 measures, the size of improvement was greater for participants with 5 or more scores than for those with 2 or more scores.

**Goal 2: Provide coordinated primary care, behavioral health, and psychiatric services.**

Grantees were tasked with improving the coordination of primary care and behavioral health services and asked to report on the extent of coordination throughout the pilot. Although some evidence of progress was seen in increasing co-location, same-day services, and coordination and communication, challenges persisted in all these areas. The 14 pilot sites varied a great deal in their level of integration and coordination at the start of the pilot and extent of change over the project period.

- *Co-location:* Between the first and final grantee surveys, more sites reported offering *any* co-location of behavioral health and primary care (from 6 to 10 sites for mental health; from 4 to 9 for substance abuse). At least two grantees moved into new facilities, and one site said definitively that the pilot project was the impetus for co-location. However, on the 2010 grantee survey, grantees reported little change in the *amount* of co-located services offered (4 of the 14 grantees responded that they now offer more primary care and behavioral health services at the same location, 7 reported no change, and 3 now offer fewer services at the same location).
- *Same-day services:* The pilot allowed reimbursement for pilot services (e.g., behavioral health counseling) on the same day as referral from a primary care provider, to encourage the practice of “warm hand-offs” from medical to behavioral staff, and vice versa. In interviews, almost all grantees reported allowing for same-day services under the pilot; most said this helped improve access. Current CMSP policy does not allow for more than one non-emergency medical visit per day (although a physician and a dental visit are allowed on the same day), and behavioral health counseling is not reimbursed at all. Analysis of claims data showed that 9.3% of total behavioral health services provided under the pilot (770 of 8,276 visits) were provided on the same day as a primary care clinic visit.
- *Collaboration, coordination, and communication:* Between the first and final grantee surveys, sites reported improvements on some measures of coordination and collaboration with county agencies and coordination and communication between primary care and behavioral health providers, while reporting no change or declines on other measures; overall, little change occurred. In interviews with grantees, some sites described a strong history of integration and communication, which they maintained during the pilot (e.g., formal referral mechanisms, feedback loops, information sharing, being available to assist and participating in clinical staff meetings). Between the first and final surveys, fewer sites reported a lack of coordination with county behavioral health services as a barrier (a decrease of 2 to 1 for mental health; a decrease of 1 to 0 for substance abuse), which is an improvement. However, at the same time fewer sites reported frequent collaboration with the county (2 sites in the initial survey versus 1 site in the final survey), which is a worsening. Fewer sites reported lack of coordination

between providers as a barrier (a decrease of 1 to 0), but fewer sites reported close coordination between mental health providers (a decrease from 5 sites in the initial survey to 1 site) while the number reporting close coordination among substance abuse providers did not change (2 sites). Use of formal communication processes for primary care and behavioral health providers did not appear to change overall, and fewer sites reported routine communication between these providers.

**Goal 3: Increase appropriate use of primary and specialty care services.** Thirteen of 14 sites said the pilot improved their ability to meet CMSP member needs; 8 reported “significant” improvement. More sites reported participants could usually access appropriate treatment (0 sites in the initial grantee survey, versus 5 sites reporting better access for mental health services in the final survey; similarly, 0 sites reported better access for substance abuse services in the initial grantee survey, versus 3 sites in the final survey). Analysis of claims data supports this perception: the number of psychiatric office visits more than quadrupled for pilot participants, from the annualized equivalent of about 2 visits per year before pilot enrollment to 9 visits per year after pilot enrollment (the number of the visits for the control group stayed the same, about 2 visits per year, over the same time period).<sup>3</sup>

Evaluation of claims data for pilot participants and comparison to a control group indicates that the modest interventions implemented by the pilot grantees appeared to cause a dramatic *redistribution* of total costs for participants, indicating a shift from inpatient hospitalization towards increased use of primary care and outpatient behavioral health services (e.g., clinic, outpatient, and pharmacy). Clinic costs, on a per-member-per-month (PMPM) basis, increased more for pilot participants (57.6%) than for the control group (8.9%), consistent with the pilot goal of removing barriers to service access and increasing use of appropriate services. Physician PMPM costs, while lower for participants than for the control group throughout the pilot, also increased more for the pilot group (40.7%) than for the control group (22.3%).

Pharmacy PMPM costs increased greatly for both groups, somewhat more for pilot participants (59.2%) than for the control group (41.3%), suggesting that the pilot itself increased use of prescription medications. When looking at the *number* of prescriptions filled for each group (not just cost) on a PMPM basis, the number of prescriptions for psychiatric drugs for pilot participants increased by 69.0% compared to 36.6% for the control group, and the number of prescriptions for medical drugs for pilot participants increased by 22.2% compared to 13.5% for the control group. This suggests that the pilot was effective in improving psychiatric medication adherence for participants.<sup>4</sup> Thus, while the total dollars spent on each pilot participant and each control group member are roughly the same on average, the *appropriateness* of the spending appears much more positive for the pilot group.

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<sup>3</sup> Most CMSP enrollees are not enrolled for a full year; these numbers represent the actual number of fractional visits per member per enrolled month multiplied by twelve, as if the pilot participants and control group were enrolled for a full twelve months. On a PMPM basis, psychiatric office visits increased from 0.14 to 0.72 for pilot participants, and from 0.13 to 0.15 for the control group.

<sup>4</sup> In interviews with grantees, the discussion focused on enrollment and visits, as only the patient and the prescribing physicians would know about changes in prescription trends or drug costs.

**Goal 4: Reduce late-stage hospitalizations due to untreated medical conditions.** Results showed that both medical and psychiatric hospital admission rates and days decreased more for participants than for control group members. Although we did not directly measure whether or not the hospitalizations represented late-stage treatments due to lack of care for identified medical conditions, the pilot appeared successful in reducing hospitalizations overall. Given the corresponding increases in access to primary and specialty services described above, some of these improvements are likely due to a reduction in late-stage inpatient treatment. The most dramatic change was seen in psychiatric hospitalizations: pilot participants experienced a 56.6% reduction in the number of inpatient psychiatric days per thousand, while the control group experienced an increase of 71.4% in inpatient psychiatric days per thousand. The number of people with medical admissions decreased about the same degree for both groups, but the number of people with psychiatric admissions decreased by 57.9% for people in the pilot group, compared to the control group, which decreased by only 22.4%. Inpatient PMPM costs decreased by 37.1% for the pilot group, while increasing 6.6% for the control group; thus, the pilot also appeared to lower inpatient costs.

**Goal 5: Reduce unnecessary and/or inappropriate emergency room use.** To assess outcomes for this goal, we compared emergency room visits before and after the pilot for participants and the matched control group. Results showed that, on a PMPM basis, emergency room visits decreased for the pilot group from the period before the pilot to the pilot period (12.3% decrease), while emergency room visits increased for the control group during comparable time periods (7.8% increase). While we compared only total utilization and were unable to determine the extent to which these visits were unnecessary and/or inappropriate, as with the decrease in hospitalizations for pilot participants, it is likely that some of this improvement is due to the improvement in access to primary and specialty services described above.

**Goal 6: Achieve financial savings through improved cost-effectiveness.** To assess the cost effectiveness of the pilot, we compared CMSP claims costs (on a PMPM basis) for participants and for the control group. Overall, PMPM costs increased by 20.3% for pilot participants from the period before pilot enrollment to the period after enrollment (from \$453.29 to \$545.51), compared to a 17.5% increase for the control group during the same time period (\$523.01 to \$614.47), indicating that overall medical costs were lower for pilot participants and the rate of growth in costs was roughly the same for both groups during the study period (less than three percentage points difference).

In addition, evaluation results indicate that the modest interventions implemented by the pilot grantees appeared to cause a dramatic *redistribution* of total costs for participants, with costs shifting from inpatient hospitalization towards primary care and outpatient behavioral health services (e.g., clinic, outpatient, and pharmacy). Thus, while the total dollars spent on each pilot participant and each control group member are roughly the same on average, the *appropriateness and effectiveness* of the spending appears much more positive for the pilot group. More time would be needed for the long-term benefits of earlier detection and treatment of behavioral health problems and improved integration of care to be realized.

## D. Conclusions and Recommendations

The CMSP behavioral health pilot project showed evidence of notable progress on improving coordination between primary care and behavioral health, increasing use of appropriate services, and decreasing hospitalizations and emergency room use.

The pilot project achieved its goals related to more appropriate and effective service utilization. The greatest changes were in improving access to routine behavioral health care: the number of psychiatric office visits more than quadrupled for pilot participants, the number of prescriptions for psychiatric drugs for pilot participants increased by 69.0% PMPM compared to 36.6% for the control group, and the rate of psychiatric hospitalizations declined by 56.6% days per thousand for pilot participants. These utilization shifts did not significantly increase costs compared to the control group, but did show a dramatic redistribution of health care spending for participants, with costs shifting away from inpatient hospitalization and emergency departments and towards primary care services (clinic, outpatient, and pharmacy).

On the goals of improving beneficiary's clinical health outcomes and service integration, changes during the course of the pilot project may have been more modest, but successful practices identified by the grantees, combined with the positive utilization and cost findings outlined above, may spur increased adoption of best practices and further improve the integration of primary and behavioral health care and overall outcomes. Challenges experienced by some pilot sites included staff shortages and turnover, lack of understanding and commitment from some primary care providers and local social service agencies, the length of time required to complete the diagnostic assessment, lack of available behavioral health practitioners, CMSP cost of share requirements, other life challenges of participants, and interruptions in CMSP eligibility. Examples of good clinic practices included co-location of physical and behavioral health services, warm hand-offs between medical and behavioral health providers, information sharing between mental health and primary care providers, training on integrated care for new practitioners, and providing details explanation of services to participants at the onset of treatment. The interviews did not ask specifically about practices to improve retention and recruitment of participants.

These positive findings suggest that the program may lead to additional health benefits and cost savings over time, as a result of improved access to needed health care and improved integration of care. Several years may be needed for the full return on investment to be realized.

In this time of recession, the strained budget and increased need for publicly subsidized health care in California place more demands on the system, creating a need to identify the most cost-effective model for addressing the needs of the population. Results from the evaluation suggest that strengthening integration of primary care and behavioral health care and providing additional coverage for behavioral health services can lead to more appropriate service delivery, with potential for improved health and savings in the long term.

### *Recommendations to improve enrollment, participation, and retention*

CMSP behavioral health pilot project sites reported several barriers affecting enrollment and participation, which are common in efforts to integrate primary care and behavioral health. Strategies that might mitigate these barriers include:

1. Modifying eligibility and coverage policies to reduce eligibility “churning” and remove financial barriers to care;
2. Changing reimbursement policies to cover telemedicine for counseling services and provide reimbursement for behavioral health services provided the same day as a clinic service, in order to facilitate access and continuity of care and minimize “no shows”; and
3. Provide additional guidance to grantees on effective business practices, particular those that have been shown to work.

## I. INTRODUCTION & BACKGROUND

### A. Overview of CMSP

California's County Medical Services Program (CMSP) provides health care services for adults residing in California who are indigent but not eligible for Medi-Cal, the State's Medicaid program.<sup>5</sup> CMSP was established in 1983, when California transferred responsibility for providing health care to adults with low incomes from the State to the counties. The law established the CMSP as an option for rural counties with populations of 300,000 or fewer to contract back with the California Department of Health Services (DHS) to provide health coverage for this population. Between April 1995 and September 2005, the Governing Board contracted with DHS to administer the CMSP program. DHS used the infrastructure of Medi-Cal's fee-for-service program to administer the CMSP program. Beginning October 1, 2005, Anthem Blue Cross Life & Health Insurance Company assumed administrative responsibility for CMSP.

CMSP was originally financed by the State and later by a combination of General Fund contributions, Program Realignment revenue, Proposition 99 tobacco tax revenues and county participation fees, but is now financed exclusively through Program Realignment revenues (sales taxes, vehicle licensing fees) and contributions from the 34 participating counties throughout California. CMSP enrollment for the most recently reported month was 55,896 beneficiaries in April 2010, based on recent data provided by the Governing Board to The Lewin Group.<sup>6</sup>

The social services department in each participating county determines whether applicants meet the asset and income criteria for CMSP, currently a maximum of \$2,000 in liquid assets and income limit of 200 percent of Federal Poverty Level for an individual.<sup>7</sup> CMSP members whose income is above the "maintenance need level" (currently \$600/month) must pay a share of cost before CMSP pays for services. Currently, 14.6% of CMSP members (8,172 out of 55,896) must pay a share of cost.<sup>8</sup> County residents who do not have documented citizenship status may receive restricted emergency services only.

### B. Purpose and Goals of the Behavioral Health Pilot Project

CMSP has always provided limited coverage of mental health and substance abuse treatment.<sup>9</sup> In 2004, the CMSP Governing Board analyzed paid claims data and found that 11,180 unique

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<sup>5</sup> CMSP Behavioral Health Pilot Project RFP. Retrieved December 20, 2010, from: [http://www.cmspcounties.org/pdf\\_files/BHRFP.pdf](http://www.cmspcounties.org/pdf_files/BHRFP.pdf).

<sup>6</sup> CMSP Governing Board Strategic Planning Meeting Butte County Data. Retrieved January 31, 2011, from: [http://www.cmspcounties.org/pdf\\_files/data/BUTTE04.pdf](http://www.cmspcounties.org/pdf_files/data/BUTTE04.pdf).

<sup>7</sup> CMSP. "Eligibility FAQs." Website. Retrieved December 20, 2010, from: <http://www.cmspcounties.org/eligibility/faq.html>.

<sup>8</sup> Calculation based on data in County Medical Services Program Governing Board, Strategic Planning Meeting, Butte County Data. Retrieved January 24, 2010, from: [http://www.cmspcounties.org/pdf\\_files/data/BUTTE04.pdf](http://www.cmspcounties.org/pdf_files/data/BUTTE04.pdf).

<sup>9</sup> CMSP coverage for mental health and substance abuse is limited to the following: 1) services from psychiatrists and other physicians, 2) inpatient mental health hospitalizations (10 days per fiscal year),

CMSP members had five or more episodes of care in which the primary diagnosis was either a mental health or a substance abuse condition. The total cost of care provided to CMSP members with behavioral health (mental health and/or substance abuse) conditions was \$61.1 million, more than one-third of the total cost for the program. This suggested that the lack of coverage for behavioral health treatment possibly negatively affected members' functioning and health status, thereby increasing the need for more costly services and raising costs for the CMSP program.

Based on these findings, in 2007 the Governing Board designed the behavioral health pilot project to test the effectiveness and cost-effectiveness of covering short-term mental health and substance abuse treatment, integrated with primary care. The pilot project operated for three years (March 2008-February 2011). The Governing Board specified six goals for the project:<sup>10</sup>

1. Stabilize overall health with the combination of counseling, primary care, psychiatric services and medication management;
2. Provide coordination of primary care, behavioral health care, and psychiatric services;
3. Promote appropriate use of primary and specialty care services;
4. Reduce incidence of late-stage entry into inpatient treatment due to lack of treatment for identified conditions;
5. Reduce incidence of unnecessary and/or inappropriate emergency room utilization; and
6. Achieve financial savings through improved cost-effectiveness.

The CMSP Governing Board engaged The Lewin Group to evaluate the results of the pilot through the project period. This report summarizes the final evaluation findings, following three interim reports (in October 2008, April 2009, and April 2010).<sup>11</sup>

### C. Pilot Project Components

The behavioral health pilot project created three new benefits for CMSP participants seeking services at pilot sites:

- *Expanded coverage of behavioral health services.* The pilot project allowed CMSP reimbursement for new mental health and substance abuse services delivered through

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3) prescription medications (including antidepressants, anti-anxiety, anti-mania, and anti-psychotic medications), and 4) 21-day heroin detoxification (CMSP Governing Board, CMSP Behavioral Health Pilot RFP, p. 2).

<sup>10</sup> CMSP Behavioral Health Pilot Project RFP. Retrieved December 20, 2010, from: [http://www.cmspcounties.org/pdf\\_files/BHRFP.pdf](http://www.cmspcounties.org/pdf_files/BHRFP.pdf).

<sup>11</sup> The interim evaluation reports from October 2008 and April 2009 are available at [http://www.cmspcounties.org/about/grant\\_projects.html](http://www.cmspcounties.org/about/grant_projects.html).

pilot sites, in addition to the limited behavioral health services already available to CMSP members. To recruit potential participants for the pilot, the intent of the pilot was that primary care providers would refer CMSP members to a licensed behavioral health provider for an assessment when they suspected that counseling might be appropriate or when members expressed a desire for counseling.<sup>12</sup> These new services could be provided by psychologists, licensed clinical social workers (LCSWs), marriage and family therapists (MFTs), or certified drug and alcohol counselors. A comprehensive mental health assessment for each participant was required as part of the pilot. Mental health services were limited to 10 counseling sessions per calendar year (Exhibit 1).

#### Exhibit 1: Pilot Project Services

Treatment Type	Services	Limitations
Mental Health	<ul style="list-style-type: none"> <li>▪ Health and behavioral assessment</li> <li>▪ Individual and group counseling sessions</li> </ul>	<ul style="list-style-type: none"> <li>▪ One (1) per calendar year</li> <li>▪ Ten (10) per calendar year (individual or group)</li> </ul>
Substance Abuse	<ul style="list-style-type: none"> <li>▪ Alcohol and drug assessment</li> <li>▪ Individual counseling sessions</li> <li>▪ Group counseling sessions</li> </ul>	<ul style="list-style-type: none"> <li>▪ One (1) per calendar year</li> <li>▪ Two (2) per calendar year</li> <li>▪ Twenty (20) per calendar year</li> </ul>

- *Reimbursement for same-day visits.* The pilot allowed reimbursement for these new services on the same day as referral from a primary care provider, to encourage the practice of “warm hand-offs” from medical to behavioral staff, and vice versa. (Current CMSP policy does not allow for more than one non-emergency medical visit per day – although a physician and a dental visit are allowed on the same day, and behavioral health counseling is not reimbursed at all outside of the pilot.)
- *Integration of primary care and behavioral health.* The pilot required that applicants for the grant describe the linkages between primary care and behavioral health at their sites, but did not prescribe a specific model for integration.

#### D. Grantees, Timeframe, and Selection Process

Through a competitive process, the Governing Board selected 14 pilot sites. These 14 grantees serve 15 of the 34 CMSP counties. Each pilot project site is a primary care provider or group of providers with a memorandum of understanding (MOU) with the County Mental Health Department and/or Alcohol & Drug Department. The selected sites received funding for the new pilot services, plus administrative support payments of up to 15% of direct service costs to help pay for oversight, administration, and data collection (a total of \$352,000 in administrative support payments across the sites).

<sup>12</sup> CMSP Behavioral Health Pilot Project RFP, p. 3-4.

The 14 grantees included hospitals, community clinics, and health centers. Seven of the pilot sites were groups of multiple clinics that serve the same region and were jointly awarded the grant, with one organization per group serving as the lead agency (*Exhibit 2*).

**Exhibit 2: Funded Pilot Project Sites, by Region**

Region	Lead Agency (Grantee)	Other Sites
Coastal North	Open Door Community Health Centers	Del Norte Community Health Center Eureka Community Health Center Humboldt Open Door North Country Clinic
	Redwoods Rural Health Center	
Bay Area	Community Health Clinic Ole	
	Petaluma Health Center	Southwest Community Health Center West County Health Centers, Inc.
	Sonoma Valley Community Health Center	
Central Valley North	Del Norte Clinics, Inc.	Chico Family Health Center Del Norte Family Health Center Lindhurst Family Health Center Oroville Family Health Center Richland Family Center ( June 2009)
	Shasta Consortium of Community Health Centers	Hill Country Community Clinic Shasta Community Health Center Shingletown Medical Center
	Tehama County Health Services Agency	Corning Medical Associates, Inc.
Mountain North	McCloud Healthcare Clinic, LLC	
	Chapa-De Indian Health Program, Inc.	
	Sierra Family Medical Clinic, Inc.	Western Sierra Medical Clinic, Inc. Miners Community Clinic, Inc.
Mountain South	El Dorado County Community Health Center	
	Southern Mono Healthcare District	Mammoth Hospital
	Sonora Regional Medical Center	

## E. Environment for the Behavioral Health Pilot Project

The behavioral health pilot project operated in a dynamic California environment, in which a number of economic and policy developments interacted to various degrees with the pilot project.

- During the period of the pilot project, the State of California implemented dramatic reductions in state services to mitigate massive budget deficits. Budget actions strained the capacity at county mental health agencies.
- The *Integrated Behavioral Health Project (IBHP)* was a four-year initiative launched in March, 2007, by The Tides Center funded by the California Endowment to identify and disseminate successful approaches to integration. Grantee organizations were chosen based on their involvement with integrated behavioral care. Four CMSP behavioral health pilot project sites concurrently participated in the IBHP (Chapa-De Indian Health, Open Door Community Health Centers, Petaluma Health Center, and Sierra Family Health Center).<sup>13</sup> For more information about the IBHP, see [www.ibhp.org](http://www.ibhp.org).
- The *CMSP Care Management Pilot* began in October 2007 as an effort to better coordinate services for CMSP members with chronic and/or high cost medical conditions. Under the pilot, Anthem Blue Cross used additional CMSP funding to enhance its care management staffing model for the Care Management Pilot, establishing a dedicated Care Management Unit with additional nursing and social work staff. Anthem Blue Cross opened 2,066 care management cases during the course of the two-year pilot project, with the majority after October 2008. We determined that 43 CMSP members were in both the care management and the behavioral health pilots at some point between March 2008 and April 2010.<sup>14</sup>

## II. EVALUATION METHODS

The Lewin Group designed the evaluation and collected clinical and administrative information for the study. All study participants completed a confidentiality form and agreed to participate in the evaluation. The evaluation combined multiple methods and data sources, including:

- **Descriptive analysis of clinical assessment data** (DSM-IV), to describe characteristics of pilot participants. The Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) of the American Psychiatric Association assessments was completed in the diagnostic assessment required as part of the pilot. Not all participants completed all parts of the DSM-IV assessment, which includes 1) the Global Assessment of Functioning (GAF) (N=1,529), 2) clinical behavioral health diagnoses (N=1,543), and 3) experience with psychosocial and environmental problems (N=varied from 1,397 to 1,529 for various components of the assessment). For additional details on the methodology for analyzing the claims data, see *Appendix A*.
- **Comparison of CMSP claims data for pilot participants and a matched comparison group**, to estimate the effects of the program on utilization and costs. The 1,649 members of the study cohort were matched with 1,649 non-participating CMSP members with

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<sup>13</sup> IBHP, "Recipients." Web page. Retrieved December 23, 2010, from: <http://www.ibhp.org/index.php?section=pages&cid=217>.

<sup>14</sup> A comparable number of members of the control group (52 out of 1,649) were in the care management pilot at some point between March 2008 and April 2010.

similar characteristics, using a technique called “propensity-score matching.” For technical details about the matching methodology, see *Appendix A*.

- **Pre/post analysis of changes in Duke Health Profile scores** for pilot participants, to examine changes in health status before and after receiving pilot services. The Duke is a 17-item self assessment instrument used to generate scores on 11 dimensions of Health Related Quality of Life (on a scale of 0-100). Grantees were asked to administer the Duke to participants prior to every individual or group treatment session and provide the results to the study team, along with other clinical and administrative data. To allow for observing changes over time during the pilot, we then limited the universe of study cases to 1,649 individuals (hereafter referred to as the study cohort) who used any pilot services (assessment, counseling session, or both) in the pilot before April 30, 2010, and who had at least one month of CMSP eligibility. *Appendices B, C, D, and E* provide enrollment, referral, diagnostic and Duke Profile information for all participants reported by the pilot sites through October 2010.
- **Written surveys of grantees**, administered at three points over the pilot (March 2008, August 2009, and September 2010), to construct a pattern of trends over time in service coordination, access to services, and barriers to access.
- **Telephone interviews with each grantee**, conducted after the first survey (between November 2008 and February 2009) and again in the fall of 2010, to better understand survey responses and help interpret the numbers and the issues affecting program outcomes.

### III. FINDINGS

This chapter is organized into sections that provide an overview of enrollment and participation and summarize findings related to the six goals of the pilot.

#### A. Enrollment, Participation, and Participant Characteristics

##### 1. Enrollment and participation trends

The pilot sites reported serving a total of 2,339 participants from 2008 through October 2010 (see *Appendix D*). *Exhibit 3* provides information on the unduplicated number of people receiving initial assessments each year. As the table shows, a total of 1,313 members of the study cohort ever received any counseling sessions (as reported in the claims data), and the remaining 336 received an assessment only. These 336 were provided with an assessment and treatment recommendation and offered the opportunity to receive counseling services under the pilot, but did not receive the counseling services, obtained services outside of CMSP, or CMSP had not received timely claims for these services for inclusion in this analysis. The vast majority of participants received individual counseling for mental health disorders; few received group mental health counseling or substance abuse counseling.

**Exhibit 3: Number of People Receiving Initial DSM Assessments (unduplicated counts)**

	Pilot Participants in 2008 (N=625)	Pilot Participants in 2009 (N=760)	Pilot Participants in January - April 2010 (N=264)	Un-duplicated Total Pilot Participants (N=1,649)*
<b>Number of People Receiving Initial DSM Assessment (unduplicated)</b>	484	634	227	1,345
<i>Mental Health (MH) Assessment (unduplicated)</i>	463	605	208	1,276
<i>Substance Abuse (SA) Assessment (unduplicated)</i>	27	46	29	102
<i>Both MH and SA Assessment (unduplicated)</i>	6	17	10	33

\*Numbers in the total columns do not equal the sum of the columns for each year because people could participate in more than one year.

*Exhibit 4* shows the number of people receiving counseling by year. As shown, far more participants received mental health counseling (1,252) than substance abuse counseling (96); 24 participants received both mental health and substance abuse counseling.

**Exhibit 4: Number of People Receiving Mental Health and Substance Abuse Counseling, by Year**

	Pilot Participants in 2008 (N=625)	Pilot Participants in 2009 (N=760)	Pilot Participants in January - April 2010 (N=264)	Un-duplicated Total Pilot Participants (N=1,649)
<b>Number of People Receiving Counseling</b>	484	817	426	1,313
<i>Mental Health (MH) Counseling</i>	464	787	401	1,252
<i>Substance Abuse (SA) Counseling</i>	25	56	32	96
<i>Both MH and SA Counseling</i>	3	16	4	24*
<i>DSM Assessment Only</i>	94	161	81	175

\*The total number of people receiving both MH and SA counseling is greater than the sum of the prior three columns because people could receive MH counseling and SA counseling in different years.

As shown in *Exhibit 5*, 74.5% of participants (1,229) received individual mental health counseling, while few received group mental health counseling or substance abuse counseling. However, those who received substance abuse treatment more often participated in groups (87) than individual counseling (41). This difference may be because the pilot paid for up to 10 individual or group mental health counseling sessions, compared to 2 individual or 20 group sessions for substance abuse.

**Exhibit 5: Number of People Receiving Individual and Group Counseling, by Year**

Treatment Type	Pilot Participants in 2008 (N=625)	Pilot Participants in 2009 (N=760)	Pilot Participants in January - April 2010 (N=264)	Un-duplicated Total Pilot Participants (N=1,649)*
<b>Participants Receiving Services</b>				
<i>Participants receiving Mental Health - Individual</i>	454	769	398	1,229 (74.5%)
<i>Participants receiving Mental Health - Group</i>	21	44	9	64 (3.9%)
<i>Participants receiving Substance Abuse - Individual</i>	5	23	15	41 (2.5%)
<i>Participants receiving Substance Abuse - Group</i>	23	51	29	87 (5.3%)
<b>Participants Reaching Service Limits</b>				
<i>Participants Receiving 10 Mental Health Visits (Individual &amp; Group Combined)</i>	23	61	10	94 (5.7%)
<i>Participants Receiving 2 Visits Substance Abuse - Individual</i>	4	7	7	18 (1.1%)
<i>Participants Receiving 20 Visits Substance Abuse - Group</i>	2	2	0	4 (0.2%)

\*Numbers in the total columns do not equal the sum of the columns for each year because individuals could participate in more than one year.

Participation by CMSP beneficiaries in the pilot was below the levels predicted by the pilot sites in their applications and increased somewhat in the first few months, but remained significantly lower than anticipated throughout the project period. The 14 pilot sites projected to conduct a combined total of 249 assessments monthly, although these projections were based on their “best guesses,” not on an evidence base of realistic enrollment goals for this type of program. The actual average number of assessments was 73 per month during the first 23 months.<sup>15</sup>

On average, pilot participants received 4.5 mental health and 0.5 substance abuse visits each year, and, as shown in *Exhibit 5*, few of the pilot participants reached the service limits of 10 mental health visits per calendar year (5.7%), two substance abuse visits per year (1.1%), or 20 group substance abuse visits per calendar year (0.2%). However, several grantees expressed concern about the limits to the number of covered behavioral health visits per year. In some cases, appointments were strung out over several months to provide long-term treatment within service limits.

<sup>15</sup> The Lewin Group, CMSP Behavioral Health Pilot Project Interim Report, April 2010, p. 7.

## 2. Issues affecting enrollment and participation

The grantee surveys and interviews revealed a range of challenges affecting recruitment and referrals of CMSP beneficiaries into the pilot, service availability and access, and retention of pilot participants. All of these combined to contribute to challenges with growing enrollment and participation for several grantees.

### Recruitment/referrals

- **Staff shortages and turnover** at pilot sites, including changes in leadership, made it more difficult for some grantees to formalize outreach activities and to successfully target CMSP beneficiaries in need of counseling services. Grantees used a variety of staffing models, and staff size differed across sites. Some grantees had established organizational support systems and care teams. At other sites, a single therapist provided treatment and took on administrative roles for the pilot. Several grantees were in the process of hiring new staff, either to replace recent departures or to expand services. Others said they would like to expand service offerings, but lacked the funds and space to accommodate new staff. In addition to hiring and training new providers, some of grantees had also experienced turnover in organizational leadership.

The lack of resources to follow up with and engage new clients may have led to lower participation. Newly referred clients often had the opportunity to immediately schedule appointments for pilot services, but administrative staff were not always available to offer reminders or other assistance to ensure that new clients would appear for scheduled appointments. Some grantees expressed concerns about the lack of continuity of care and suggested that CMSP increase funding for administrative and case management services.

- **Lack of understanding and commitment from some primary care providers and service agencies.** Sites generally promoted the pilot project internally during staff meetings and through individual reminders for all clinicians (e.g., one-on-one visits, clinic intranet). Interviews with grantees indicated that the most referrals came from medical providers within the clinic(s) associated with the behavioral health pilot project grantee. This suggests that primary care providers at pilot sites were aware of the availability of the behavioral health intervention. However, as one grantee put it, some may have viewed the pilot project as “just another program with more rules.”

Most grantees had also conducted some form of outreach to local providers and social service agencies. However, the number of referrals from local agencies was lower than anticipated at some sites. Many grantees continued these outreach efforts, but others were unable to match and sustain their advertising or feared that the message had “worn thin.” This suggests that sites struggled to create successful outreach strategies to encourage new referrals. That lack of awareness and nonchalance among some providers may have contributed to low referral rates and lower-than-expected usage program-wide.

- **The diagnostic assessment** required to determine eligibility for pilot services was a challenge for some grantees. One site noted that the length of time needed to complete

the entire DSM-IV assessment, generally accepted to be an hour, was not feasible within its standard treatment model, which keeps visits short in order to provide services to more beneficiaries. Several grantees suggested a programmatic policy change to allow for an intervention (i.e., counseling session) prior to the assessment.

### *Service availability and access*

- **Lack of available behavioral health practitioners.** Many of the practitioners providing assessment and counseling services (e.g., psychologists, psychiatrists, licensed clinical social workers, marriage and family therapists, and drug & alcohol counselors) were only available part-time, some as infrequently as twice a month. The limited availability of practitioners decreased access to services for persons in need of counseling and negatively impacted the ability of pilot sites to accept new participants. On grantee surveys, the number of sites reporting shortage of providers as a barrier overall remained steady (from 4 sites in the first grantee survey to 5 in the final survey for mental health and from 6 sites to 5 for substance abuse).
- **CMSP share of cost (SOC) requirements.** Grantees commented that any amount of cost-sharing is generally considered unaffordable for the CMSP population. Members with a share of cost requirement would need to meet that requirement *each month* in order to participate. While overall about 15% of CMSP members have a share of cost, only 6% of pilot participants with formal assessments have a share of cost. This suggests that the cost-sharing requirements may be keeping some members from seeking or continuing treatment.

### *Participant retention*

- **Other life challenges of the target population.** In the telephone interviews with grantees, five grantees noted that the population was tougher to serve than originally envisioned due to challenges such as co-morbidities, family dysfunction, and homelessness. In addition, sites reported that participants were often difficult to contact because of their transient living situations, homelessness, and lack of reliable telephone access. Chronic pain and the lack of access to transportation also made it difficult for some patients to attend scheduled sessions. All these factors combined to make it difficult for the pilot participants to consistently adhere to a structured treatment/counseling regimen. Interview findings suggest that the clinics might have improved engagement in treatment by making greater use of innovative retention strategies and being more responsive to participants. For example, Shingletown noted that strong adherence was partly ascribed to the detailed explanation of services at the onset of treatment.

Other grantees expressed concern about no-show rates for counseling sessions. Two of the larger providers reported an approximate no-show rate of 20 to 25 percent for behavioral health, which they said were higher than no-show rates for clinic services overall. We were not able to collect data on no-show rates for the evaluation, because the sites were not easily able to track this information. In an attempt to explain the low utilization rate, grantees cited the stigma associated with mental health and substance abuse treatment and the life challenges of participants mentioned above.

- **Short-term and irregular CMSP eligibility.** Grantees reported that eligibility processing delays and lack of continuity in CMSP eligibility made proactive planning for on-going counseling very challenging. Continuity of care was sometimes interrupted because of different funding streams and cyclic eligibility. We were not able to measure the extent of interrupted eligibility because we did not have sufficient retrospective data.

### *Recommendations to improve enrollment, participation, and retention*

These barriers described above are common in primary care/behavioral health integration. Strategies that might mitigate these barriers include:

- Plan for sufficient administrative support to provide immediate assistance to patients in scheduling referral and follow-up appointments, to minimize “no-shows” and missed follow-up;
- Provide evidence of successful pilot outcomes to external providers and social service agencies to encourage referrals; and
- Allow reimbursement for telemedicine for counseling services and/or for counseling services provided on the same day as a primary care visit to improve access to specialty care and mitigate transportation and other access barriers. Reimbursement for telemedicine services for psychiatry was only offered through traditional CMSP and was not reimbursable for counseling services provided under the pilot. However, as of the interviews conducted in late 2008 and early 2009, four grantees (Del Norte Clinics, McCloud, Open Door, and Sierra Family) said they had used or considered using telemedicine to improve access to psychiatrists, and another two showed interest in the idea (Mammoth Hospital and Redwoods Rural).
- Remove program eligibility requirements that create barriers to care, such as cost-sharing requirements and the need to frequently re-establish eligibility

### **3. Characteristics of pilot participants**

#### *Demographic characteristics*

*Exhibit 6* shows demographic characteristics for the 1,649 participants in the study cohort, based on claims data. Approximately 53% of pilot participants with formal assessments were women, and all were between the ages of 21 and 64. The percentage of pilot participants who were women was somewhat greater than the percentage of CMSP enrollees who are women (approximately 43%).<sup>16</sup>

Of the 1,345 who completed an assessment, the vast majority (94%) was eligible for CMSP services without a share of cost (SOC); that is, the benefit paid for the full cost of the treatment.

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<sup>16</sup> Data from Q2 2010, reported in County Medical Services Program Governing Board, Strategic Planning Meeting, October 29, 2010. Retrieved January 24, 2010, from: [http://www.cmspcounties.org/pdf\\_files/SPMPRESFINAL102910.pdf](http://www.cmspcounties.org/pdf_files/SPMPRESFINAL102910.pdf).

In comparison, for FY 2009-10, approximately 15% of all enrolled CMSP members had a share of cost.<sup>17</sup>

**Exhibit 6: Demographic Characteristics of Pilot Participants (N=1,649)**

Demographics	2008	2009	January - April 2010	Total
Gender				
<i>Female</i>	53%	53%	55%	54%
<i>Male</i>	47%	47%	45%	46%
Age at point of initial assessment				
<i>21 to 30</i>	24%	27%	30%	26%
<i>31 to 45</i>	33%	38%	36%	36%
<i>46 to 64</i>	43%	35%	33%	38%
CMSP Benefit				
<i>With share of cost</i>	7%	9%	15%	9%
<i>Without share of cost</i>	93%	91%	85%	91%

### *Mental health conditions*

The DSM-IV formal comprehensive mental health assessment includes the Global Assessment of Functioning (GAF), which determines an individual's functional state on a scale of 0 to 100, with lower scores indicating a higher degree of impairment. The assessment process was designed to establish whether a CMSP member met the clinical eligibility criteria to receive pilot services, which included the following three elements:

- 1) Mental health and/or substance abuse treatment needs that could be effectively addressed through short-term psycho-social support from a psychologist, licensed clinical social worker (LCSW), marriage and family therapist (MFT), or certified drug and alcohol counselors, either by itself or in combination with treatment by a psychiatrist and/or pharmacological services;
- 2) Mental health needs that are not considered of such severity that the member would be considered seriously and persistently mentally ill and/or a danger to self or others, or has substance abuse needs that do not require inpatient substance abuse rehabilitation, residential treatment, long-term substance abuse treatment, methadone maintenance, or similar long-term drug rehabilitation services (GAF score of 41 or above); and

<sup>17</sup> Calculation based on data in County Medical Services Program Governing Board, Strategic Planning Meeting, Butte County Data. Retrieved January 24, 2010, from: [http://www.cmspcounties.org/pdf\\_files/data/BUTTE04.pdf](http://www.cmspcounties.org/pdf_files/data/BUTTE04.pdf).

- 3) Not assigned to CMSP aid code 50 (emergency services only) or aid code 8F (inpatient hospital services only).

*Exhibit 7* shows the distribution of GAF scores for 1,529 of the 1,649 members of the study cohort of CMSP members with available GAF scores, grouped into deciles as categorized in the DSM-IV. Not everyone who used pilot services actually completed a DSM assessment prior to participating in the pilot, based on claims data showing that some participants had claims for counseling sessions but not assessments. Pilot participants averaged a GAF score of 53; the group-wide minimum was 20 and the maximum was 90. Approximately 81% of all the individuals assessed through the behavioral health pilot project fell between the GAF scores of 41 to 60, the level of functioning of the target population for the pilot project. This group experiences moderate to serious mental health problems with moderate to serious impairment in social, occupational, or school functioning.

Ninety-four CMSP beneficiaries (6.2%) assessed by the grantees had GAF scores below 41, which was established as the cut-off score for the pilot project, based on the capacity and appropriateness of clinics for serving individuals with more severe impairments. However, anecdotal evidence suggests that the clinics were motivated to serve everyone identified with a mental health issue, and did not deny services to any presenting patient because his or her GAF score fell below the minimum. Grantees reported that they either provided counseling to the participant even though the patient did not meet the cut-off, re-scored the GAF (which is subjective) to see if the patient met the required score of 41 or higher and then provided counseling, or referred patients with more severe impairments to other providers to receive specialty services that were not available in the primary care environment.

**Exhibit 7: Frequency of GAF Scores among CMSP Members in Pilot Project (DSM-IV Axis 5)  
(N=1,529)**

Global Assessment of Functioning	GAF Score Range	Frequency	Percent
Persistent danger of severely hurting self or others/Serious suicidal acts	1 - 10	0	0.0%
Some danger of hurting self or others/Gross impairment in communication	11-20	1	0.1%
Serious impairment in communication or judgment/Inability to function in almost all areas	21-30	8	0.5%
Major impairment in several areas/Some impairment in reality testing or communication	31-40	85	5.6%
Serious symptoms/Serious impairment in social, occupational, or school functioning	41-50	597	39.0%
Moderate symptoms/Moderate difficulty in social, occupational, or school functioning	51-60	635	41.5%
Some mild symptoms/Some difficulty in social, occupational, or school functioning	61-70	170	11.1%

Global Assessment of Functioning	GAF Score Range	Frequency	Percent
Symptoms are transient and expectable reactions to psychosocial stressors	71-80	20	1.3%
Absent or minimal symptoms/No more than everyday problems or concerns	81-90	13	0.9%
Superior functioning/Life's problems never seem to get out of hand/Sought out by others	91-100	0	0.0%
Total GAF Scores		1,529	100.0%

The clinical assessment also established one or more behavioral health diagnoses for each participant. *Exhibit 8* includes the principal and secondary diagnoses for the 1,534 members of the study cohort members who completed the clinical diagnosis component of the assessment. About 46% were diagnosed with multiple disorders. The three most common diagnoses were depression (40%), anxiety (38%), and substance abuse (23%).

**Exhibit 8: Frequency of Clinical Behavioral Health Diagnoses (DSM-IV Axis 1), N=1,534**

DSM-IV - Axis 1 Clinical Disorders	Principal Diagnosis	Secondary Diagnosis	Principal or Secondary Dx
Depressive Disorders	32%	8%	40%
Anxiety Disorders	23%	17%	38%
Substance Disorders	11%	14%	23%
Bipolar Disorders	17%	3%	20%
Adjustment Disorders	6%	1%	7%
Psychotic Disorders	4%	1%	5%
Impulse Control	2%	3%	5%
Other	4%	3%	n/a
No Diagnosis	n/a	50%	n/a

Note: Some CMSP members have been diagnosed with both principal and secondary diagnoses within the same categories (e.g., individuals can be diagnosed with two distinct conditions of anxiety disorder, for example.) Therefore, the last column of this exhibit is not necessarily the sum of the prior two.

### *Psychosocial and environmental challenges*

The assessment data documented that many CMSP members participating in the pilot project faced a number of other psychosocial and environmental challenges. *Exhibit 9* shows the frequency of psychosocial and environmental problems experienced over the course of the preceding year. These challenges are identified through the DSM-IV assessment in a series of discrete categories. For each category, the clinician notes if a problem is present. The most prevalent were economic problems such as inadequate finances or extreme poverty (79%), and occupational problems such as unemployment, stressful work schedule, or job change (71%).

More than half of the participants experienced problems related to their primary support group (60%) or social environment (56%), such as neglect, discrimination, disruption of family by separation, or the death of a family member or friend.

**Exhibit 9: Frequency of Psychosocial and Environmental Problems (DSM-IV Axis 4)**

DSM-IV - Axis 4 - Categories	Percent reporting problems	N=
Economic	79%	1,517
Occupation	71%	1,516
Primary Support	60%	1,523
Social Environment	56%	1,529
Housing	41%	1,514
Education	24%	1,528
Legal	23%	1,513
Access to Health Care	20%	1,515
Other*	24%	1,397

As defined in the DSM manual, “other” includes exposure to disaster, war, other hostilities; discord with nonfamily caregivers; and a lack of access to social service agencies.

## B. Health Outcomes

The first goal of the pilot was to improve the overall physical and mental health of participants, through the delivery of mental health in combination with primary care services and, as appropriate, psychiatric services and medications. Participants completed the Duke Health Profile prior to every counseling session to document the outcome of ongoing treatment. Their responses were used to determine scores on a scale of 0 to 100 for five dimensions of dysfunction (lower score is better) and six dimensions of function (higher score is better). The analysis included only participants for whom we had valid responses for the first and last Duke profiles.

In telephone interviews with grantees, most said they observed an overall increase in the level of functioning and health of pilot participants.

Unsurprisingly, given the focus of the pilot on CMSP members with behavioral health problems, the Duke Health Profile scores for pilot participants showed significantly higher levels of anxiety and depression compared to standard scores from a reference group of typical adult primary care patients used to develop the instrument. The scores illustrate, moreover, that participants joining the pilot project were significantly worse off on all dimensions of the Duke profile, not just those focused on mental health. On a scale of 0 to 100, pilot participants averaged levels of impairment 31 points above the reference group for the five dimensions of dysfunction and an average of 29 points below the primary care reference group for measures of function where a higher score is desirable.

**Exhibit 10** below compares the first and last scores on the Duke scales for the 1,038 CMSP beneficiaries with at least two Duke profiles, compared with the reference group of adult patients used to develop the instrument. Because more than two visits may be needed in order to bring about a change, we also examined data for the smaller subset of 538 CMSP beneficiaries who attended 5 or more sessions (**Exhibit 11**).

For pilot participants with 2 or more visits, average scores for pilot participants showed statistically significant (i.e., probably not due to random chance) improvement on 10 of the 11 Duke scales (all but “perceived health”). For the group with 5 or more visits, statistically significant improvement was seen on 7 Duke measures (anxiety, anxiety/depression, depression, general health, mental health, physical health, and social health), while significant improvement was not detected for disability, pain, perceived health, or self-esteem. The smaller sample size in the group with 5 or more visits may be a reason for the lack of statistically significant changes for these measures. The size of improvement in scores was between 1.59 and 5.36 points (on a scale of 0 to 100) among participants with 2 or more visits, and between 1.80 and 7.61 points among those with 5 or more visits. The lack of control group data makes it unclear whether these findings are attributable to the pilot project or some other phenomenon (e.g., regression to the mean, pre-test effect).

**Exhibit 10: Changes in Duke Health Scores for Participants with 2+ Visits (N=1,038)**

Health Related Quality of Life (HRQOL) Dimension	Reference Group: Primary Care Adult Patients	Average First	Average Last	Point Difference First to Last (* = statistically significant)	Statistical Significance
<b>Dysfunction</b> (lower is better)					
Anxiety	25.4	59.63	55.49	- 4.15*	< 0.0001
Anxiety/Depression	24.1	60.49	55.30	- 5.20*	< 0.0001
Depression	26.2	62.72	57.36	- 5.36*	< 0.0001
Disability	12.5	38.27	34.62	- 3.65*	0.0099
Pain	46.1	69.14	65.81	- 3.33*	0.0034
<b>Function</b> (higher is better)					
General Health	72.7	42.87	46.81	3.94*	< 0.0001
Mental Health	80.7	41.76	46.64	4.88*	< 0.0001
Perceived Health	75.2	51.08	52.67	1.59	0.1575
Physical Health	62.8	38.66	41.65	2.99*	< 0.0001
Self Esteem	82.5	52.49	54.46	1.97*	0.0018
Social Health	73.7	47.34	50.00	2.66*	< 0.0001

On 2 of the measures (disability and pain), the point difference from first to last session was greater for those with 2 or more scores than for those with 5 or more scores, while on the other nine measures the change was greater for those with 5 or more visits.

Exhibit 11: Changes in Duke Health Scores for Participants with 5+ Visits (N=538)

Health Related Quality of Life (HRQOL) Dimension	Reference Group: Primary Care Adult Patients	Average First	Average Last	Point Difference First to Last (*= statistically significant)	Statistical Significance (p-value)
<b>Dysfunction</b> (lower is better)					
Anxiety	25.4	61.30	55.50	- 5.79*	< 0.0001
Anxiety/Depression	24.1	62.23	54.61	- 7.61*	< 0.0001
Depression	26.2	64.09	56.76	- 7.33*	< 0.0001
Disability	12.5	38.24	35.40	- 2.84	0.1553
Pain	46.1	69.74	66.80	- 2.95	0.0673
<b>Function</b> (higher is better)					
General Health	72.7	41.79	46.58	4.79*	< 0.0001
Mental Health	80.7	40.17	46.86	6.68*	< 0.0001
Perceived Health	75.2	50.00	51.80	1.80	0.2688
Physical Health	62.8	38.52	41.69	3.18*	0.0003
Self Esteem	82.5	51.05	53.11	2.06	0.0617
Social Health	73.7	46.49	49.36	2.87*	0.0038

### C. Coordination and Integration of Primary Care and Behavioral Health

A major goal of the pilot was to promote the coordination and integration of behavioral health and primary care services at pilot sites. Integration of primary care and behavioral health is difficult to define; however, several hallmarks tend to be present in well-integrated systems, including:

- Co-location of behavioral health and primary care services;
- Warm hand-offs and same-day visits; and
- Communication and coordination between primary care and behavioral health practitioners and provider entities.

Although evidence of progress was seen in each of these areas, challenges persisted. The 14 behavioral health pilot sites differed in their level of integration at start of the pilot and in the extent of change over the course of the project.<sup>18</sup>

<sup>18</sup> Three surveys were administered over the course of the pilot; all 14 grantees completed the final survey, but only 10 completed all 3 surveys.

## 1. Co-location

Grantee surveys showed that, while many pilot sites were already offering *any* behavioral health treatment at the same location as primary care before the start of the pilot, the numbers increased over the two years of the project (from 6 to 10 sites for mental health; from 4 to 9 for substance abuse).

In the interviews with the 14 grantees, co-location of primary care and behavioral health staff emerged as an important factor in integration. At least two grantees recently moved into new facilities that now house medical and mental health services in the same location, further facilitating collaboration in care integration at those sites. At least one site (Redwoods) said definitively that the pilot project was the impetus for co-location.

However, the 2010 survey asked grantees if they had changed the *amount* of co-located services they offer since the start of the CMSP pilot project in the spring of 2008 and found little improvement. Four of the 14 grantees responded that they now offer more primary care and behavioral health services at the same location, 7 reported no change, and 3 stated that they now offer fewer services at the same location.

## 2. Same-day visits

In the interviews with grantees, almost all sites reported taking advantage of the pilot provision to allow for CMSP reimbursement of same-day services. Some sites adjusted scheduling patterns to allow more open appointments for “warm hand-offs.” Other sites initiated new procedural steps to highlight CMSP members who might qualify for counseling services through notes or new fields in electronic records (e.g., Sierra Family Medical Clinic, Shasta CHC). Most sites also reported that allowing same-day services helped improve access for people with transportation barriers, because they could make one trip instead of two. Physical co-location of services was an important facilitator of warm hand-offs. However, one site (Southern Mono) started a new process of “telephonic hand-offs” where the physician and patient would call the behavioral health office two blocks away to make an introduction and arrange a time to meet for treatment.

Analysis of claims data showed that the 9.3% of total behavioral health services provided under the pilot (770 of 8,276 visits) were provided on the same day as a primary care clinic visit. The proportion of behavioral health services provided on the same day varied little over the course of the pilot. Claims data showed that grantees were more successful in coordinating same-day visits for mental health assessment and treatment than for substance abuse assessment and treatment. Over the course of the pilot, 12.3% of mental health assessments (172 of 1,400 assessments) occurred the same day as a primary care clinic visit, while fewer than half as many substance abuse assessments (5.7%) took place same-day (6 of 106 assessments). Similarly, 40.7% of mental health group counseling sessions (81 visits) and 8.3% of individual mental health counseling sessions (483) occurred the same day as a primary care clinic visit, compared to 3.8% of substance abuse group sessions (26) and 3.2% of individual substance abuse counseling sessions (2).

### 3. Collaboration, coordination, and communication

**Collaboration, coordination, and communication with county agencies.** Interview findings suggest that the relationships between the primary care provider grantees and their respective county mental health departments varied in scope from nearly non-existent to extensive collaboration between both entities:

- Some joint efforts were present between pilot sites and the county mental health department (e.g., El Dorado, Southern Mono, Tehama County Health Services Agency, Sonora Regional). In these instances, grantees reported that patients were referred back and forth easily and case consultations occurred on a recurring schedule.
- Other grantees reported some communication and collaboration with county mental health agencies, but not a fundamental commitment to collectively address the needs of the local target population. Occasionally, patients originally referred by the county for counseling services became mentally unstable, and in those instances referrals back to the county for more intensive treatment was difficult.
- Some grantees were frustrated by a lack of collaboration. These grantees perceived the county system as too fragmented and some reported a sense that the county “dumps” complex patients into the safety-net provider system – patients who overwhelm the resources and expertise of the local system.
- Some locations reported that the county did not currently offer a full range of mental health services because of staff shortages. In these instances, grantees found that obtaining referrals to the county were difficult and restricted only to crisis patients and those perceived to be outside the scope of services provided by grantees.

Despite lower-than-projected enrollment, multiple sites reported during the interviews that one of the important byproducts of the project was increased attention to mental health from physicians and administrators. The sites reported that the process of marketing the new CMSP counseling opportunities, plus other activities, helped more physicians understand the other resources available within the clinic. Shasta CHC said the site plays a greater role in monthly meetings of staff clinicians than it did before the start of the project. Tehama initiated new multi-disciplinary treatment planning meetings. These benefits extend beyond CMSP and the immediate pilot. El Dorado said that offering services at the clinic helped reduce the stigma of seeking them at a mental health center or through the county. Sonora Regional said behavioral health counseling was a catalyst for promoting more “medical home-ness.”

Results from grantee surveys, however, showed little progress in collaboration with county behavioral health services. Upon examining changes between the initial and final grantee surveys, fewer sites reported lack of coordination with county behavioral health services as a barrier (a decrease from 2 to 1 for mental health; decrease from 1 to 0 for substance abuse), but fewer sites reported frequent collaboration with the county (a decrease from 2 to 0 sites).

#### **Communication and coordination between primary care and behavioral health providers.**

The number of sites reporting formal processes in place for primary care providers to communicate with behavioral health specialists/clinicians on a routine basis declined from the first grantee survey to the last for mental health (from 9 to 7), but increased for substance abuse

(from 5 to 7). Between the first grantee survey and the last grantee survey, pilot sites reported decreases in specific communication practices between primary and behavioral health providers, including case conferences (from seven to six), sharing charts (from 5 to 4), and treatment planning (from 6 to 4).

The number of pilot sites reporting lack of coordination between providers as a barrier dropped from 1 to zero sites for both mental health and substance abuse. However, fewer sites reported “close” coordination between primary care and mental health in the final grantee survey, compared to the initial grantee survey (decrease from 5 to 1), and the number reporting close coordinate between mental health and substance abuse did not change (2 sites in both surveys).

#### 4. Comparison of level of integration by pilot site

The interviews with grantees, which as noted took place near the start of the pilot (November 2008 to February 2009), indicated that the sites had different levels of experience and expertise in structuring and implementing an integrated model of care at that time:

- Three grantees (Open Door, Shasta Consortium, and Sierra Family Medical Clinics) described a strong history of care integration. Co-location of physical and behavioral health services, warm hand-offs between medical and behavioral health providers, formal referral mechanisms, and feedback loops and information sharing were used by this group of grantees to better integrate care. Mental health practitioners were routinely available to assist primary care providers and actively participate in clinical staff meetings. New providers were introduced to the integrated care model and received training when they first joined the staff. Additional practice innovations were in the early phases of implementation or under consideration.
- Other grantees were still in an earlier phase of development as of the interviews. These pilot sites used some of the same techniques (e.g., co-location of medical and behavioral health services, warm hand-offs). Tehama had been able to reduce the stigma associated with mental health treatment and experienced a “very, very positive change” in care integration.
- Other grantees struggled to operationalize the integration of primary care and behavioral health.

The following table (*Exhibit 12*) shows the progress the pilot sites have made toward the integration of primary care and behavioral health services. The table lists each grantee in one of three categories: low, moderate, or significant levels of progress. Three grantees (Open Door, Community Health Clinic Ole, and Chape-De) appear to have taken a few steps backward; Clinic Ole and Chapa De discontinued counseling services during the pilot project period. Three pilot sites showed significant levels of improvement since 2008. As noted above, Tehama County and Redwoods co-located primary care and behavioral health services during the pilot period and improved their coordination of care. The third grantee with significant improvement, the Mono County Mental Department and Mammoth Hospital, formed an entirely new partnership that allows CMSP members to take advantage of coordinated primary care and counseling services. The majority of grantees showed moderate improvements by adding new staff and services while improving the coordination of care.

## Exhibit 12: Progress Toward Integration Since the Start of the Pilot Project

Assessment	Pilot Site	Rationale
Low amount of progress	<b>Open Door Community Health Center</b> Co-located; no warm hand-offs	Lost significant number of providers New EMR system separates medical and behavioral health
	<b>Community Health Clinic Ole</b> Not co-located; no warm hand-offs	Discontinued on-site BH services Contracted pilot services to external agency
	<b>Chapa De Indian Health Program</b> Co-located; no warm hand-offs	Closed clinic and ended program in April 2010
Moderate or ongoing progress	<b>McCloud Health Care Clinic</b> Co-located; warm hand-offs	Added new staff and improved coordination of care
	<b>Sonoma Valley Community Health Center</b> Not co-located; limited warm hand-offs	Added new substance abuse treatment program
	<b>Del Norte Clinics</b> Co-located; warm hand-offs	New services for CMSP members
	<b>Petaluma Health Center</b> Co-located, warm hand-offs	Established program with increased number of patients
	<b>Sierra Family</b> Co-located, warm hand-offs	Well established program with enhanced process for warm hand-offs
	<b>Shasta Consortium</b> Co-located; warm hand-offs	Added new staff and began substance abuse group counseling
	<b>Sonora Regional</b> Co-located; limited warm hand-offs	New services for CMSP members Added new staff and improved coordination of care
	<b>El Dorado County Community Health Center</b> Co-located; no warm hand-offs	New services for CMSP members with formal referral mechanism
Significant progress	<b>Mono County &amp; Mammoth Hospital</b> Not co-located; limited warm hand-offs	Developed new local partnership for medical and behavioral health Monthly case conferences for care coordination
	<b>Tehama County Health Services Agency</b> Co-located, warm hand-offs	New co-located medical and behavioral health services Multidisciplinary care teams Assist patients with CMSP eligibility application/renewal
	<b>Redwoods Rural Health Center</b> Co-located; limited warm hand-offs	New co-located medical and behavioral health services Case conferences Added new substance abuse services

## D. Use of Primary Care and Specialty Care Services

The behavioral health pilot project aimed to promote the appropriate use of primary care and behavioral health services, in part by improving access to needed services for participants. Based on surveys and interviews with grantees, as well as trends in use of services in the claims data, the pilot appears to have been effective in its goal of increasing the use of appropriate primary care and psychiatric services.

### 1. Access to services among CMSP members

On the surveys, we asked grantees: “After almost two and a half years of the CMSP Behavioral Health Pilot Projects, how much have you improved your ability to meet the needs of CMSP members?” (The wording was intentionally broad and intended to facilitate discussion.) Thirteen of the 14 sites said they perceived improvement; eight sites said “significant” improvement.

Over the course of the pilot, the number of surveyed sites indicating that pilot participants could “almost always” or “usually” access appropriate treatment increased for both mental health (from 0 to 5 sites) and substance abuse (from 0 to 3 sites).

The number of sites reporting lack of reimbursement as a barrier declined from the start of pilot in 2008 to 2010, from 10 to 4 sites for mental health and 8 to 4 sites for substance abuse.

In the telephone interviews with grantees, they shared a range of opinions on expected and observed impacts of the pilot on service access and utilization. Most expected a decrease in visits to the emergency room due to stabilization and fewer mental health crises among participants. The grantees also expressed a strong sense that primary care services were being used more appropriately, although not necessarily less often. In fact, the sites agreed that the number of primary care services increased for some participants while others had fewer primary care physician visits. The interviews suggested that access to counseling services created a link to medical services for pilot participants, which may have led to increased use of primary care services. Participants who previously did not have access to services (may have used the emergency room or been underserved) may begin to seek care more often once they are established primary care patients. Conversely, established primary care patients with mental health and behavioral problems may decrease their primary care visits and instead address behavioral issues during counseling, which would decrease the number of primary care visits for mental health problems (or use fewer visit altogether because they are more stable/better able to handle stressors).

At least one site (Corning Medical Associates, Inc.) raised a concern that service utilization patterns may revert to pre-pilot levels when the pilot ends. Approximately half of grantees said they offered counseling services under the pilot project that they had not offered before. The majority reported that they already offered some comparable services, but only on a sliding fee scale, and that even the lowest fees were major access barriers for CMSP members. Overall, the interviews suggest that CMSP coverage for counseling services led to an immediate and significant improvement in access to behavioral health counseling services.

## 2. Use of primary care and psychiatric services by participants vs. control group

Clinic services (which include counseling services) use per member per month (PMPM) increased by 67.4% for pilot participants (from 0.68 to 1.14 visits PMPM), while declining by 1.4% for the control group (0.69 to 0.68 visits PMPM) (*Exhibit 13*). Within the range of clinic services, psychiatric office visits increased by 415.7% for pilot participants (0.14 to 0.72 visits PMPM), compared to a 20.7% increase for the control group (0.13 to 0.15). These findings suggest that the pilot program achieved its goal of improving access to appropriate primary and specialty care services, particularly for the psychiatric treatment services needed by CMSP enrollees who met the clinical criteria for enrollment in the pilot.

**Exhibit 13: Primary Care and Psychiatric Office Visits by Participants and Control Group**

	Before Pilot Enrollment		After Pilot Enrollment		Percent Change	
	Pilot Group (N=1,649)	Control (N=1,649)	Pilot Group (N=1,649)	Control (N=1,649)	Pilot Group	Control
Member months (January 2006 - April 2010)	22,176	23,511	14,861	13,889	-33.0%	-40.9%
Clinic Services PMPM	0.68	0.69	1.14	0.68	67.4%	-1.4%
<i>Psychiatric Office Visits PMPM</i>	<i>0.14</i>	<i>0.13</i>	<i>0.72</i>	<i>0.15</i>	<i>415.8%</i>	<i>20.7%</i>
Non-clinic Primary Care Office Visits PMPM	0.09	0.12	0.10	0.16	9.4%	30.2%

Data on service visits were not available at the grantee level.

## 3. Use of prescription drugs by participants vs. control group

The number of prescriptions for both psychiatric and medical drugs increased for pilot participants and the control group. On a per-member-per-month basis, the number of prescriptions for psychiatric drugs for pilot participants increased by 69.0% compared to 36.6% for the control group, and the number of prescriptions for medical drugs for pilot participants increased by 22.2% compared to 13.5% for the control group (*Exhibit 14*). These findings further support the conclusion that the pilot program achieved its goal of improving access to appropriate care, which would include improved psychiatric medication adherence.

**Exhibit 14: Primary Care and Psychiatric Office Visits by Participants and Control Group**

	Before Pilot Enrollment		After Pilot Enrollment		Percent Change	
	Pilot Group (N=1,649)	Control (N=1,649)	Pilot Group (N=1,649)	Control (N=1,649)	Pilot Group	Control
Member months (January 2006 - April 2010)	22,176	23,511	14,861	13,889	-	-40.9%
Prescription Drugs						
<i>Number of Medical Prescriptions Filled PMPM</i>	1.8	2.2	2.2	2.5	22.2%	13.5%
<i>Number of Psych Prescriptions Filled PMPM</i>	0.7	0.6	1.1	0.9	69.0%	36.6%

## E. Hospitalizations

The fourth goal of the pilot was to reduce the incidence of late-stage entry into inpatient treatment resulting from lack of treatment for identified conditions. As a measure of progress in this area, we compared claims data for medical and psychiatric hospitalizations for the pilot and control groups.

Results showed that both medical and psychiatric admission rates and days decreased more for participants than for control group members; thus the pilot appeared successful in reducing hospitalizations (*Exhibit 15*). The most dramatic change was seen in psychiatric hospitalizations: pilot participants experienced a 56.6% reduction in the number of inpatient psychiatric days per thousand per year, while the control group experienced an increase of 71.4% in inpatient psychiatric days per thousand per year. The number of people with medical admissions decreased about the same degree for both groups, but the number of people with psychiatric admissions decreased by 57.9% for people in the pilot group, compared to the control group, which decreased by only 22.4%.

**Exhibit 15: Hospital Use among Pilot Participants and Control Group Members**

	Before Pilot Enrollment		After Pilot Enrollment		Percent Change	
	Pilot Group (N=1,649)	Control (N=1,649)	Pilot Group (N=1,649)	Control (N=1,649)	Pilot Group	Control
<b>Service Utilization and Costs</b>						
Member months (Jan 2006 - April 2010)	22,176	23,511	14,861	13,889	-33.0%	-40.9%
<b>CMSP Services (total)</b>						
Inpatient Hospital						
<i>Number of People with Medical Inpatient Admissions</i>	195	272	120	165	-41.2%	-36.3%

	Before Pilot Enrollment		After Pilot Enrollment		Percent Change	
	Pilot Group (N=1,649)	Control (N=1,649)	Pilot Group (N=1,649)	Control (N=1,649)	Pilot Group	Control
<b>Service Utilization and Costs</b>						
<i>Number of People with Psych Inpatient Admissions</i>	38	49	16	38	-35.4%	-29.9%
<i>Number of Medical Inpatient Admissions</i>	282	411	150	247	-46.8%	-39.9%
<i>Number of Medical Inpatient Days</i>	1,324	1,871	565	1,031	-57.3%	-44.9%
<i>Number of Psych Inpatient Admissions</i>	60	59	19	47	-68.3%	-20.3%
<i>Number of Psych Inpatient Days</i>	292	322	85	326	-70.9%	1.2%
<b>CMSP Services (days per 1,000)</b>						
<i>Medical Inpatient Days Per 1,000 Members Per Year</i>	716.4	955.0	456.2	890.8	-36.3%	-6.7%
<i>Psych Inpatient Days Per 1,000 Members Per Year</i>	158.0	164.3	68.6	281.7	-56.6%	71.4%

## F. Emergency Room Utilization

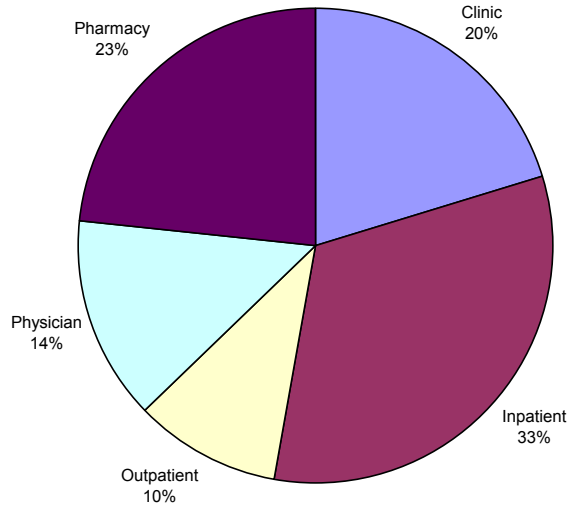
Another goal of the behavioral health pilot was to reduce the unnecessary and/or inappropriate use of hospital emergency departments. To assess outcomes for this goal, we compared emergency room visits before and after the pilot for participants and the matched control group; we were unable to determine the extent to which these visits were unnecessary and/or inappropriate and compared only total utilization. Results showed that, on a PMPM basis, emergency room visits decreased for the pilot group from the period before the pilot to the pilot period (12.3% decrease), while ER visits increased for the control group during comparable time periods (7.8% increase). In analyzing emergency room utilization, we excluded all retroactive months and first months of eligibility.

## G. Program Costs and Savings

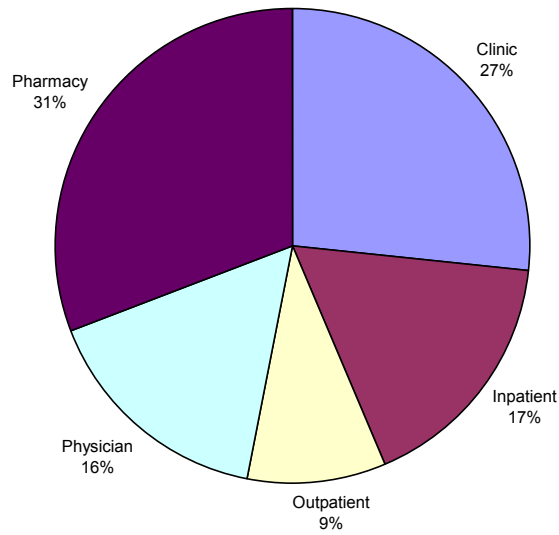
Ultimately, a goal of the pilot was to achieve financial savings through improved cost-effectiveness of services. To assess the cost effectiveness of the pilot, we compared CMSP claims costs (on a per-member-per-month basis) for the study cohort and the comparison group (*Exhibits 16 and 17*). Overall, PMPM costs increased by 20.3% for pilot participants from the period before pilot enrollment to the period after enrollment (from \$453.59 to \$545.51), compared to a 17.5% increase for the control group during the same time period (\$523.01 to \$614.47), indicating that overall medical costs were lower for pilot participants and the rate of growth in costs was roughly the same for both groups during the study period (a difference of less than three percentage points).

**Exhibit 16: Costs for Pilot Participants, Before and After Enrollment**

**Pilot Participant Expenditures Before Enrollment**



**Pilot Participant Expenditures After Enrollment**



In addition, evaluation results indicate that the modest interventions implemented by the pilot grantees appeared to cause a dramatic *redistribution* of total costs for participants, with costs shifting from inpatient hospitalization towards primary care and outpatient behavioral health services (e.g., clinic, outpatient, and pharmacy). Thus, while the total dollars spent on each pilot participant and each control group member are roughly the same on average, the *appropriateness* of the spending appears much more positive for the pilot group.

For example, inpatient per member per month (PMPM) costs decreased by 37.1% for the pilot group, while increasing 6.6% for the control group; thus, the pilot appeared to lower inpatient costs, possibly as a result of reduced late-stage hospitalizations (which was a specific goal of the pilot). Clinic PMPM costs, meanwhile, increased quite a bit more for pilot participants (57.6% increase) than for the control group (8.9% increase). This was probably because, as noted previously, use of clinic services increased for pilot participants, consistent with the pilot goal of removing barriers to service access and increasing use of appropriate services and the pilot strategy of allowing reimbursement for additional mental health and substance abuse services. Physician PMPM costs, while lower for participants than controls throughout the pilot, also increased more for the pilot group (40.7%) than for the control group (22.3%). Again, this was likely due to the increased use of clinic primary care services by pilot participants, consistent with the goals of the program.

Pharmacy PMPM costs increased greatly for both groups, by 59.2% for pilot participants and 41.3% for the control group, suggesting that the pilot increased use of prescription medications. When looking at the *number* of prescriptions filled for each group (not just cost) on a PMPM basis, the number of prescriptions for psychiatric drugs for pilot participants increased by 69.0% compared to 36.6% for the control group, and the number of prescriptions for medical drugs for pilot participants increased by 22.2% compared to 13.5% for the control group. This suggests that the pilot was effective in improving psych medication adherence for participants.

More time will be needed for the long-term benefits of earlier detection and treatment of behavioral health problems and improved integration of care to be realized. In addition, our analysis did not account for the administrative costs of operating the program or potential indirect savings associated with reduced use of the criminal justice system, increased work productivity (for CMSP members or their families), or other factors that may be associated with improved access to behavioral health services.

Exhibit 17: Service Costs per Member per Month for Pilot Participants and Control Group Members<sup>19</sup>

Service Utilization and Costs*	Before Pilot Enrollment		After Pilot Enrollment		Percent Change	
	Pilot Group (N=1,649)	Control (N=1,649)	Pilot Group (N=1,649)	Control (N=1,649)	Pilot Group	Control
Member Months (Jan 2006 - Apr 2010)	22,176.2	23,511.1	14,860.8	13,888.9	-33.0%	-40.9%
<b>Per Member Per Month (PMPM) Costs</b>						
<i>Clinic (includes psychiatric office visits) PMPM</i>	\$91.86	\$101.89	\$144.78	\$110.91	57.6%	8.9%
<i>Inpatient PMPM</i>	\$147.01	\$179.74	\$92.51	\$191.52	-37.1%	6.6%
<i>Outpatient PMPM</i>	\$46.19	\$56.42	\$51.65	\$65.74	11.8%	16.5%
<i>Physician PMPM</i>	\$63.17	\$79.36	\$88.89	\$97.05	40.7%	22.3%
<i>Pharmacy PMPM</i>	\$105.36	\$105.60	\$167.68	\$149.25	59.2%	41.3%
Total excluding Pharmacy	\$348.24	\$417.41	\$377.83	\$465.22	8.5%	11.5%
Total	\$453.59	\$523.01	\$545.51	\$614.47	20.3%	17.5%

\* Costs were not adjusted for inflation because the pilot and control groups were matched by enrollment data/pseudo-enrollment date. Comparisons are based on actual claims, so changes in provider reimbursement, etc. are reflected in the expenditures for both the pilot and control groups.

## IV. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

### A. Summary of Findings

The pilot project, while enrolling fewer participants than originally envisioned, nonetheless showed considerable evidence of improvement in a number of areas targeted by the project, including improved coordination between primary care and behavioral health, increased use of appropriate services, and decreased hospitalizations and emergency room use (*Exhibit 18*).

<sup>19</sup> We report PMPM costs, rather than total costs, because we were unable to make meaningful comparisons of total costs for participants versus control group members, as the total months of enrollment differed across the two groups.

**Exhibit 18: Summary of Pilot Project Outcomes**

Goal	Pilot Study Findings	Assessment
<b>Stabilize participants' health</b>	<ul style="list-style-type: none"> <li>▪ For pilot participants with 2 or more visits, average scores on a self-assessment of 11 dimensions of "Health Related Quality of Life" showed statistically significant improvement on 10 of 11 measures</li> <li>▪ For pilot participants with 5 or more visits, statistically significant improvement was seen on 7 of the 11 measures</li> </ul>	<ul style="list-style-type: none"> <li>▪ Positive</li> <li>▪ Because Duke scores were not available for the control group, the extent to which this improvement was due to the pilot or other factors is unclear</li> </ul>
<b>Provide coordinated primary care, behavioral health, and psychiatric services</b>	<ul style="list-style-type: none"> <li>▪ Between the first and final grantee surveys, more sites reported offering co-location of behavioral health and primary care (from 6 to 10 sites for mental health; from 4 to 9 for substance abuse), but for those already offering co-located services, grantees reported little change in the amount of services offered</li> <li>▪ Between the first and final surveys, sites increased on some measures of coordination and communication, while decreasing or reporting no change on other measures; little overall change</li> <li>▪ Analysis of claims data showed that the 9.3% of total behavioral health services provided under the pilot were provided on the same day as a primary care clinic visit</li> </ul>	<ul style="list-style-type: none"> <li>▪ Somewhat positive</li> <li>▪ 14 pilot sites varied a great deal in their level of integration and coordination at the start of the pilot and extent of change over the project period</li> </ul>
<b>Increase appropriate use of primary and specialty care services</b>	<ul style="list-style-type: none"> <li>▪ Thirteen of 14 sites said the pilot improved their ability to meet CMSP member needs; 8 reported "significant" improvement</li> <li>▪ Analysis of claims data shows that the number of psychiatric office visits more than quadrupled for pilot participants, from the annualized equivalent of about 2 visits per year before pilot enrollment to 9 visits per year after pilot enrollment</li> <li>▪ The number of prescriptions filled for psychiatric drugs for pilot participants increased by 69.0% compared to 36.6% for the control group, suggesting that the pilot was effective in improving psychiatric medication adherence for participants</li> </ul>	<ul style="list-style-type: none"> <li>▪ Positive</li> </ul>

Goal	Pilot Study Findings	Assessment
<b>Reduce late-stage hospitalizations due to untreated medical conditions</b>	<ul style="list-style-type: none"> <li>Both medical and psychiatric hospital admission rates and days decreased more for participants than for control group members</li> <li>Pilot participants experienced a large reduction (56.6%) in the number of inpatient psychiatric days per thousand, while the control group experienced a significant increase (71.4%)</li> </ul>	<ul style="list-style-type: none"> <li>Somewhat positive</li> <li>We did not directly measure whether or not the hospitalizations represented late-stage treatments due to lack of care for identified medical conditions, the pilot appeared successful in reducing hospitalizations overall</li> </ul>
<b>Reduce unnecessary and/or inappropriate emergency room use</b>	<ul style="list-style-type: none"> <li>On a PMPM basis, emergency room visits decreased for the pilot group from the period before the pilot to the pilot period (12.3% decrease), while emergency room visits increased for the control group during comparable time periods (7.8% increase)</li> </ul>	<ul style="list-style-type: none"> <li>Somewhat positive</li> <li>We compared only total utilization and were unable to determine the extent to which these visits were unnecessary and/or inappropriate, it is likely that some of this improvement is due to the improvement in access to primary and specialty services</li> </ul>
<b>Achieve financial savings through improved cost-effectiveness</b>	<ul style="list-style-type: none"> <li>The rate of growth in costs was roughly the same for both the participant and control groups during the study period</li> <li>The interventions appeared to cause a dramatic <i>redistribution</i> of total costs for participants, with costs shifting from inpatient hospitalization towards primary care and outpatient behavioral health services (e.g., clinic, outpatient, and pharmacy)</li> <li>While the total dollars spent on each pilot participant and each control group member are roughly the same on average, the <i>appropriateness and effectiveness</i> of the spending appears much more positive for the pilot group</li> </ul>	<ul style="list-style-type: none"> <li>Positive</li> <li>More time would be needed for the long-term benefits of earlier detection and treatment of behavioral health problems and improved integration of care to be realized</li> </ul>

## B. Conclusions

Data on the diagnoses and service utilization of CMSP members shows that a large proportion have a behavioral health condition and contribute substantially to the overall costs to the program. Out of concern that the limited coverage of behavioral health treatment possibly negatively affected members' functioning and health status, thereby increasing the need for more costly services and raising costs for the CMSP program, the Governing Board designed

the behavioral health pilot project to test the effectiveness and cost-effectiveness of covering short-term mental health and substance abuse treatment, integrated with primary care.

From a beneficiary perspective, the pilot project achieved its goals, particularly in improving access to routine behavioral health care: the number of psychiatric office visits more than quadrupled for pilot participants, the number of prescriptions for psychiatric drugs for pilot participants increased by 69.0% PMPM compared to 36.6% for the control group, and the rate of psychiatric hospitalizations declined by 56.6% days per thousand for pilot participants. These utilization shifts did not significantly increase costs compared to the control group, but did show a dramatic redistribution of health care spending for participants, with costs shifting away from inpatient hospitalization and emergency departments and towards primary care services (clinic, outpatient, and pharmacy).

From a service delivery perspective, changes during the course of the pilot project may have been more modest, but successful practices identified by the grantees, combined with the positive utilization and cost findings outlined above, may spur increased adoption of best practices and further improve the integration of primary and behavioral health care and overall outcomes.

In this time of recession, the strained budget and increased need for publicly subsidized health care in California place more demands on the system, creating a need to identify the most cost-effective model for addressing the needs of the population. Results from this evaluation suggest that strengthening integration of primary care and behavioral health care and providing additional coverage for behavioral health services can lead to more appropriate service delivery. This creates the potential for improved health and savings in the long term, although several years may be needed for the full return on investment to be realized.

### **C. Recommendations to Improve Enrollment, Participation, and Retention**

The CMSP Behavioral Health Pilot Project operated within an existing program and service delivery framework that included many barriers to care, from both the beneficiary perspective and the service provider perspective. The two primary strategies of the pilot – to provide expanded coverage of behavioral health services, including counseling services by licensed behavioral health clinicians and reimbursement for same-day services, and to offer these expanded services only through grantees that had specific responsibilities around outreach and care coordination – were designed to address several specific challenges and limitations of the current system. However, many of the deficiencies in the current system remain, and likely blunted the impact of the pilot (although it was successful in many respects).

Findings from the evaluation suggest that the following steps could help overcome barriers to enrollment, participation, and retention reported by several grantees, thereby further supporting the pilot goals. Below we outline three key barriers, and potential solutions identified during the course of the pilot.

#### **1. Eligibility barriers and potential solutions**

The CMSP program, like all public benefit programs, has a variety of eligibility criteria and coverage policies that effectively limit beneficiary access to care. As noted above, the CMSP

program has a “share of cost” requirement for individuals whose income is above the “maintenance need level” (currently \$600/month). These persons must meet their “share of cost” through out-of-pocket expenses each month before CMSP coverage begins. Nearly 15% of CMSP beneficiaries have a share of cost, but only 6% of pilot program enrollees had a share of cost. This suggests that individuals who must meet a monthly share of cost are less likely to see value in an additional benefit that is not available unless they meet their share of cost. Grantees perceived that CMSP cost-sharing requirements were a barrier to service access, as any co-pay was considered unaffordable for this population. In addition, eligibility processing delays and gaps in coverage in CMSP eligibility made care planning challenging and sometimes interrupted the continuity of care.

Fundamental changes to the eligibility criteria and program financing structure would be necessary to overcome these barriers. The expansion of Medicaid coverage to adults with incomes up to 133% of the Federal poverty level in 2014 will eliminate the share of cost requirement for many current CMSP eligibles, and presumably expand the positive outcomes of the additional behavioral health benefits to a larger proportion of CMSP’s enrollment. Other eligibility process changes that might reduce gaps in coverage and cyclic eligibility could also help to improve continuity of care.

## **2. Delivery system barriers and potential solutions**

Access to behavioral health services is challenging under most circumstances, and particularly for persons whose primary source of care is the safety net. Grantees reported that the lack of behavioral health clinicians made it difficult to fully realize the benefits of the pilot program; many behavioral health practitioners were available only part-time or were not geographically accessible to enrollees. Although telemedicine for behavioral health counseling services was not reimbursed under the pilot, at least four grantees used or considered using telemedicine to increase access to services. Allowing reimbursement for telemedicine for counseling services and/or for counseling services provided on the same day as a primary care visit can improve access to specialty care and mitigate transportation and other access barriers.

Assessment data and interviews with pilot sites showed that many participants faced a number of life challenges including high rates of medical conditions, poverty, unemployment, and family problems, which made it difficult for them to adhere to a treatment regimen. One strategy to mitigate these barriers is to encourage participating organizations to partner with social service organizations in the community to provide information and referrals. Another successful strategy employed by grantees is the practice of “warm hand-offs,” which reduces “leakage” and helps ensure members are able to keep their appointments by having them attend a behavioral health assessment or counseling session immediately following a primary care visit. The policy change allowing reimbursement of a behavioral health visit the same day as a clinic visit appears facilitates the implementation of warm hand-offs.

Although claims data indicate that few pilot participants reached the pilot project service limit, several grantees expressed concern about the limits to the number of covered behavioral health visits per year. In some cases, appointments were strung out over several months to provide long-term treatment within the service limits. This practice may be at odds with the CMSP Governing Board’s intent for a short-term intervention, but appeared to be driven by

meaningful gaps in the mental health system. Increasing the number of reimbursable visits could help fill gaps in the mental health system and meet the needs of individuals who could benefit from weekly counseling sessions.

### **3. Pilot program design and implementation challenges and solutions**

The pilot sites varied in the extent to which they changed business practices and strategies to promote integration and participation in the pilot. The findings of this evaluation suggest that sites with the following business practices were more successful in improving integration and building participation in the program:

- Minimizing impact of staff and leadership turnover (e.g., keeping staff turnover low, managing leadership transitions and planning for succession);
- Building collaborative relationships with behavioral health providers and county agencies;
- Creating successful strategies to increase awareness and buy-in from primary care clinicians; and
- Providing detailed explanation of services to participants at the onset of treatment.

As with any grant program, although the success of the program depends in large part on the motivation, commitment, and persistence of grantees, some grantees may be more likely to implement effective strategies when given guidance about what is known to work.

The pilot provided grantee sites with administrative support payments of up to 15% of direct service costs to help pay for oversight, administration, and data collection (a total of \$352,000 in administrative support payments across the sites). Some grantees expressed concerns about the lack of continuity of care and lack of resources for case management and suggested that CMSP increase funding for case management services to support improved coordination and continuity.

## APPENDIX A: TECHNICAL NOTES ON METHODOLOGY

### A. Technical Notes on Claims Data Analysis

To identify utilization of pilot counseling services, we examined claims with codes associated with the pilot: Mental Health Assessments (96150), Mental Health – Individual (96152), Mental Health – Group (96153), SA Assessments (H0001), Substance Abuse – Individual (H0004), and Substance Abuse – Group (H0005).

To differentiate pharmacy data between “medical prescriptions” and “psych prescriptions,” a pharmacy prescription was defined as a “psych prescription” when variable *TCC\_specific\_classification* equaled one of following psychiatric prescription codes; otherwise it was defined as medical prescription:

'H2F','H2G','H2H','H2I','H2J','H2K','H2L','H2M','H2N','H2O','H2P','H2S','H2U','H2V','H2W','H2X','H2Y','H4B','H4C','H4D',

'H7A','H7B','H7C','H7D','H7E','H7F','H7G','H7H','H7I','H7J','H7K','H7L','H7M','H7O','H7P','H7Q','H7R','H7S','H7T','H7U','H7V','H7W',

'H7X','H7Y','H7Z','H8A','H8H','H8I','H8J','H8K'

Similarly, an inpatient admission was categorized as “psych inpatient admission” if the principal diagnosis code was any of following; otherwise it was classified as a “medical inpatient admission.”

'291xx'-'319xx','6484','V11xx','V40xx'

### B. Technical Notes on Methodology for Selecting Study Cohort of Pilot Participants and Matched Comparison Group

As is common with public policies and programs, randomly assigning study participants to a treatment or control group for the CMSP behavioral health pilot project was not feasible. Hence, as in any non-randomized demonstration, a central challenge to finding an appropriate comparison group to estimate the effects of the program is that people seeking treatment were likely to have fundamental differences from individuals who choose not to seek treatment (i.e., treatment-selection bias).

To reduce the impact of treatment-selection bias we used a technique known as *propensity score matching* to establish a synthetic control group that is as indistinguishable as possible from the

participant group.<sup>20</sup> Propensity matching is a commonly used method to estimate the impact of an intervention when random assignment is not feasible.<sup>21</sup>

Developing a matched comparison group for behavioral health pilot participants involved the following four steps:

**Step #1: Establish universe of study cases.** First, we created a universe of study cases, comprised of all pilot project participants and other CMSP beneficiaries, except those who met the exclusion criteria in *Exhibit A-1*. To allow for observing changes over time during the pilot, we then limited the universe to individuals who enrolled in the pilot before April 30, 2010, and who had at least one month of CMSP eligibility. *Appendix D* provides data on enrollees through October 2010.

**Exhibit A- 1: Exclusion Criteria for the Sample Universe**

Exclusion criteria (in order of application)	Rationale	Pilot participants excluded	Non-pilot cases excluded
Exclude all individuals with Aid Code 50 (emergency services only) or 8F (inpatient hospital services only) in any months after March 1, 2008	Aid Codes 50 and 8F are excluded from the pilot	24	80,530
For non-pilot cases, exclude all individuals residing in a county served by a BH pilot site during the individual's first month of CMSP eligibility after March 1, 2008	Reduce selection bias, avoid contamination from pilots	Not applicable	73,218
Exclude individuals with claims for pilot services but who were not reported as pilot participants by any grantees (due to lack of participant consent, clerical errors, or other factors)	Reduce chances of contamination from pilots	Not applicable	589
Exclude individuals who were reported as pilot participants but do not have claims for pilot assessment/services by April 2010	Missing claims or not yet enrolled	491	0
<b>Cases before application of the exclusion criteria</b>		<b>2,164</b>	<b>221,546</b>
<b>Remaining cases after exclusions</b>		<b>1,649</b>	<b>67,209</b>

**Step #2: Compute propensity matching scores.** After establishing the sample universe, we conducted a multivariate logistic regression to determine the probability of the cases and

<sup>20</sup> For more information on propensity score matching, see Austin, P. "A critical appraisal of propensity-score matching in the medical literature between 1996 and 2003." *Statistics in Medicine*, 2008: 27: 2037-2049.

<sup>21</sup> Garrett, Bowen. "Propensity Score Methods." The Urban Institute. Retrieved December 29, 2010, from: <http://www.urban.org/toolkit/data-methods/propensity.cfm>

controls being enrolled in the pilot program based on a number of independent variables such as their demographics, aid codes, health conditions, and 2007 service utilization and cost, as shown in *Exhibit A-2*. The regression produced a single propensity score, ranging between 0 and 1, for each case and control. These propensity scores indicate, based on the elements in the regression model, the likelihood of each individual participating in the pilot.

**Exhibit A- 2: Variables in the Regression Model for Computing Propensity Matching Scores**

Variable	Field	Data source
Pilot participation (dependent variable)	0 - No 1 - Yes	
Gender	0 - 1 -	Eligibility file
Race/ethnicity = white, non-Hispanic	0 - No 1 - Yes	Eligibility file
Age as of 3/1/2008	Age	Eligibility file
Share of cost aid code (85 or 89 indicate SOC). Use only the code in the first month of first eligibility span after 3/1/2008.	0 - No 1 - Yes	Eligibility file
Total # of CMSP eligible months after 1/1/2006	Number of months	Eligibility file
Original CMSP enrollment month (first eligibility span after 1/1/2006)	Date/numbered months	Eligibility file
Diagnosis flag: depression	0 - No 1 - Yes	Claims file
Diagnosis flag: anxiety	0 - No 1 - Yes	Claims file
Diagnosis flag: sub. abuse	0 - No 1 - Yes	Claims file
PMPM costs in CY 2007	Dollars	Claims file
PMPM ER visits in CY 2007	Number of visits	Claims file
PMPM inpatient admissions in CY 2007	Number of admissions	Claims file

**Step #3: Match each pilot participant with a non-participant with a similar propensity matching score.** We used a “greedy match” algorithm to match each pilot participant with another non-pilot CMSP beneficiary with the closest possible propensity score, starting with a “five digit match” using one iteration. A greedy match algorithm is frequently used to match cases to controls in observational studies.<sup>22</sup> In a greedy algorithm, once a match is made, the match is not reconsidered. A five-digit match means that we first attempt to match a participant with a non-participant CMSP member based on five-digits of the propensity score (computed in

<sup>22</sup> Parsons, Lori S. “Reducing Bias in a Propensity Score Matched-Pair Sample Using Greedy Matching Techniques.” Ovation Research Group, Seattle, WA. Paper 214-26. Retrieved Dec 29, 2010, from: <http://www2.sas.com/proceedings/sugi26/p214-26.pdf>

Step 2).<sup>23</sup> If a match cannot be selected, then a four-digit match was attempted. This process was repeated until a match was attempted on the first digit of the propensity score; if no match could be found on the first digit, then the participant was discarded from the matched analysis.

After identifying a non-participating control group using the propensity score matching approach, we compared the baseline characteristics of the control group with those of the participants to ensure the matching process performed well. As shown in *Exhibit A-3*, the two groups were strikingly similar in gender and race ratios and other characteristics. However, as in any non-experimental impact study, propensity matching cannot control for bias that may result from any unobserved characteristics related to both treatment status and the outcome.<sup>24</sup> Differences between matched participant and control group members on unmeasured characteristics could bias the estimation of the effect of program participation.<sup>25</sup>

**Exhibit A- 3: Pilot-Control Match**

Variable	BH Pilot Participants	Control	Percent match
Pilot	1	0	0.000%
Number of individuals	1,649	1,649	100.000%
Number of male	766	781	101.958%
Number of white	1,477	1,509	102.167%
Age as of 3/1/2008 (median)	42	43	102.381%
Age as of 3/1/2008 (mean)	40.04184354	40.68405094	101.604%
Number of individuals with share of cost: aid code 85 + 89 (first month of first eligibility span after 3/1/2008)	153	159	103.922%
Number of individuals with pending disability application: aid code 88 + 89 (first month of first eligibility span after 3/1/2008)	273	208	76.190%
Median # of CMSP eligible months after 1/1/2006	20	20	100.000%
Mean # of CMSP eligible months after 1/1/2006	22.46027896	22.68041237	100.980%
Median CMSP enrollment date: ( 1 for Jan 2006, 2 for Feb. 2006 ... 52 for Apr. 2010)	24	23	95.833%
Mean CMSP enrollment date: ( 1 for Jan 2006, 2 for Feb. 2006 ... 52 for Apr. 2010)	22.50818678	22.35051546	99.299%
Number of individuals with mental health	1601	1601	100.000%

<sup>23</sup> Austin, 2008.

<sup>24</sup> Garrett, 2010.

<sup>25</sup> Austin, Peter C, 2008. A critical appraisal of propensity-score matching in the medical literature between 1996 and 2003. *Statistics in Medicine*. 27:2,037-2,049. Retrieved Dec 29, 2010, from: [http://www.epi.msu.edu/janthony/requests/propensity/Austin\\_A%20critical%20appraisal%20of%20propensity%20score.pdf](http://www.epi.msu.edu/janthony/requests/propensity/Austin_A%20critical%20appraisal%20of%20propensity%20score.pdf)

Variable	BH Pilot Participants	Control	Percent match
Number of individuals with depression	1110	1105	99.550%
Number of individuals with anxiety	960	912	95.000%
Number of individuals with substance abuse	1047	1068	102.006%
PMPM cost in 2007 ( <i>median</i> ) without drug	0	0	
PMPM cost in 2007 ( <i>mean</i> ) without drug	180.8549801	157.9665682	87.344%
PMPM ER visits in 2007 ( <i>median</i> )	0	0	
PMPM ER visits in 2007 ( <i>mean</i> )	0.07304405	0.072003256	98.575%
PMPM inpatient admissions in 2007 ( <i>median</i> )	0	0	
PMPM inpatient admissions in 2007 ( <i>mean</i> )	0.010463161	0.009034226	86.343%

**Step #4: Create pseudo enrollment dates for control group members.** Because the CMSP beneficiaries in the control group never enrolled in any intervention, we created “pseudo-index dates,” i.e., dates serving as reference points for longitudinal analysis, reflecting the pilot enrollment date for the participant with which the control case was matched. We identified each participant’s enrollment date as a percentage of time within the participant’s CMSP eligibility span, then applied the percentage to the matched control case’s comparable eligibility span. For example, if a pilot participant was in CMSP for 10 months and enrolled in the pilot at the end of month 5, then we assigned the pseudo-index date 50 percent of the way through the matched non-participant’s eligibility span.

**APPENDIX B: DUKE HEALTH PROFILES COMPARED TO REFERENCE GROUP, N=1,649**

**Average Scores for the Initial Duke Profile compared to the Reference Group**

HRQOL Dimension	Item Response Rate (N=1,467)	CMSP BHPP Average	Reference Group: Primary Care Adult Patients	Point Difference
<b>Dysfunction</b>		(lower is better)		
Anxiety	1,411	59.1	25.4	33.69
Anxiety/Depression	1,355	60.6	24.1	36.52
Depression	1,402	62.6	26.2	36.35
Disability	1,417	39.6	12.5	27.13
Pain	1,439	68.5	46.1	22.42
<b>Function</b>		(higher is better)		
General Health	1,353	43.0	72.7	-29.69
Mental Health	1,373	41.6	80.7	-39.13
Perceived Health	1,434	51.2	75.2	-24.01
Physical Health	1,413	38.9	62.8	-23.95
Self Esteem	1,399	53.0	82.5	-29.51
Social Health	1,414	47.9	73.7	-25.79

**APPENDIX C: SITE SPECIFIC DATA FOR N=1,649**

CMSP Behavioral Health Pilot Project Lead Agency	Program Start	Treatment Type			Referral Source				Referral Reason			Global Assessment of Functioning		
		Mental Health	Substance Abuse	Unknown	One of Grantee's Providers	Outside Medical Provider	Self or Family	Other or Unknown	Positive Screening from PCP	Patient Seeking Care	Other or Unknown	Average	Minimum	Maximum
Chapa-De Indian Health Program	March 2008	51	0	0	20%	8%	45%	27%	4%	94%	2%	49	39	60
Community Health Clinic Ole	April 2008	63	0	0	100%	0%	0%	0%	81%	0%	19%	49	35	60
Del Norte Clinics	March 2008	182	5	0	95%	2%	3%	1%	2%	82%	16%	58	41	90
El Dorado Community Health Center	May 2008	181	8	0	91%	7%	1%	1%	83%	3%	14%	56	38	65
McCloud Healthcare Clinic	April 2008	15	1	0	19%	25%	6%	50%	0%	88%	13%	57	41	70
Open Door Community Health Centers	April 2008	242	0	0	100%	0%	0%	0%	100%	0%	0%	55	40	75
Petaluma Health Center	March 2008	256	3	87	64%	1%	9%	26%	42%	27%	32%	49	20	80
Redwood Rural Health Center	April 2008	14	0	0	29%	14%	43%	14%	43%	36%	21%	53	45	68
Shasta Consortium	March 2008	49	18	0	35%	2%	38%	26%	8%	59%	33%	58	40	75
Sierra Family Medical Clinic	April 2008	99	7	0	70%	6%	18%	6%	41%	52%	7%	58	45	70
Sonoma Valley Community Health Center	March 2008	61	20	0	79%	1%	15%	4%	49%	43%	8%	47	40	57
Sonora Regional Medical Center	April 2008	135	1	0	56%	22%	12%	10%	29%	59%	13%	49	30	60
Southern Mono Healthcare District	March 2008	23	6	0	45%	10%	31%	14%	0%	100%	0%	55	51	70
Tehama County Health Services Agency Clinic	March 2008	99	54	0	74%	14%	4%	8%	20%	41%	39%	50	28	70
<b>Total</b>	--	<b>1,470</b>	<b>123</b>	<b>87</b>	<b>75%</b>	<b>5%</b>	<b>9%</b>	<b>10%</b>	<b>46%</b>	<b>37%</b>	<b>17%</b>	<b>53</b>	<b>20</b>	<b>90</b>

\* Note: The numbers under "treatment type" include thirty-one individuals that were referred for both MH & SA counseling. Sonora Regional & Del Norte are not approved to provide SA services through the pilot project.

**APPENDIX D: DUKE HEALTH PROFILE, N=2,339 SCORES (ALL PARTICIPANTS REPORTED BY GRANTEES THROUGH OCTOBER 2010)**

The BHPP grantees submitted information for 2,339 unique participants from March 2008 through October 2010. A significant number were not reported, because participants did not sign a consent to release information, or for other reasons.

- 2,277 participants have at least a partial DSM Assessment
- 2,178 participants have a valid GAF score

**Exhibit D-1: Frequency of GAF Scores among CMSP Members in Pilot Project (DSM-IV Axis 5)**

Global Assessment of Functioning (GAF)	GAF Score Range	Total Assessed	GAF Score Range
Persistent danger of severely hurting self or others/Serious suicidal acts	1 - 10	0	0%
Some danger of hurting self or others/Gross impairment in communication	11 - 20	1	0%
Serious impairment in communication or judgment/Inability to function in almost all areas	21 - 30	10	0%
Major impairment in several areas/Some impairment in reality testing or communication	31 - 40	104	5%
Serious symptoms/Serious impairment in social, occupational, or school functioning	41 - 50	830	38%
Moderate symptoms/Moderate difficulty in social, occupational, or school functioning	51 - 60	925	42%
Some mild symptoms/Some difficulty in social, occupational, or school functioning	61 - 70	267	12%
Symptoms are transient and expectable reactions to psychosocial stressors	71 - 80	27	1%
Absent or minimal symptoms/No more than everyday problems or concerns	81 - 90	14	1%
Superior functioning/Life's problems never seem to get out of hand/Sought out by others	91 - 100	0	0%
<b>Total GAF Scores</b>		<b>2,178</b>	<b>100%</b>

Exhibit D-2: Frequency of Clinical Behavioral Health Diagnoses (DSM-IV Axis 1)

DSM-IV - Axis 1 Clinical Disorders	Principal Diagnosis	Secondary Diagnosis	Principal or Secondary Dx
Depressive Disorders	31%	8%	39%
Anxiety Disorders	24%	16%	38%
Bipolar Disorders	17%	3%	20%
Substance Disorders	11%	13%	22%
Adjustment Disorders	6%	1%	7%
Psychotic Disorders	2%	1%	5%
Impulse Control	2%	3%	5%
Other	6%	2%	n/a
No Diagnosis	n/a	52%	n/a

Exhibit D-3: Frequency of Psychosocial and Environmental Problems (DSM-IV Axis 4)

DSM-IV - Axis 4 - Categories	Percent reporting problems
Economic	79%
Occupation	70%
Primary Support	60%
Social Environment	57%
Housing	40%
Education	24%
Legal	23%
Access to Health Care	21%
Other*	24%

**APPENDIX E: DUKE HEALTH PROFILE, N=2,339 SCORES (ALL PARTICIPANTS REPORTED BY GRANTEES THROUGH OCTOBER 2010)**

Exhibit E-1: Average Scores for the Initial Duke Profile compared to the Reference Group

Health Related Quality of Life (HRQOL) Dimension	Item Response Rate (N=2,171)	CMSP BHPP Average	Reference Group: Primary Care Adult Patients	Point Difference
<b>Dysfunction</b>		(lower is better)		
Anxiety	2,100	59.6	25.4	34.20
Anxiety/Depression	2,013	60.9	24.1	36.82
Depression	2,089	62.8	26.2	36.64
Disability	2,110	39.7	12.5	27.17
Pain	2,134	69.0	46.1	22.88
<b>Function</b>		(higher is better)		
General Health	1,983	42.9	72.7	-29.85
Mental Health	2,013	41.4	80.7	-39.31
Perceived Health	2,117	51.6	75.2	-23.61
Physical Health	2,062	38.4	62.8	-24.42
Self Esteem	2,079	52.8	82.5	-29.72
Social Health	2,100	47.7	73.7	-25.98

Exhibit E-2: Changes in Duke Health Scores for Participant with 2+ Visits (N=1,360)

Health-Related Quality of Life (HRQOL) Dimension	Average First	Average Last	Point Difference First to Last	Statistical Significance (p-values)
<b>Dysfunction</b>		(lower is better)		
Anxiety	60.21	55.84	- 4.37	< 0.0001
Anxiety/Depression	60.99	56.06	- 4.93	< 0.0001
Depression	63.23	58.03	- 5.20	< 0.0001
Disability	38.52	35.26	- 3.26	0.0063
Pain	69.83	67.23	- 2.60	0.0076
<b>Function</b>		(higher is better)		
General Health	42.32	46.25	3.93	< 0.0001
Mental Health	41.29	45.92	4.63	< 0.0001
Perceived Health	51.14	52.22	1.08	0.2553
Physical Health	37.67	40.77	3.10	< 0.0001
Self Esteem	52.23	54.29	2.06	0.0002
Social Health	47.04	50.05	3.01	< 0.0001

**EVALUATION OF THE CMSP BEHAVIORAL HEALTH PILOT PROJECT**

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**Exhibit E-3: Changes in Duke Health Scores for Participant with 5+ Visits (N=649)**

Health-Related Quality of Life (HRQOL) Dimension	Average First	Average Last	Point Difference First to Last	Statistical Significance (p-values)
<b>Dysfunction</b>	(lower is better)			
Anxiety	61.17	55.63	- 5.54	< 0.0001
Anxiety/Depression	62.11	55.15	- 6.96	< 0.0001
Depression	63.80	57.03	- 6.77	< 0.0001
Disability	37.46	35.13	- 2.33	0.1970
Pain	69.77	66.94	- 2.84	0.0488
<b>Function</b>	(higher is better)			
General Health	41.65	46.31	4.66	< 0.0001
Mental Health	40.35	46.44	6.09	< 0.0001
Perceived Health	50.91	51.94	1.03	0.4679
Physical Health	38.19	41.24	3.05	0.0002
Self Esteem	51.08	53.31	2.22	0.0166
Social Health	46.30	49.61	3.32	< 0.0001

APPENDIX F: SITE SPECIFIC DATA FOR PARTICIPANTS REPORTED THROUGH OCTOBER 2010; N=2,339

CMSP Behavioral Health Pilot Project Lead Agency	Program Start	Treatment Type			Referral Source				Referral Reason			Global Assessment of Functioning		
		Mental Health	Substance Abuse	Unknown	One of Grantee's Providers	Outside Medical Provider	Self or Family	Other or Unknown	Positive Screening from PCP	Patient Seeking Care	Other or Unknown	Average	Minimum	Maximum
Chapa-De Indian Health Program	March 2008	68	0	0	17%	12%	42%	29%	5%	92%	3%	49	35	63
Community Health Clinic Ole	April 2008	76	0	0	99%	0%	1%	0%	68%	0%	32%	49	35	60
Del Norte Clinics	March 2008	274	8	0	94%	3%	2%	1%	1%	85%	13%	57	41	90
El Dorado Community Health Center	May 2008	277	11	0	86%	12%	1%	1%	87%	3%	11%	56	35	70
McCloud Healthcare Clinic	April 2008	56	1	0	11%	16%	11%	63%	0%	96%	4%	61	41	72
Open Door Community Health Centers	April 2008	300	0	0	100%	0%	0%	0%	100%	0%	0%	55	40	75
Petaluma Health Center	March 2008	360	4	105	64%	1%	9%	26%	39%	28%	32%	49	20	80
Redwood Rural Health Center	April 2008	18	0	0	32%	21%	32%	16%	47%	26%	26%	53	45	68
Shasta Consortium	March 2008	81	29	0	34%	2%	40%	24%	8%	61%	31%	57	40	75
Sierra Family Medical Clinic	April 2008	159	12	0	73%	4%	19%	5%	33%	58%	9%	57	30	70
Sonoma Valley Community Health Center	March 2008	81	28	0	75%	2%	20%	3%	47%	46%	6%	48	40	57
Sonora Regional Medical Center	April 2008	191	1	0	58%	24%	12%	7%	25%	65%	10%	49	30	65
Southern Mono Healthcare District	March 2008	25	7	0	44%	13%	28%	16%	0%	100%	0%	55	51	70
Tehama County Health Services Agency Clinic	March 2008	128	77	0	70%	13%	7%	9%	19%	38%	42%	50	28	70
<b>Total</b>	--	<b>2,094</b>	<b>178</b>	<b>105</b>	<b>73%</b>	<b>6%</b>	<b>10%</b>	<b>11%</b>	<b>42%</b>	<b>40%</b>	<b>17%</b>	<b>53</b>	<b>20</b>	<b>90</b>

\* Note: The numbers under "treatment type" include thirty-eight individuals that were referred for both MH & SA counseling. Sonora Regional & Del Norte are not approved to provide SA services through the pilot project.