Colorado Medicaid
Community Mental Health Services Program

FY 2011–2012 PIP Validation Report

Reducing ED Utilization for Youth

for

Foothills Behavioral Health Partners

February 2012
for
Validation Year 3

This report was produced by Health Services Advisory Group, Inc. for the Colorado Department of Health Care Policy & Financing.

HSAG HEALTH SERVICES ADVISORY GROUP

3133 East Camelback Road, Suite 300 • Phoenix, AZ 85016
Phone 602.264.6382 • Fax 602.241.0757

TABLE OF CONTENTS

for **Foothills Behavioral Health Partners**

ACKNOWLEDGMENTS AND COPYRIGHTS

The Balanced Budget Act of 1997 (BBA), Public Law 105-33, requires that states conduct an annual evaluation of their managed care organizations (MCOs) and prepaid inpatient health plans (PIHPs) to determine the MCOs' and PIHPs' compliance with federal regulations and quality improvement standards. According to the BBA, the quality of health care delivered to Medicaid members in MCOs and PIHPs must be tracked, analyzed, and reported annually. The Colorado Department of Health Care Policy & Financing (the Department) has contractual requirements with each MCO and behavioral health organization (BHO) to conduct and submit performance improvement projects (PIPs) annually.

As one of the mandatory external quality review activities under the BBA, the Department is required to validate the PIPs. To meet this validation requirement, the Department contracted with Health Services Advisory Group, Inc. (HSAG), as the external quality review organization. The primary objective of the PIP validation is to determine compliance with requirements set forth in the Code of Federal Regulations (CFR) at 42 CFR 438.240(b)(1), including:

- Measurement of performance using objective quality indicators.
- Implementation of system interventions to achieve improvement in quality.
- Evaluation of the effectiveness of the interventions.
- Planning and initiation of activities to increase or sustain improvement.

In its PIP evaluation and validation, HSAG used the Centers for Medicare & Medicaid Services (CMS) publication, *Validating Performance Improvement Projects: A Protocol for Use in Conducting Medicaid External Quality Review Activities*, final protocol, Version 1.0, May 1, 2002.

Overview

This was the third-year submission of the **Foothills Behavioral Health Partners** (**FBHP**) ***Reducing ED Utilization for Youth*** PIP. This topic addressed CMS' requirements related to quality outcomes—specifically, access to, and quality of, care and services. The purpose of this study was to reduce the rate of emergency department (ED) visits for a covered mental health diagnosis that did not result in a hospitalization within 24 hours of the ED visit. **FBHP** noted an increasing trend in member ED utilization, including visits that resulted in a psychiatric hospitalization, since fiscal year (FY) 2006–2007. The **FBHP** adolescent ED visit rate was of particular concern; it was more than three standard deviations higher than the rate of other BHOs. To address the issue, **FBHP** implemented the PIP. The goal of the study was to reduce the ED visit rate for youth from birth to 17 years of age.

FBHP stated the study question as follows: "Do focused interventions increase access to and improve behavioral health outpatient crisis care and crisis prevention education and treatment for families and youth and significantly reduce the ED visit rate for youth, ages 0 to 17 years of age?"

FBHP selected one study indicator that measured:

- The rate of ED visits for a covered mental health diagnosis that did not result in a hospitalization within 24 hours of the ED visit for the study population.

The study population for the PIP included all Medicaid-eligible consumers from birth to 17 years of age as of the last day of the study period.

Conclusions

For the FY 2011–2012 validation cycle, HSAG reviewed ten activities. The final validation finding for **FBHP**'s PIP showed an overall score of 97 percent, a critical element score of 100 percent, and a *Met* validation status.

Table 1–1 displays the BHO's performance across all activities. The second column represents the total number of evaluation elements *Met* by the BHO compared to the total number of applicable evaluation elements for each activity reviewed, including critical elements. The third column represents the total number of critical elements *Met* by the BHO for each activity reviewed compared to the total number of applicable critical evaluation elements.

Table 1–1—Performance Across All Activities

Review Activities	Total Number of Evaluation Elements *Met*/Total Number Applicable Evaluation Elements	Total Number of Critical Elements *Met*/Total Number of Applicable Critical Evaluation Elements
I. Select the Study Topic(s)	6/6	1/1
II. Define the Study Question(s)	2/2	2/2
III. Select the Study Indicator(s)	5/5	3/3
IV. Use a Representative and Generalizable Study Population	2/2	2/2
V. Use Sound Sampling Techniques	0/0	0/0
VI. Reliably Collect Data	5/5	0/0
VII. Implement Intervention and Improvement Strategies	3/3	1/1
VIII. Analyze Data and Interpret Study Results	8/8	1/1
IX. Assess for Real Improvement	3/4	No Critical Elements
X. Assess for Sustained Improvement	1/1	No Critical Elements

Overall Validity and Reliability of the Findings

Based on the validation of this PIP, HSAG's assessment determined high confidence in the results.

Strengths/PIP Progression

For this year's validation, **FBHP** demonstrated strength in the study design, study implementation, and quality outcomes achieved. The BHO reported a second remeasurement and demonstrated sustained improvement in the rate of ED visits for a covered mental health diagnosis that did not result in a hospitalization within 24 hours of the ED visit. Although the improvement from the first remeasurement to the second remeasurement was not statistically significant, the overall improvement from baseline to the second remeasurement was statistically significant.

FBHP continued interventions including the distribution of information flyers on how to access crisis outpatient services. The standard crisis plan for families to use at home was also continued. The BHO implemented a method to track the follow-up telephone calls made to consumers the day after their ED visit. **FBHP** standardized interventions based on the success of the PIP. The PIP has been approved for retirement and will not be submitted for validation after this year.

Opportunities for Improvement and Recommendations

HSAG determines opportunities for improvement based on those evaluation elements that receive a *Partially Met* or a *Not Met* score, indicating that those elements are not in full compliance with CMS protocols. The PIP also includes *Points of Clarification* as opportunities for improvement. For a detailed explanation of opportunities for improvement, see the PIP Validation Tool section of this report under the corresponding activity.

HSAG identified one opportunity for improvement in this year's validation.

Activity IX: Assess for Real Improvement

The improvement from the first remeasurement to the second remeasurement was not statistically significant. HSAG recommends that the BHO revisit the causal/barrier analysis process. In addition, the BHO should evaluate the effectiveness of the interventions. Based on the results, the BHO should add new interventions and/or revise the current interventions as needed.

Comparison of Years 1 through 3

Each year, HSAG completes a review and evaluation of the entire PIP. The following table illustrates the PIP's progression, describing the activities completed for each PIP submission and the evaluation scores.

Table 1–2—Year-to-Year Comparison of Results

Categories Compared	Year 1 FY 2009-2010	Year 2 FY 2010-2011	Year 3 FY 2011-2012
Activities Evaluated	VIII	IX	X
Percentage Score of Evaluation Elements *Met*	100	100	97
Percentage Score of Critical Elements *Met*	100	100	100
Validation Status	*Met*	*Met*	*Met*

For the FY 2009–2010 validation, the plan reported the baseline result and completed the PIP through Activity VIII. HSAG identified two *Points of Clarification* in Activity VIII as opportunities for improvement.

For the FY 2010–2011 validation, **FBHP** progressed to reporting a first remeasurement result. The PIP was validated through Activity IX. The plan addressed the *Points of Clarification* from last year's submission and did not have any new opportunities for improvement identified in this year's validation.

For the FY 2011–2012 validation, **FBHP** progressed to reporting a second remeasurement result. The PIP was validated through Activity X. There was only one opportunity for improvement, which was identified in Activity IX. The PIP result did not demonstrate statistically significant improvement from the first remeasurement to the second remeasurement; therefore, one evaluation element in Activity IX received a *Not Met* score.

Analysis of Results

Table 1–3 provides a summary of the annual performance and goals for the **FBHP** ***Reducing ED Utilization for Youth*** PIP. **FBHP** completed Activities I through X, reporting baseline data for July 1, 2007, through June 30, 2008, Remeasurement 1 data for July 1, 2008, through June 30, 2009, and Remeasurement 2 data from July 1, 2009, through June 30, 2010.

Table 1–3—Summary of Results

Study Indicator	Baseline Measurement		Remeasurement 1		Remeasurement 2	
	Goal	Results	Goal	Results	Goal	Results
The rate of ED visits for a covered mental health diagnosis that did not result in a hospitalization within 24 hours of the ED visit for the study population.	*	6.48 ED visits/1,000 members	*	4.84 ED visits/1,000 members	*	3.87 ED visits/1,000 members

* Statistically significant reduction from the baseline result.

For the baseline measurement, **FBHP** reported 6.48 ED visits per 1,000 members. This result was 1.77 ED visits per 1,000 members above the benchmark of 4.71 ED visits per 1,000 members. For this study indicator, a lower rate indicates better performance. With the baseline rate above the benchmark, the PIP had an opportunity for improvement. As a result, **FBHP** has completed a causal/barrier analysis and implemented several member- and system-level interventions.

FBHP reported 4.84 ED visits per 1,000 members for Remeasurement 1. This result was 1.64 ED visits per 1,000 members below the baseline of 6.48 ED visits per 1,000 members. For this study indicator, a lower rate indicates better performance. The difference in ED visits per 1,000 members between baseline and Remeasurement 1 was statistically significant, with a *p* value of 0.0114. The Remeasurement 1 rate was slightly above the benchmark of 4.71 visits per 1,000 members, indicating an opportunity for improvement. **FBHP** revised one of the existing interventions and continued the remaining interventions.

For the second remeasurement, **FBHP** reported 3.87 ED visits per 1,000 members. This rate was approximately 1 ED visit per 1,000 members below the first remeasurement result. For this study indicator, a lower rate indicates better performance. The improvement in the rate of ED visits per 1,000 members between Remeasurement 1 and Remeasurement 2 was not statistically significant. However, the overall improvement from baseline to Remeasurement 2 was statistically significant, with a *p* value less than 0.0001. Furthermore, the Remeasurement 2 rate was below the benchmark of 4.71 visits per 1,000 members; and the PIP achieved sustained improvement. From Remeasurement 1 to Remeasurement 2, **FBHP** continued the existing interventions and added a method to track the clinician telephone follow-up survey that occurs the day after a consumer visits the ED.

PIP Scores

For this PIP, HSAG reviewed Activities I through X. Table 1–4 and Table 1–5 show **FBHP**'s scores based on HSAG's PIP evaluation of ***Reducing ED Utilization for Youth***. Evaluators reviewed and scored each activity according to HSAG's validation methodology.

Table 1–4—FY 2011–2012 PIP Validation Report Scores
***for* Reducing ED Utilization for Youth**
***for* Foothills Behavioral Health Partners**

Review Activity	Total Possible Evaluation Elements (Including Critical Elements)	Total *Met*	Total *Partially Met*	Total *Not Met*	Total *NA*	Total Possible Critical Elements	Total Critical Elements *Met*	Total Critical Elements *Partially Met*	Total Critical Elements *Not Met*	Total Critical Elements *NA*
I. Select the Study Topic(s)	6	6	0	0	0	1	1	0	0	0
II. Define the Study Question(s)	2	2	0	0	0	2	2	0	0	0
III. Select the Study Indicator(s)	7	5	0	0	2	3	3	0	0	0
IV. Use a Representative and Generalizable Study Population	3	2	0	0	1	2	2	0	0	0
V. Use Sound Sampling Techniques	6	0	0	0	6	1	0	0	0	1
VI. Reliably Collect Data	11	5	0	0	6	1	0	0	0	1
VII. Implement Intervention and Improvement Strategies	4	3	0	0	1	1	1	0	0	0
VIII. Analyze Data and Interpret Study Results	9	8	0	0	1	2	1	0	0	1
IX. Assess for Real Improvement	4	3	0	1	0	No Critical Elements				
X. Assess for Sustained Improvement	1	1	0	0	0	No Critical Elements				
Totals for All Activities	**53**	35	0	1	17	13	10	0	0	3

Table 1–5—FY 2011–2012 PIP Validation Report Overall Score
***for* Reducing ED Utilization for Youth**
***for* Foothills Behavioral Health Partners**

Percentage Score of Evaluation Elements *Met**	**97%**
Percentage Score of Critical Elements *Met***	**100%**
Validation Status***	***Met***

* The percentage score for all evaluation elements *Met* is calculated by dividing the total *Met* by the sum of all evaluation elements *Met*, *Partially Met*, and *Not Met*.
** The percentage score for critical elements *Met* is calculated by dividing the total critical elements *Met* by the sum of the critical elements *Met*, *Partially Met*, and *Not Met*.
*** *Met* equals high confidence/confidence that the PIP was valid.
Partially Met equals low confidence that the PIP was valid.
Not Met equals reported PIP results that were not valid.

Scoring Methodology

Below is the scoring methodology HSAG uses to evaluate PIPs conducted by the BHO to determine if a PIP is valid and to rate the percentage of compliance with the CMS protocol for conducting PIPs.

Each PIP activity consists of critical and noncritical evaluation elements necessary for successful completion of a valid PIP. Each evaluation element is scored as *Met*, *Partially Met*, *Not Met*, *Not Applicable*, or *Not Assessed*. In the PIP Validation Tool (Section 3), the column to the left of the evaluation element description indicates if that evaluation element is a critical element. Critical elements are essential to producing a valid and reliable PIP; therefore, each critical element must have a score of *Met*. For example, for Activity II of the PIP Validation Tool, if the study question cannot be answered, then the critical element is scored as *Not Met* and the PIP is not valid.

The following is an example of how critical elements are designated in the PIP Validation Tool.

	Evaluation Element	Scoring
C	The written study question is answerable.	☐ *Met* ☐ *Partially Met* ☐ *Not Met* ☐ *NA*

HSAG scores each evaluation element as noted above and creates a table that totals all scores (for critical and noncritical elements). From this table (Table 3-1 in Section 3) HSAG calculates percentage scores and a validation status (Table 3-2 in Section 3). The percentage score for all evaluation elements is calculated by dividing the number of elements (including critical elements) *Met* by the sum of evaluation elements that were *Met*, *Partially Met*, and *Not Met*. The percentage score for critical elements *Met* is calculated by dividing the critical elements *Met* by the sum of critical elements that were *Met*, *Partially Met*, and *Not Met*. The validation status score is based on the percentage score and whether critical elements were *Met*, *Partially Met*, or *Not Met*. (See the scoring table on page 2-2 for more details.) The scoring methodology also includes the *Not Applicable* designation for those situations in which the evaluation element does not apply to the PIP. For example, in Activity V, if the PIP did not use sampling techniques, HSAG would score the evaluation elements in Activity V as *Not Applicable*. HSAG uses the *Not Assessed* scoring designation when the PIP has not progressed to the remaining activities in the CMS protocol. HSAG uses a *Point of Clarification* when documentation for an evaluation element includes the basic components to meet requirements for the evaluation element (as described in the narrative of the PIP), but enhanced documentation would demonstrate a stronger understanding of CMS protocols.

Due to the importance of critical elements, any critical element scored as *Not Met* will invalidate the PIP. Critical elements that are *Partially Met* and noncritical elements that are *Partially Met* or *Not Met* will not invalidate the PIP; however, will affect the overall percentage score (which indicates the percentage of the PIP's compliance with the CMS protocol for conducting PIPs).

HSAG will provide technical assistance to help the BHO understand the CMS protocol and make necessary revisions to the PIP. For future submissions, the BHO will submit a revised PIP Summary Form that includes additional information to address any *Points of Clarification* and any critical and noncritical areas scored as *Partially Met* or *Not Met* for the next validation cycle.

Met, *Partially Met*, and *Not Met* scores are aggregated to reflect an overall score based on the following criteria:

Met	(1) All critical elements are *Met* **and** (2) 80 to 100 percent of all elements are *Met* across all activities.
Partially Met	(1) All critical elements are *Met* **and** 60 to 79 percent of all elements are *Met* across all activities **or** (2) One or more critical elements are *Partially Met* and the percentage score for all elements across all activities is 60 percent or more.
Not Met	(1) All critical elements are *Met* **and** less than 60 percent of all elements are *Met* across all activities **or** (2) One or more critical elements are *Not Met*.
Not Applicable (NA)	*Not Applicable* elements (including critical elements) are removed from all scoring.
Not Assessed	*Not Assessed* elements (including critical elements) are removed from all scoring.
Point of Clarification	A *Point of Clarification* is used when documentation for an evaluation element includes the basic components to meet requirements for the evaluation element (as described in the narrative of the PIP); however, enhanced documentation would demonstrate a stronger understanding of CMS protocols.

HSAG then calculates an overall percentage and validation status score as follows:

Percentage Score of Evaluation Elements *Met**	**%**
Percentage Score of Critical Elements *Met***	**%**
Validation Status***	***<Met/Partially Met/Not Met>***

* The percentage score for all evaluation elements *Met* is calculated by dividing the total *Met* by the sum of all evaluations elements *Met*, *Partially Met*, and *Not Met*.

** The percentage score for critical elements *Met* is calculated by dividing the total critical elements *Met* by the sum of the critical elements *Met*, *Partially Met*, and *Not Met*.

*** *Met* equals high confidence/confidence that the PIP was valid.
Partially Met equals low confidence that the PIP was valid.
Not Met equals reported PIP results that were not credible.

The scoring methodology is designed to ensure that critical elements are a must-pass step. If at least one critical element is *Not Met*, the overall validation status is *Not Met*. In addition, the methodology addresses the potential situation in which all critical elements are *Met*; however, suboptimal performance is observed for noncritical elements. The final outcome would be based on the overall percentage score.

Scoring Methodology Examples

HSAG calculates the score for the BHO as the percentage of elements across all activities that receive a *Met* score. The following examples demonstrate how scoring is applied.

Example 1:

The PIP scores are as follows: *Met*=43, *Partially Met*=1, *Not Met*=1, *NA*=8, and one critical element is *Partially Met*. The BHO receives an overall *Partially Met* validation status, indicating a valid PIP. The percentage score of evaluation elements *Met* for the BHO is calculated as 43/45=95.6 percent. The percentage score of critical elements *Met* is calculated as 12/13=92 percent.

Example 2:

The PIP scores are as follows: *Met*=38, *Partially Met*=11, *Not Met*=4, *NA*=0, and all the critical elements are *Met.* The BHO receives an overall *Partially Met* status, indicating a valid PIP. The percentage score of evaluation elements *Met* for the BHO is calculated as 38/53=71.7 percent. The percentage score of critical elements *Met* is calculated as 13/13=100 percent.

Section 3: Colorado FY 11-12 PIP Validation Tool: Reducing ED Utilization for Youth for Foothills Behavioral Health Partners

DEMOGRAPHIC INFORMATION			
Health Plan Name:	Foothills Behavioral Health Partners		
Study Leader Name:	Barbara Smith	Title:	Director Quality Improvement
Phone Number:	(303) 432-5952	E-mail Address:	bsmith@fbhpartners.com
Name of Project/Study:	Reducing ED Utilization for Youth		
Type of Study:	Clinical ☐ Collaborative ☐ HEDIS		
Date of Study:	7/1/2007 to 6/30/2010		
Type of Delivery System:	BHO	Number of Medicaid Consumers in BHO: Number of Medicaid Consumers in Study:	 32,836
Year 3 Validation	Resubmission	Validated through Activity: X	
Results: Submission Date:	Remeasurement 2 11/22/2011	Validation Date:	12/6/2011

EVALUATION ELEMENTS		SCORING	COMMENTS
Performance Improvement Project/Health Care Study Evaluation			
I.	**Select the Study Topic(s): Topics selected for the study should reflect the Medicaid-enrolled population in terms of demographic characteristics, prevalence of disease, and the potential consequences (risks) of disease. Topics could also address the need for a specific service. The goal of the project should be to improve processes and outcomes of health care. The topic may be specified by the State Medicaid agency or based on input from Medicaid consumers. The study topic:**		
	1. Reflects high-volume or high-risk conditions.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The PIP reflected a high-volume or high-risk condition.
	2. Is selected following collection and analysis of data. NA is not applicable to this element for scoring.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	Selection of the PIP topic followed the collection and analysis of plan-specific data.
	3. Addresses a broad spectrum of care and services. The score for this element will be Met or Not Met.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The PIP addressed a broad spectrum of care and services.
	4. Includes all eligible populations that meet the study criteria. NA is not applicable to this element for scoring.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The PIP included all eligible populations that met the study criteria.
	5. Does not exclude consumers with special health care needs. The score for this element will be Met or Not Met.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The PIP did not exclude consumers with special health care needs.
C*	6. Has the potential to affect consumer health, functional status, or satisfaction. The score for this element will be Met or Not Met.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The PIP has the potential to affect health, functional status, or satisfaction.

Results for Activity I

# of Total Evaluation Elements					# of Critical Elements				
Total Evaluation Elements**	**Met**	**Partially Met**	**Not Met**	**Not Applicable**	**Critical Elements*****	**Met**	**Partially Met**	**Not Met**	**Not Applicable**
6	6	0	0	0	1	1	0	0	0

* "C" in this column denotes a critical evaluation element.

** Total Evaluation Elements includes critical elements.

*** This number is a tally of the total number of critical evaluation elements for this review activity.

EVALUATION ELEMENTS		SCORING	COMMENTS
Performance Improvement Project/Health Care Study Evaluation			
II.	**Define the Study Question(s): Stating the study question(s) helps maintain the focus of the PIP and sets the framework for data collection, analysis, and interpretation. The study question:**		
C*	1. States the problem to be studied in simple terms. NA is not applicable to this element for scoring.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The study question was clear and stated in simple terms using the CMS PIP protocol X/Y format.
C*	2. Is answerable. NA is not applicable to this element for scoring.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The study question(s) was answerable and presented in the CMS PIP protocol X/Y format.

Results for Activity II

# of Total Evaluation Elements					# of Critical Elements				
Total Evaluation Elements**	**Met**	**Partially Met**	**Not Met**	**Not Applicable**	**Critical Elements*****	**Met**	**Partially Met**	**Not Met**	**Not Applicable**
2	2	0	0	0	2	2	0	0	0

* "C" in this column denotes a critical evaluation element.

** Total Evaluation Elements includes critical elements.

*** This number is a tally of the total number of critical evaluation elements for this review activity.

	EVALUATION ELEMENTS	SCORING	COMMENTS
Performance Improvement Project/Health Care Study Evaluation			
III.	**Select the Study Indicator(s): A study indicator is a quantitative characteristic or variable that reflects a discrete event (e.g., an older adult has not received an influenza vaccination in the last 12 months) or a status (e.g., a consumer's blood pressure is or is not below a specified level) that is to be measured. The selected indicators should track performance or improvement over time. The indicators should be objective, clearly and unambiguously defined, and based on current clinical knowledge or health services research. The study indicators:**		
C*	1. Are well-defined, objective, and measurable. NA is not applicable to this element for scoring.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The study indicator(s) were objective, clear, and unambiguously defined. The PIP provided correct codes, when applicable, for the numerator(s). The documentation provided a description of the study indicator(s) as well as the definition(s) for the numerator(s) or denominator(s). Point of Clarification: The BHO documented a goal of a statistically significant reduction; however, the BHO should provide a numeric goal in future submissions. Re-review December 2011: In the resubmission, the BHO documented a numeric goal. The Point of Clarification has been addressed.
	2. Are based on current, evidence-based practice guidelines, pertinent peer-reviewed literature, or consensus expert panels.	☐ Met ☐ Partially Met ☐ Not Met ☑ NA	Current, evidence-based practice guidelines and pertinent, peer-reviewed literature do not exist for this PIP topic.
C*	3. Allow for the study question to be answered. NA is not applicable to this element for scoring.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The study indicator(s) aligned with the study question(s), and the results of the study indicator(s) would answer the study question(s).
	4. Measure changes (outcomes) in health or functional status, consumer satisfaction, or valid process alternatives. NA is not applicable to this element for scoring.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The study indicator(s) measured change in health, functional status, satisfaction, or valid process alternatives.
C*	5. Have available data that can be collected on each indicator. NA is not applicable to this element for scoring.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	Data were available for collection on each study indicator(s).

* "C" in this column denotes a critical evaluation element.

** Total Evaluation Elements includes critical elements.

*** This number is a tally of the total number of critical evaluation elements for this review activity.

EVALUATION ELEMENTS		SCORING	COMMENTS
Performance Improvement Project/Health Care Study Evaluation			
III.	**Select the Study Indicator(s): A study indicator is a quantitative characteristic or variable that reflects a discrete event (e.g., an older adult has not received an influenza vaccination in the last 12 months) or a status (e.g., a consumer's blood pressure is or is not below a specified level) that is to be measured. The selected indicators should track performance or improvement over time. The indicators should be objective, clearly and unambiguously defined, and based on current clinical knowledge or health services research. The study indicators:**		
	6. Are nationally recognized measures, such as HEDIS technical specifications, when appropriate. The scoring for this element will be Met or NA.	☐ Met ☐ Partially Met ☐ Not Met ☑ NA	The study indicator(s) were not nationally recognized measures.
	7. Includes the basis on which each indicator(s) were adopted, if internally developed.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The plan provided the basis for adoption of the study indicator(s).

Results for Activity III

# of Total Evaluation Elements					# of Critical Elements				
Total Evaluation Elements**	**Met**	**Partially Met**	**Not Met**	**Not Applicable**	**Critical Elements*****	**Met**	**Partially Met**	**Not Met**	**Not Applicable**
7	5	0	0	2	3	3	0	0	0

* "C" in this column denotes a critical evaluation element.

** Total Evaluation Elements includes critical elements.

*** This number is a tally of the total number of critical evaluation elements for this review activity.

EVALUATION ELEMENTS		SCORING	COMMENTS
Performance Improvement Project/Health Care Study Evaluation			
IV.	**Use a Representative and Generalizable Study Population: The selected topic should represent the entire eligible Medicaid-enrolled population, with systemwide measurement and improvement efforts to which the study indicators apply. The study population:**		
C*	1. Is accurately and completely defined. NA is not applicable to this element for scoring.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The PIP accurately and completely defined the study population, providing correct codes, when applicable, for the denominator(s).
	2. Includes requirements for the length of a consumer's enrollment in the BHO.	☐ Met ☐ Partially Met ☐ Not Met ☑ NA	Length of enrollment was not applicable to the PIP.
C*	3. Captures all consumers to whom the study question applies. NA is not applicable to this element for scoring.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The eligible population captured all consumers to whom the study question(s) applied.

Results for Activity IV

# of Total Evaluation Elements					# of Critical Elements				
Total Evaluation Elements**	**Met**	**Partially Met**	**Not Met**	**Not Applicable**	**Critical Elements*****	**Met**	**Partially Met**	**Not Met**	**Not Applicable**
3	2	0	0	1	2	2	0	0	0

* "C" in this column denotes a critical evaluation element.

** Total Evaluation Elements includes critical elements.

*** This number is a tally of the total number of critical evaluation elements for this review activity.

EVALUATION ELEMENTS		SCORING	COMMENTS
Performance Improvement Project/Health Care Study Evaluation			
V.	**Use Sound Sampling Techniques: (This activity is scored only if sampling is used.) If sampling is used to select consumers of the study, proper sampling techniques are necessary to provide valid and reliable information on the quality of care provided. The true prevalence or incidence rate for the event in the population may not be known the first time a topic is studied. Sampling methods:**		
	1. Consider and specify the true or estimated frequency of occurrence.	☐ Met ☐ Partially Met ☐ Not Met ☑ NA	Sampling techniques were not used in this study.
	2. Identify the sample size.	☐ Met ☐ Partially Met ☐ Not Met ☑ NA	Sampling techniques were not used in this study.
	3. Specify the confidence level.	☐ Met ☐ Partially Met ☐ Not Met ☑ NA	Sampling techniques were not used in this study.
	4. Specify the acceptable margin of error.	☐ Met ☐ Partially Met ☐ Not Met ☑ NA	Sampling techniques were not used in this study.
C*	5. Ensure a representative sample of the eligible population.	☐ Met ☐ Partially Met ☐ Not Met ☑ NA	Sampling techniques were not used in this study.
	6. Are in accordance with generally accepted principles of research design and statistical analysis.	☐ Met ☐ Partially Met ☐ Not Met ☑ NA	Sampling techniques were not used in this study.

Results for Activity V

# of Total Evaluation Elements					# of Critical Elements				
Total Evaluation Elements**	**Met**	**Partially Met**	**Not Met**	**Not Applicable**	**Critical Elements*****	**Met**	**Partially Met**	**Not Met**	**Not Applicable**
6	0	0	0	6	1	0	0	0	1

* "C" in this column denotes a critical evaluation element.

** Total Evaluation Elements includes critical elements.

*** This number is a tally of the total number of critical evaluation elements for this review activity.

	EVALUATION ELEMENTS	SCORING	COMMENTS
Performance Improvement Project/Health Care Study Evaluation			
VI.	**Reliably Collect Data: Data collection must ensure that the data collected on the study indicators are valid and reliable. Validity is an indication of the accuracy of the information obtained. Reliability is an indication of the repeatability or reproducibility of a measurement.**		
	1. The identification of data elements to be collected. NA is not applicable to this element for scoring.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The documentation included the identification of data elements for collection.
	2. The identification of specified sources of data. NA is not applicable to this element for scoring.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The documentation clearly specified the sources of data.
	3. A defined and systematic process for collecting baseline and remeasurement data.	☐ Met ☐ Partially Met ☐ Not Met ☑ NA	The PIP used only administrative data collection.
	4. A timeline for the collection of baseline and remeasurement data. NA is not applicable to this element for scoring.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The documentation provided a timeline with dates that delineate data collection in both the baseline and remeasurement periods.
	5. Qualified staff and personnel to abstract manual data.	☐ Met ☐ Partially Met ☐ Not Met ☑ NA	The PIP did not use manual data collection.
C*	6. A manual data collection tool that ensures consistent and accurate collection of data according to indicator specifications.	☐ Met ☐ Partially Met ☐ Not Met ☑ NA	The PIP did not use manual data collection.
	7. A manual data collection tool that supports interrater reliability.	☐ Met ☐ Partially Met ☐ Not Met ☑ NA	The PIP did not use manual data collection.
	8. Clear and concise written instructions for completing the manual data collection tool.	☐ Met ☐ Partially Met ☐ Not Met ☑ NA	The PIP did not use manual data collection.
	9. An overview of the study in written instructions.	☐ Met ☐ Partially Met ☐ Not Met ☑ NA	The PIP did not use manual data collection.
	10. Administrative data collection algorithms/flow charts that show activities in the production of indicators.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The PIP used administrative data collection, and the documentation included the development of the step(s) in the production of the study indicator(s).
	11. An estimated degree of administrative data completeness. Met = 80 - 100% Partially Met = 50 - 79% Not Met = <50% or not provided	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The estimated degree of administrative data completeness was between 80 percent and 100 percent, and the documentation explained how the health plan determined administrative data completeness.

* "C" in this column denotes a critical evaluation element.

** Total Evaluation Elements includes critical elements.

*** This number is a tally of the total number of critical evaluation elements for this review activity.

EVALUATION ELEMENTS	SCORING	COMMENTS
Performance Improvement Project/Health Care Study Evaluation		

Results for Activity VI

# of Total Evaluation Elements					# of Critical Elements				
Total Evaluation Elements**	**Met**	**Partially Met**	**Not Met**	**Not Applicable**	**Critical Elements*****	**Met**	**Partially Met**	**Not Met**	**Not Applicable**
11	5	0	0	6	1	0	0	0	1

* "C" in this column denotes a critical evaluation element.
** Total Evaluation Elements includes critical elements.
*** This number is a tally of the total number of critical evaluation elements for this review activity.

EVALUATION ELEMENTS		SCORING	COMMENTS
Performance Improvement Project/Health Care Study Evaluation			
VII.	**Implement Intervention and Improvement Strategies: Real, sustained improvements in care result from a continuous cycle of measuring and analyzing performance, as well as, developing and implementing systemwide improvements in care. Interventions are designed to change behavior at an institutional, practitioner, or consumer level. The improvement strategies are:**		
C*	1. Related to causes/barriers identified through data analysis and quality improvement processes. NA is not applicable to this element for scoring.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The plan completed a causal/barrier analysis and used improvement strategies related to the causes/barriers identified through data analysis and a quality improvement process.
	2. System changes that are likely to induce permanent change.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The documentation included system intervention(s) that were likely to have a long-term effect.
	3. Revised if the original interventions are not successful.	☐ Met ☐ Partially Met ☐ Not Met ☑ NA	All study indicator(s) demonstrated improvement.
	4. Standardized and monitored if interventions are successful.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The documentation included a narrative discussion about the success of quality improvement actions and how the intervention(s) were standardized and monitored as a result of those actions.

Results for Activity VII

# of Total Evaluation Elements					# of Critical Elements				
Total Evaluation Elements**	**Met**	**Partially Met**	**Not Met**	**Not Applicable**	**Critical Elements*****	**Met**	**Partially Met**	**Not Met**	**Not Applicable**
4	3	0	0	1	1	1	0	0	0

* "C" in this column denotes a critical evaluation element.

** Total Evaluation Elements includes critical elements.

*** This number is a tally of the total number of critical evaluation elements for this review activity.

	EVALUATION ELEMENTS	SCORING	COMMENTS
Performance Improvement Project/Health Care Study Evaluation			
VIII.	**Analyze Data and Interpret Study Results: Review the data analysis process for the selected clinical or nonclinical study indicators. Review appropriateness of, and adherence to, the statistical analysis techniques used.**		
C*	1. Are conducted according to the data analysis plan in the study design. NA is not applicable to this element for scoring.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The PIP conducted data analysis according to the data analysis plan. The data analysis plan included the type of data analysis the PIP would conduct, how the PIP would calculate the rate, how the PIP would compare the rate to the goal, and the statistical test that the data analysis plan would use.
C*	2. Allow for the generalization of results to the study population if a sample was selected. If no sampling was performed, this element is scored NA.	☐ Met ☐ Partially Met ☐ Not Met ☑ NA	The PIP did not use sampling.
	3. Identify factors that threaten internal or external validity of findings. NA is not applicable to this element for scoring.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The documentation identified and discussed factors that threatened the internal or external validity of the findings and included the impact and resolution of these factors.
	4. Include an interpretation of findings. NA is not applicable to this element for scoring.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The PIP documentation included an interpretation of the findings for each study indicator(s).

* "C" in this column denotes a critical evaluation element.

** Total Evaluation Elements includes critical elements.

*** This number is a tally of the total number of critical evaluation elements for this review activity.

EVALUATION ELEMENTS		SCORING	COMMENTS
Performance Improvement Project/Health Care Study Evaluation			
VIII.	**Analyze Data and Interpret Study Results: Review the data analysis process for the selected clinical or nonclinical study indicators. Review appropriateness of, and adherence to, the statistical analysis techniques used.**		
	5. Are presented in a way that provides accurate, clear, and easily understood information. NA is not applicable to this element for scoring.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The BHO calculated a Chi-square value of 3.357 and a p value of 0.067. The HSAG PIP Review Team was unable to replicate these values. The HSAG PIP Review Team calculated a Chi-square value of 3.2416 and a p value of 0.07179. In addition, the HSAG PIP Review Team was unable to replicate the Chi-square value from baseline to Remeasurement 2 of 19.694. The HSAG PIP Review Team calculated a Chi-square value of 19.3933. The BHO should address these discrepancies in the next submission as well as correct any subgroup statistical testing results that were calculated using the current method. Re-review December 2011: In the resubmission, the plan corrected the statistical testing results. The score for this evaluation element was changed from Partially Met to Met.
	6. Identify the initial measurement and the remeasurement of study indicators.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The data analysis identified the initial measurement and remeasurement results for all study indicator(s).

* "C" in this column denotes a critical evaluation element.

** Total Evaluation Elements includes critical elements.

*** This number is a tally of the total number of critical evaluation elements for this review activity.

EVALUATION ELEMENTS		SCORING	COMMENTS
Performance Improvement Project/Health Care Study Evaluation			
VIII.	**Analyze Data and Interpret Study Results: Review the data analysis process for the selected clinical or nonclinical study indicators. Review appropriateness of, and adherence to, the statistical analysis techniques used.**		
	7. Identify statistical differences between the initial measurement and the remeasurement.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The BHO calculated a Chi-square value of 3.357 and a p value of 0.067. The HSAG PIP Review Team was unable to replicate these values. The HSAG PIP Review Team calculated a Chi-square value of 3.2416 and a p value of 0.07179. In addition, the HSAG PIP Review Team was unable to replicate the Chi-square value from baseline to Remeasurement 2 of 19.694. The HSAG PIP Review Team calculated a Chi-square value of 19.3933. The BHO should address these discrepancies in the next submission as well as correct any subgroup statistical testing results that were calculated using the current method. Re-review December 2011: In the resubmission, the plan corrected the statistical testing results. The score for this evaluation element was changed from Partially Met to Met.
	8. Identify factors that affect the ability to compare the initial measurement with the remeasurement.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The PIP documentation reported factors that affected the ability to compare results between measurement periods.
	9. Include an interpretation of the extent to which the study was successful.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The analysis of the data included an interpretation of the extent to which the PIP was successful.

Results for Activity VIII

# of Total Evaluation Elements					# of Critical Elements				
Total Evaluation Elements**	**Met**	**Partially Met**	**Not Met**	**Not Applicable**	**Critical Elements*****	**Met**	**Partially Met**	**Not Met**	**Not Applicable**
9	8	0	0	1	2	1	0	0	1

* "C" in this column denotes a critical evaluation element.

** Total Evaluation Elements includes critical elements.

*** This number is a tally of the total number of critical evaluation elements for this review activity.

EVALUATION ELEMENTS		SCORING	COMMENTS
Performance Improvement Project/Health Care Study Evaluation			
IX.	**Assess for Real Improvement: Assess for any meaningful changes in performance observed and was demonstrated during the Baseline measurement. Assess for any random year-to-year variations, population changes, or sampling errors that may have occurred during the measurement process.**		
	1. The remeasurement methodology is the same as the baseline methodology.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	Repeated measurements used the same methodology used for the baseline measurement.
	2. There is documented improvement in processes or outcomes of care.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	All study indicator(s) demonstrated improvement.
	3. The improvement appears to be the result of planned intervention(s).	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	The reported improvement was consistent with the planned and implemented intervention(s).
	4. There is statistical evidence that observed improvement is true improvement.	☐ Met ☐ Partially Met ☑ Not Met ☐ NA	The improvement from the first remeasurement to the second remeasurement was not statistically significant. Re-review December 2011: The results did not change in the resubmission. The score for this evaluation element will remain Not Met.

Results for Activity IX

# of Total Evaluation Elements					# of Critical Elements				
Total Evaluation Elements**	**Met**	**Partially Met**	**Not Met**	**Not Applicable**	**Critical Elements*****	**Met**	**Partially Met**	**Not Met**	**Not Applicable**
4	3	0	1	0	0	0	0	0	0

** Total Evaluation Elements includes critical elements.

*** This number is a tally of the total number of critical evaluation elements for this review activity.

EVALUATION ELEMENTS		SCORING	COMMENTS
Performance Improvement Project/Health Care Study Evaluation			
X.	**Assess for Sustained Improvement: Assess for any demonstrated improvement through repeated measurements over comparable time periods. Assess for any random year-to-year variations, population changes, or sampling error that may have occurred during the remeasurement process.**		
	1. Repeated measurements over comparable time periods demonstrate sustained improvement or that a decline in improvement is not statistically significant.	☑ Met ☐ Partially Met ☐ Not Met ☐ NA	Repeated measurements over comparable time periods demonstrated sustained improvement without a statistically significant decline in performance results.

Results for Activity X

# of Total Evaluation Elements					# of Critical Elements				
Total Evaluation Elements**	**Met**	**Partially Met**	**Not Met**	**Not Applicable**	**Critical Elements*****	**Met**	**Partially Met**	**Not Met**	**Not Applicable**
1	1	0	0	0	0	0	0	0	0

** Total Evaluation Elements includes critical elements.

*** This number is a tally of the total number of critical evaluation elements for this review activity.

Table 3-1—FY 11-12 PIP Validation Report Scores: Reducing ED Utilization for Youth for Foothills Behavioral Health Partners											
Review Activity		**Total Possible Evaluation Elements (Including Critical Elements)**	**Total Met**	**Total Partially Met**	**Total Not Met**	**Total NA**	**Total Possible Critical Elements**	**Total Critical Elements Met**	**Total Critical Elements Partially Met**	**Total Critical Elements Not Met**	**Total Critical Elements NA**
I.	Select the Study Topic(s)	6	6	0	0	0	1	1	0	0	0
II.	Define the Study Question(s)	2	2	0	0	0	2	2	0	0	0
III.	Select the Study Indicator(s)	7	5	0	0	2	3	3	0	0	0
IV.	Use a Representative and Generalizable Study Population	3	2	0	0	1	2	2	0	0	0
V.	Use Sound Sampling Techniques	6	0	0	0	6	1	0	0	0	1
VI.	Reliably Collect Data	11	5	0	0	6	1	0	0	0	1
VII.	Implement Intervention and Improvement Strategies	4	3	0	0	1	1	1	0	0	0
VIII.	Analyze Data and Interpret Study Results	9	8	0	0	1	2	1	0	0	1
IX.	Assess for Real Improvement	4	3	0	1	0	0	No Critical Elements			
X.	Assess for Sustained Improvement	1	1	0	0	0	0	No Critical Elements			
Totals for All Activities		**53**	**35**	**0**	**1**	**17**	**13**	**10**	**0**	**0**	**3**

Table 3-2—FY 11-12 PIP Validation Report Overall Scores: Reducing ED Utilization for Youth for Foothills Behavioral Health Partners	
Percentage Score of Evaluation Elements Met*	**97%**
Percentage Score of Critical Elements Met**	**100%**
Validation Status***	***Met***

* The percentage score is calculated by dividing the total Met by the sum of the total Met, Partially Met, and Not Met.

** The percentage score of critical elements Met is calculated by dividing the total critical elements Met by the sum of the critical elements Met, Partially Met, and Not Met.

*** Met equals confidence/high confidence that the PIP was valid.
Partially Met equals low confidence that the PIP was valid.
Not Met equals reported PIP results that were not credible.

EVALUATION OF THE OVERALL VALIDITY AND RELIABILITY OF PIP RESULTS
HSAG assessed the implications of the study's findings on the likely validity and reliability of the results based on CMS Validating protocols. HSAG also assessed whether the State should have confidence in the reported PIP findings.

***Met* = Confidence/high confidence in reported PIP results**

****Partially Met* = Low confidence in reported PIP results**

*****Not Met* = Reported PIP results not credible**

Summary of Aggregate Validation Findings

*	**	***
X		
Met	*Partially Met*	*Not Met*

Summary statement on the validation findings:

Activities I through X were assessed for this PIP Validation Report. Based on the validation of this PIP, HSAG's assessment determined high confidence in the results.

Appendix

for **Foothills Behavioral Health Partners**

Appendix A contains the PIP Summary Form **FBHP** submitted to HSAG for review. HSAG has not altered the content or made grammatical corrections. Any attachments provided with the PIP submission are not included in this appendix. New or altered information in the PIP Summary Form will be dated and highlighted or in bold. Deleted information appears in strikethrough font.

- Appendix A: **Foothills Behavioral Health Partners**' PIP Summary Form: ***Reducing ED Utilization for Youth***

Appendix A: Colorado FY 2011–2012 PIP Summary Form: Reducing ED Utilization for Youth *for* Foothills Behavioral Health Partners

DEMOGRAPHIC INFORMATION

BHO name: **<Foothills Behavioral Health Partners (FBHPartners)>**

Study Leader Name: Barbara Smith Title: Director Quality Improvement

Telephone Number: 303.432.5952 E-mail Address: bsmith@fbhpartners.com

Name of Project/Study: ***<Reducing ED Utilization for Youth>*** **New submission information in bold** **Revised 11/22/11 in red**

Type of Study:

☒ Clinical ☐ Nonclinical

☐ Collaborative ☐ HEDIS

Type of Delivery System: BHO

Date of Study: July 1, 2008 to June 30, 2010 (baseline 7/1/07 to 6/31/08)

Number of Medicaid Consumers Served by BHOs : 7933 (FY' 08)

Number of Medicaid Consumers in Project/Study: 3784 (age 0-18) (FY '08)

Submission Date: **9/30/11** **All changes for this submission in bold**

Section to be completed by HSAG

12/9/2009 Year 1 Validation 9/29/2009 Initial Submission 12/3/2009 Resubmission

12/6/2010 Year 2 Validation 9/30/2010 Initial Submission 11/30/2010 Resubmission

12/6/2011 Year 3 Validation 9/27/2011 Initial Submission 11/22/2011 Resubmission

_____ Baseline Assessment _____ Remeasurement 1

X Remeasurement 2 _____ Remeasurement 3

Year 1 validated through Activity VIII

Year 2 validated through Activity IX

Year 3 validated through Activity X

Appendix A: Colorado FY 2011–2012 PIP Summary Form: Reducing ED Utilization for Youth *for* Foothills Behavioral Health Partners

A. Activity I: Select the study topic(s). PIP topics should target improvement in relevant areas of services and reflect the population in terms of demographic characteristics, prevalence of disease, and the potential consequences (risks) of disease. Topics may be derived from utilization data (ICD-9 or CPT coding data related to diagnoses and procedures; NDC codes for medications; HCPCS codes for medications, medical supplies, and medical equipment; adverse events; admissions; readmissions; etc.); grievances and appeals data; survey data; provider access or appointment availability data; consumer characteristics data such as race/ethnicity/language; other fee-for-service data; or local or national data related to Medicaid risk populations. The goal of the project should be to improve processes and outcomes of health care or services to have a potentially significant impact on consumer health, functional status, or satisfaction. The topic may be specified by the state Medicaid agency or CMS, or it may be based on input from consumers. Over time, topics must cover a broad spectrum of key aspects of consumer care and services, including clinical and nonclinical areas, and should include all enrolled populations (i.e., certain subsets of consumers should not be consistently excluded from studies).

Study topic: Nationally, Americans are becoming increasingly reliant on one of the most costly sources of health care – the hospital emergency department (ED). According to the 2006 National Health Statistics Report , based on the National Ambulatory Medical Care Survey summary for 2006, there were an estimated 119 million ED visits in the US, with approximately 3.6% that had a primary mental health diagnosis; more than a third (37%) of these visits were funded by the public sector (National Health Statistics Report #7, 2006). Data on trends in ED use for mental health issues indicates that from 1992 to 2001, mental health related visits increased 27.5% (Larkin, Smith, & Beautrais, 2008). In addition, more than a third of ED visits in general were considered non-urgent, indicating that more can be done to avoid use of the ED for mental health treatment, thus lowering costs, and improving mental health care (McCaig & Nawar, 2006).

FBH has noted an increasing trend in Member ED utilization, including visits that resulted in a psychiatric hospitalization, from FY ’06 forward. In general FBH ED visit rates were at or higher than 10 visits/1,000 compared to all InNET BHOs, which includes two other BHOs, rates which were 7-8 ED Visitis/1,000. With the new criteria for ED visits for FY ’08, eliminating ED visits that resulted in a hospitalization, FBH ED utilization overall was at 9.19 visits/1,000, which was less than a SD above the BHO rate of 8.73. On the other hand, for youth, FBH ED rates were more than one SD above the BHO rate, with youth age 0-12 at 2.59/1,000 child members and youth age 13-17 at 24.46/1,000 adolescent members, compared to overall BHO rates of 2.11 and 16.83 respectively. The FBH adolescent ED visit rate was of particular concern, as it was more than three standard deviations higher than the BHO rate.

Additional analysis of FBH’s youth ED visits indicated that only about a fourth of the youth had not had a contact with a provider and more than half had a provider contact within seven days of the ED visit. Although a portion of the Members with an ED visit had never seen a provider it appears that most have, suggesting an opportunity to improve care and prevent ED visit utilization for many youth Members. Because FBH does not consider ED visits an appropriate or effective method of treatment for youth FBH has begun a performance improvement project to improve behavioral health outpatient crisis care access and crisis prevention education and treatment in order to significantly reduce Youth Member ED visit utilization.

The eligible population, for this PIP, will include all youth Members (17 years or younger). Members with special health care needs are included in the PIP.

B. Activity II: Define the study question(s). Stating the question(s) helps maintain the focus of the PIP and sets the framework for data collection, analysis, and interpretation.

Study question:

Do focused interventions to increase access to and improve behavioral health outpatient crisis care and crisis prevention education and treatment for families and youth significantly reduce ED visit rate for youth, age 0 through 17 years of age?

Appendix A: Colorado FY 2011–2012 PIP Summary Form: Reducing ED Utilization for Youth *for* Foothills Behavioral Health Partners

C. Activity III: Select the study indicator(s). A study indicator is a quantitative or qualitative characteristic or variable that reflects a discrete event (e.g., an older adult has not received an influenza vaccination in the last 12 months) or a status (e.g., a consumer's blood pressure is/is not below a specified level) that is to be measured. The selected indicators should track performance or improvement over time. The indicators should be objective, clearly and unambiguously defined, and based on current clinical knowledge or health services research.	
Study Indicator 1	**Describe the rationale for selection of the study indicator:** The number of ED visits for a covered mental health diagnosis, which do not result in a hospitalization within 24 hrs of the ED visit, for the "study population." Study population, for this indicator includes all Members between the age of 0 through 17 years, as of the last day of the study period, that were Medicaid eligible during the study period (see Activity IV). The rationale for this study indicator is that It is expected that study strategies/activities will significantly reduce the number of ED visits for the study population. I addition, the number of ED visits per 1,000 eligible members was chosen because it is a fairly standard way to operationalize the ED rate in this field.
Numerator: (no numeric value)	The number of ED visits for a primary covered mental health diagnosis, which do not result in a hospitalization within 24 hrs of the day of the ED visit, provided to the "study population" (defined in Activity IV) during the measurement period. Based on paid claims with CPT 99281-99285, 99291-99292 and revenue code 45x. The Member must be age 0 through 17 years old on the date of the ED visit for the visit to be included. (see pg 7 "Attachment 1 FY08-09 BHO-HCPF Annual Performance measures Scope Document.docx for numerator calculation)
Denominator: (no numeric value)	Total number of Members age group 0 through 17 years at the end of the study period (see Activity IV study population for specifics on calculation)
Baseline Measurement Period	FY'08 (July 1, 2007 through June 30, 2008)
Baseline Goal	Statistically significant reduction, at p=.05, in the baseline youth ED visit rate of 6.48 per 1,000 members
Remeasurement 1 Period	FY '09 (July 1, 2008 through June 30, 2009)
Remeasurement 2 Period	FY '10 (July 1, 2009 through June 30, 2010)
Benchmark	Overall BHO rate of youth ED visits of 4.71 per 1,000 members at baseline
Source of Benchmark	HCPF calculation of overall BHO ED visit rates

Appendix A: Colorado FY 2011–2012 PIP Summary Form: Reducing ED Utilization for Youth *for* Foothills Behavioral Health Partners

C. Activity III: Select the study indicator(s). A study indicator is a quantitative or qualitative characteristic or variable that reflects a discrete event (e.g., an older adult has not received an influenza vaccination in the last 12 months) or a status (e.g., a consumer's blood pressure is/is not below a specified level) that is to be measured. The selected indicators should track performance or improvement over time. The indicators should be objective, clearly and unambiguously defined, and based on current clinical knowledge or health services research.	
Study Indicator 2	**Describe the rationale for selection of the study indicator:** This study indicator has been eliminated. Please see end of this section on page A-9 for explanation of this change.
Numerator: (no numeric value)	
Denominator: (no numeric value)	
Baseline Measurement Period	
Baseline Goal	
Remeasurement 1 Period	
Remeasurement 2 Period	
Benchmark	
Source of Benchmark	

Appendix A: Colorado FY 2011–2012 PIP Summary Form: Reducing ED Utilization for Youth *for* Foothills Behavioral Health Partners

C. Activity III: Select the study indicator(s). A study indicator is a quantitative or qualitative characteristic or variable that reflects a discrete event (e.g., an older adult has not received an influenza vaccination in the last 12 months) or a status (e.g., a consumer's blood pressure is/is not below a specified level) that is to be measured. The selected indicators should track performance or improvement over time. The indicators should be objective, clearly and unambiguously defined, and based on current clinical knowledge or health services research.

Study Indicator 3	**Describe the rationale for selection of the study indicator:**
Numerator: (no numeric value)	
Denominator: (no numeric value)	
Baseline Measurement Period	
Baseline Goal	
Remeasurement 1 Period	
Remeasurement 2 Period	
Benchmark	
Source of Benchmark	

Use this area to provide additional information. Discuss the guidelines used and the basis for each study indicator.

Although Study Indicator 2 held promise as a measure for understanding effects of project strategies to improve crisis care there were several problems with the indicator. More specifically, as HSAG pointed out, indicator criteria should include only clients with a outpatient visit before the ED visit and the percent of clients with one or more outpatient visits that had an ED visit was already very low, limiting opportunity for improvement with this indicator. Further discussion with HSAG helped to formulate questions regarding Indicator 2 and treatment strategies for reducing ED visit rates, which, if explored descriptively might lead to fine tuning the treatment interventions. A major question had to do with the timing of an outpatient intervention and whether or not an outpatient visit within, for example, 30 days of an emergency visit, if the outpatient intervention was more focused on teaching families to manage crisis, could lead to reducing ED utilization.

C. Activity III: Select the study indicator(s). A study indicator is a quantitative or qualitative characteristic or variable that reflects a discrete event (e.g., an older adult has not received an influenza vaccination in the last 12 months) or a status (e.g., a consumer's blood pressure is/is not below a specified level) that is to be measured. The selected indicators should track performance or improvement over time. The indicators should be objective, clearly and unambiguously defined, and based on current clinical knowledge or health services research.
In consultation with HSAG the decision was made to eliminate Indicator #2, given the fact that Indicator #1 was the key focus, and through specific data analysis, begin to explore the relationship between length of time of an outpatient visit before an ED visit and whether, through this analysis, patterns can be established. This analysis will be described in a revised data analysis plan – see "Attachment 5 – Data Analysis Plan revised ED Visit PIP **(2)**.doc" and pg A-19 Activity VIIIa. Data Analysis – Baseline, as well as pg A-22 Activity VIIIb. Interpretation of Results- baseline.

D. Activity IV: Use a representative and generalizable study population. The selected topic should represent the entire eligible population of Medicaid consumers, with systemwide measurement and improvement efforts to which the study indicators apply. Once the population is identified, a decision must be made whether or not to review data for the entire population or a sample of that population. The length of a consumer's enrollment needs to be defined to meet the study population criteria.
Study population: For study indicator 1 - the study population includes all Members between the age of 0 through 17 years, as of the last day of the study period, that were Medicaid eligible during the study period. The study population is calculated by HCPF, which doesn't require continuous enrollment, as it is determined using member months (See highlighted area of Attachment 3 – Penetration Rate Methodology.doc for calculation method).

Appendix A: Colorado FY 2011–2012 PIP Summary Form: Reducing ED Utilization for Youth *for* Foothills Behavioral Health Partners

E. Activity V: Use sound sampling techniques. If sampling is used to select consumers of the study, proper sampling techniques are necessary to provide valid and reliable information on the quality of care provided. The true prevalence or incidence rate for the event in the population may not be known the first time a topic is studied.

Measure	Sample Error and Confidence Level	Sample Size	Population	Method for Determining Size (*describe*)	Sampling Method (*describe*)
n/a – sampling not used					

Appendix A: Colorado FY 2011–2012 PIP Summary Form: Reducing ED Utilization for Youth *for* Foothills Behavioral Health Partners

F. Activity VIa: Reliably collect data. Data collection must ensure that data collected on study indicators are valid and reliable. Validity is an indication of the accuracy of the information obtained. Reliability is an indication of the repeatability or reproducibility of a measurement.

Data Sources

[ ] Hybrid (medical/treatment records and administrative)

[ ] Medical/Treatment Record Abstraction

Record Type

[ ] Outpatient
[ ] Inpatient
[ ] Other _____

Other Requirements

[ ] Data collection tool attached
[ ] Data collection instructions attached
[ ] Summary of data collection training attached
[ ] IRR process and results attached

[ ] Other Data

Description of data collection staff (include training, experience, and qualifications):

[x] Administrative Data

Data Source

[x] Programmed pull from claims/encounters (**see Attachment 4 FBHP_CO2009-10_BHO_PMV_Report_F1.pdf for validation of data source for re-measurement 1 FY '09 indicator 1)**

[ ] Complaint/appeal
[ ] Pharmacy data
[ ] Telephone service data/call center data
[ ] Appointment/access data
[ ] Delegated entity/vendor data _____
[ ] Other _____

Other Requirements

[x] Data completeness assessment attached (see activity VI.c.)
[x] Coding verification process attached (see Attachment 4 **FBHP_CO2009-10_BHO_PMV_Report_F1.pdf pg 6 for validation of code for Indicator 1 baseline)**

[ ] Survey Data

Fielding Method

[ ] Personal interview
[ ] Mail
[ ] Phone with CATI script
[ ] Phone with IVR
[ ] Internet
[ ] Other _____

Appendix A: Colorado FY 2011–2012 PIP Summary Form: Reducing ED Utilization for Youth *for* Foothills Behavioral Health Partners

F. Activity VIa: Reliably collect data. Data collection must ensure that data collected on study indicators are valid and reliable. Validity is an indication of the accuracy of the information obtained. Reliability is an indication of the repeatability or reproducibility of a measurement.	
	Other Requirements [ ] Number of waves _____ [ ] Response rate _____ [ ] Incentives used _____
F. Activity VIb: Determine the data collection cycle.	**Determine the data analysis cycle.**
[x] Once a year [ ] Twice a year [ ] Once a season [ ] Once a quarter [ ] Once a month [ ] Once a week [ ] Once a day [ ] Continuous [ ] Other (list and describe):	[x] Once a year (see Attachment 5 Data Analysis Plan ED Visit revised PIP (2).doc) [ ] Once a season [ ] Once a quarter [ ] Once a month [ ] Continuous [ ] Other (list and describe):

F. Activity VIc: Data analysis plan and other pertinent methodological features.

Estimated degree of administrative data completeness: ____99.5%__ percent.

Describe the process used to determine data completeness and accuracy: FBH's (now FBHPartners) encounter claim file submitted to the Department is the source file for indicator #1. The encounter claim file may not be 100% complete due to delays in provider encounter/claim submission, errors in determination of eligibility, and errors in the file production. Methods for ensuring completeness include a required monthly submission date for MHC encounters, which is monitored; required electronic MHC provider encounter entry at time of services; a quarterly encounter record audit with reporting to providers regarding errors; and an encounter/claim file validation process conducted by the FBH/FBHP data analyst to assess completeness and file accuracy. This validation process includes verification of number of Medicaid encounter s loaded from the two MHCs and claims from providers and number actually submitted in the file. FBH/FBHPartners ASO (formerly InNET Inc. and, as of 7/1/09 ValueOptions) checks eligibility on all encounters submitted from the MHCs, including those that are not identified as Medicaid eligible. If the Member is found eligible the encounter is included in the file.

Supporting documentation: See example of data validation reports (**Attachment 1 FY 09-10 BHO-HCPF Annual Performance Measures Scope Document.docx)**, **updated for FY '10: example of quarterly encounter record audit report (Attachment 6 FBHEncounter Audit report qtr 1 fy'10 final.doc) and example file reconciliation report (Attachment7_FBHP encounter file monitor report FY10Q4 final.docx)**

Appendix A: Colorado FY 2011–2012 PIP Summary Form: Reducing ED Utilization for Youth *for* Foothills Behavioral Health Partners

G. Activity VIIa: Implement intervention and improvement strategies (interventions for improvement as a result of analysis). List chronologically the interventions that have had the most impact on improving the measure. Describe only the interventions and provide quantitative details whenever possible (e.g., "Hired four customer service representatives" as opposed to "Hired customer service representatives"). Do not include intervention planning activities.

Date Implemented (MMYY)	Check if Ongoing	Interventions	Barriers That Interventions Address
0109	x	Develop and distribute an information flyer to Members annually and new Members monthly on procedures for accessing emergency services through FBHPartners' partner MHC (see examples Attachment 8 & 9)	Members lack of information about how to obtain mental health services in an emergency, outside of a hospital emergency room.
0109	Revised – see procedures on 6/09	Jefferson Center implemented procedure for youth clinicians to have parents develop a written crisis plan to use at home; training for youth clinicians to teach families about crisis service availability	Families/youth lack of planning regarding potential crisis and seeing few options other than to go to the hospital emergency room; also clients not realizing crisis service availability
0109	x	MHCBBC crisis staff implemented follow-up procedures with youth with an ED visit	Hospital EDs do not consistently contact the MHC when a member comes to the ED or may not refer to the MHC after the ED visit
06/09 **10/09 MHCBBC** **1/10 JCMH**	x	Jefferson Center and MHCBBC implemented standard crisis plan form to be used by youth clinician with families and placed in the medical record/copy given to family. Integrated in EMR **10/09 for MHCBBC and 1/10 JCMH** – (see example-Attachment 10).	Crisis plan, without standard format, may not include all needed elements and form allows clinician to add to the medical record for emergency staff reference
06/09	x	Jefferson Center and MHCBBC implemented emergency flyer for clients and posting (JCMH example Attachment 11)	Clients may not have information about how to use MHC emergency staff rather than going to the ED
06/09	x	Develop and implement a TIPs sheet for families on how to prevent problems with youth turning into emergencies (MHCBBC example Attachment 12)	Assist families in being more proactive so that crises do not become emergencies

Appendix A: Colorado FY 2011–2012 PIP Summary Form: Reducing ED Utilization for Youth *for* Foothills Behavioral Health Partners

G. Activity VIIa: Implement intervention and improvement strategies (interventions for improvement as a result of analysis). List chronologically the interventions that have had the most impact on improving the measure. Describe only the interventions and provide quantitative details whenever possible (e.g., "Hired four customer service representatives" as opposed to "Hired customer service representatives"). Do not include intervention planning activities.

Date Implemented (MMYY)	Check if Ongoing	Interventions	Barriers That Interventions Address
06/09 **10/10 tracking method implemented**	x	JCMH implemented survey and phone call from clinician the day after a family/youth goes to the hospital ED (Attachment 13). **Implemented tracking method for this follow-up at JCMH 10/10**	Hospital EDs do not consistently contact the MHC after the client comes to the ED – clinician not consistently contacting clients who use the ED to ensure timely follow-up

Describe the process used for the causal/barrier analyses that led to the development of the interventions: A cause and effect diagram was used by the project teams to determine what may lead families to use the hospital ED for crisis assistance. Root causes included: families/Members not knowing how to access MHC emergency services; clinicians not working with families on planning for a crisis; families not having information on how to prevent emergency/crisis; lack of follow-up by clinician when family uses the hospital ED

G. Activity VIIb: Implement intervention and improvement strategies. Real, sustained improvements in care result from a continuous cycle of measuring and analyzing performance, as well as, developing and implementing systemwide improvements in care. Describe interventions designed to change behavior at an institutional, practitioner, or consumer level.

Describe interventions:

Baseline to Remeasurement 1:

1. Developed and distributed informational flyer to Members annually and new Members monthly in mailings (Attachment 8 & 9). Implemented and standardized early in FY '09
2. Establish procedures for youth clinicians to develop a crisis plan with families (Jefferson Center). Although implemented early in FY '09 audits of medical records, of youth with ED visits July 1, 2008 through Dec 31st, 2008, showed little documentation of completing a crisis plan. Problem was there was no standard form to use that was integrated in the EMR. Began developing standard crisis form to be integrated into EMR by end of FY '09
3. MHCBBC implemented follow-up by emergency team staff of youth with ED visit Standardized early on. Plan to establish procedures to have regular clinician to follow-up and track follow-up in FY '10
4. Design and implement standard crisis plan form to be used by youth clinician with families – to be integrated into the MHC EMR (see example Attachment 10). Completed late in FY '09 – plan to standardize and monitor in FY '10
5. Design and implement emergency flyer for clients at intake and for posting (Attachment 11 example). Became part of intake packet for families last quarter of FY '09 and to be ongoing.
6. Developed and implemented TIPs sheet for families on how to prevent problems with youth becoming emergencies/crises (Attachment 12). Became part of intake packet at Jefferson Center last quarter of FY '09 and to be ongoing. Plan to implement at MHCBBC in FY '10
7. Implement clinician survey to standardize follow-up of families within one business day after the ED visit – Jefferson Center (Attachment 13). Began last quarter of FY '09 for Jefferson Center – set up monitoring procedure as surveys to be sent to QI Departement at Jefferson Center.

Remeasurement 1 to Remeasurement 2:

1. **Continued information flyer on how to access crisis outpatient services monthly and annually – on going procedure (Attachment 8 &9)**
2. **Standard Crisis plan with families continues to be used and implemented as part of MHC EMR in first half of FY '10 – on going procedure (Attachment 10)**
3. **Two methods established for follow-up of clients with ED visits. At MHCBBC the Child Crisis Team will do follow-up and ensure**

G. Activity VIIb: Implement intervention and improvement strategies. Real, sustained improvements in care result from a continuous cycle of measuring and analyzing performance, as well as, developing and implementing systemwide improvements in care. Describe interventions designed to change behavior at an institutional, practitioner, or consumer level.

follow-up with MHC clinician. At JCMH the clinician is notified 24 hrs after ED Visit and clinician contacts client/client's family and reviews survey questions (Attachment 13). Both procedures standardized in FY '10

4. **Emergency flyer developed and part of intake packet at both MHCs (Attachment 11).**
5. **Tips sheet for families – part of intake packet at JCMH but not at MHCBBC (Attachment 12)**

Remeasurement 2 to Remeasurement 3:

H. Activity VIIIa: Analyze data. Describe the data analysis process done in accordance with the data analysis plan and any ad hoc analyses (e.g., data mining) done on the selected clinical or nonclinical study indicators. Include the statistical analysis techniques used and *p* values.

Describe the data analysis process (include the data analysis plan): see Attachment 5 data Analysis Plan ED visit PIP.doc

Baseline Measurement: Indicator 1: Baseline data denominator provided by the Department, which includes eligible Members age 0 through 17 for fiscal year '08 (see highlighted section Attachment 3 – Penetration Rate Methodology.doc for Department procedures). Numerator calculated by FBH/FBHP's ASO (for baseline FY '08 InNET, Inc (see Attachment 4 FBH_CO2007-8_BHO_PMV_Report_F1(1).pdf for validation of code used. Numerator includes number of ED visits for a covered diagnosis for the study population. Numerator is divided by the denominator and multiplied x 1,000 to obtain the FBH/FBHPartners ED visit rates/1,000 youth members. Overall baseline BHO ED rate/1,000, in the benchmark, is calculated by the Department

Additional or adhoc analysis was conducted to assess timing of an outpatient intervention and the relationship between the presence of an ED visit and length of time before the ED visit an outpatient visit occurred (see Attachment 5 – Data Analysis Plan revised ED visit PIP. Doc.

Baseline to Remeasurement 1: see Attachment 5 Data analysis Plan revised ED Visit PIP (2).doc

Indicator 1: Re-measurement 1 youth ED visit rate for FY '09 study period was calculated according to steps 1-3 in Attachment 5 Data analysis plan (Attachment 5 Data analysis Plan revised ED Visit PIP (2)). The Pearson chi-square test was used to determine if there was a significant change, at $p \leq .05$, in proportion of ED visits to the study population from baseline to re-measurement 1. Additional subgroup analyses was conducted on indicator #1 to provide detailed information of any change in ED visit rates (see step 6a and 6b in attachment 5 Data Analysis Plan), also using the Pearson chi-square test to determine if there is a significant change, at p<=.05, in proportion of ED visits in these subgroups, from baseline to re-measurement 1.

Additional ad hoc or exploratory analysis was conducted to determine type of behavioral health services, if any, the youth received within 7, 30, and more than 30 days (up to 180 days) prior to the day of the ED visit, proportion of visits without a behavioral health contact prior to the ED visit, and proportion of unduplicated youth clients with more than one ED visit (see Attachment 5 Data analysis plan "Ad Hoc Analysis" step 1 - 3). In addition, the Pearson chi square test, with p<=.05, was conducted to evaluate whether differences in proportion of ED visits without a behavioral health visit, between baseline and re-measurement 1 was significant, as well as the difference in proportion of clients with more than one ED visit between the study periods.

Remeasurement 1 to Remeasurement 2: see Attachment 5 Data analysis Plan revised ED Visit PIP (2). doc

Indicator 1: Re-measurement 2 youth ED visit rate for FY '10 study period was calculated according to steps 1-3 in Attachment 5 Data analysis plan (Attachment 5 Data analysis Plan revised ED Visit PIP (2)). The Pearson chi-square test was used to determine if there was a significant change, at $p \leq .05$, in proportion of ED visits to the study population from re-measurement 1 to re-measurement 2.

H. Activity VIIIa: Analyze data. Describe the data analysis process done in accordance with the data analysis plan and any ad hoc analyses (e.g., data mining) done on the selected clinical or nonclinical study indicators. Include the statistical analysis techniques used and *p* values.
Additional subgroup analyses was conducted on indicator #1 to provide detailed information of any change in ED visit rates (see step 6a and 6b in attachment 5 Data Analysis Plan), also using the Pearson chi-square test to determine if there is a significant change, at p<=.05, in proportion of ED visits in these subgroups, from re-measurement 1 to re-measurement 2. **Additional ad hoc or exploratory analysis was conducted to determine type of behavioral health services, if any, the youth received within 7, 30, and more than 30 days (up to 180 days) prior to the day of the ED visit, proportion of visits without a behavioral health contact prior to the ED visit, and proportion of unduplicated youth clients with more than one ED visit (see Attachment 5 Data analysis plan "Ad Hoc Analysis" step 1 - 3). In addition, the Pearson chi square test, with p<=.05, was conducted to evaluate whether differences in proportion of ED visits without a behavioral health visit, between re-measurement 1 and re-measurement 2 was significant, as well as the difference in proportion of clients with more than one ED visit between the study periods.** **Remeasurement 2 to Remeasurement 3:**

H. Activity VIIIb: Interpret study results. Describe the results of the statistical analysis, interpret the findings, and compare and discuss results/changes from measurement period to measurement period. Discuss the successfulness of the study and indicate follow-up activities. Identify any factors that could influence the measurement or validity of the findings.

Interpretation of study results (address factors that threaten the internal or external validity of the findings for each measurement period):

Baseline Measurement: Study Indicator 1: FBH baseline was .00648 or 6.48 ED visits/1,000 youth members age 0 through 17 years. The overall BHO result was .00471 or 4.71 ED visits/1,000 youth members age 0 through 17 years. A weighted average and standard deviation for the weighted average were not provided by the Department for the combined youth groups (0-17 years) but were provided for the 0-12 and 13-17 youth groups. For the youth group, age 0-12, FBH ED visit rate/1,000 was 2.59, which was more than three standard deviations above the overall weighted average of 2.11. FBH ED visit rate/1,000 for the age group 13-17, was 24.46, which was also more than three standard deviations above the overall BHO weighted average of 16.83. Because this was a baseline measure there are, as yet, no findings related to the study question and therefore discussion as to internal or external validity of study findings is premature. At the same time there are always some problems with accuracy of a measure, even when the procedures for producing the encounter/claim files were validated and the code used to determine ED visits was also validated. For example, issues with completeness of claims for study period ED visits, may be an issue, given the delay in ED visit claim submission. In addition, there may be inaccuracies in the submitted claim, including whether or not the diagnosis was truly a covered mental health diagnosis.

Additional or adhoc analysis conducted on the relationship between the timing of the outpatient visit before an ED visit indicated that for 42.5% of ED visits there was no outpatient visit within 6 months of the visit. Of the remaining 96 ED visits, more than half (52.1%) had a face-to-face outpatient visit within 7 days before the ED visit and more than three fourths (78.1%) were within 30 days before the ED visit. The most common outpatient visit, 7 days prior to the ED visit was medication management (22.9%); the next most common was individual therapy (18.8%) and family therapy (15.6%). Clearly there is opportunity to intervene with youth and families, although a medication management service, with a prescriber, has not been a focus of the project's strategies. If this is identified in future analysis as a large percent of contacts, efforts may need to be implemented to incorporate prescribers into the crisis prevention efforts. Trends regarding percent with an outpatient visit before the ED visit, including type of service provided will be conducted with future re-measurement.

Baseline to Remeasurement 1:

Analysis of the change in ED visit rate indicated a significant decrease in youth ED visit rates from baseline, at 6.48/1,000 members, to re-measurement 1, at 4.84/1,000 members, x^2=6.48, p=0.0114 (see Attachment 2 Table with results.doc for a table of results and Activity IX). These results suggest that study strategies may have led to a decrease in ED visit rates and that the baseline goal of a "statistically significant reduction, at p=.05, in the baseline youth ED visit rate of 6.48 per 1,000 members was met. The probability of this decrease by chance was 1.14 in 100, which indicates it is unlikely this difference in rates was caused by chance – that something occurred to make this change – possibly through study initiatives. This does not necessarily mean that the change was directly related to the study strategies, which has to do with the internal validity of

H. Activity VIIIb: Interpret study results. Describe the results of the statistical analysis, interpret the findings, and compare and discuss results/changes from measurement period to measurement period. Discuss the successfulness of the study and indicate follow-up activities. Identify any factors that could influence the measurement or validity of the findings.

the study (see comments below onthreats to internal validity).

Results of the analysis, for the youth subgroup of children, age 0-12) indicates an ED visit rate decrease from 2.59/1,000 members to 1.74/1,000. Although non-significant the decrease came very close, x^2=3.71, p=0.054. The adolescent subgroup analysis indicated an ED visit rate decrease from 24.46/1,000 to 18.82/1,000, although non-significant, with a x^2=3.495, p=0.062, the adolescent subgroup showed the largest decrease in rates. The subgroup analysis significance testing, when subdivided, because of the decrease in study population size (for the adolescent group) and effect size (child group) resulted in a subsequent loss in power and a chi-square test result that was lower than when both subgroups were combined and tested.

Threats to external and internal validity: Threats to the internal validity of this study include "history," or events which take place between measurement periods, e.g. MHC changes in procedures, that the study team did not know about, regarding referral to the hospital emergency dept between the two fiscal years; "maturation," changes in the youth, particularly given the study sample between study periods includes a number of the same youth; and "selection" just in terms of a difference in youth membership or study population from one fiscal year to another, which also interacts with differences in maturation and history of the two study populations. Regarding the threat of selection, with an increase of almost 9% in the youth membership from FY '08 to FY '09, the new youth membership may not have the same severity of behavioral health issues and may, because of this, use emergency services less often – or the opposite might happen. This particular threat, that is, differences in illness severity, could have a major impact on the study's internal validity. Without a control group and random assignment it is difficult to address these types of internal validity threats, although efforts at identifying more specifically what these threats might be, e.g. an organizational survey to identify MHC policy changes in ED utilization or further analysis of growth in specific eligibility membership categories could help determine the extent of the threats.

Because a sample was not used there are no major threats to external validity specific to the study population but because the setting in which the treatment strategies were implemented, that is, in community mental health setting, treatment settings that are organized differently that a mental health center, e.g. in private practices may not be able to generalize these findings to their setting. A resolution to expand on settings, e.g. to work with the external provider network providers to test some of the strategies. Once the 2nd re-measurement is completed a project plan is to implement the crisis planning form and procedure with high-volume external providers of services for youth.

Factors affecting the ability to compare between measurement periods: One of the key issues affecting comparison across measurement periods have to do with changes in youth membership, which grew almost 9% from FY '08 to FY '09 and is projected to increase even more for the 2nd re-measurement period, FY '10. This issue goes to the issue of study internal validity and further explored in the next study submission (see discussion under internal validity above). Another issue affecting comparability in the future (for the 2nd re-measurement) may have to do with the delegation, beginning with FY '10, of FBHP utilization management functions to ValueOptions and possible changes in procedures regarding ED claims processing and review, e.g. differences in monitoring and appropriate denial of ED claims. This will be reviewed in more detail in the next submission.

H. Activity VIIIb: Interpret study results. Describe the results of the statistical analysis, interpret the findings, and compare and discuss results/changes from measurement period to measurement period. Discuss the successfulness of the study and indicate follow-up activities. Identify any factors that could influence the measurement or validity of the findings.

Adhoc Analysis: Additional or adhoc analysis conducted on the relationship between the timing and type of outpatient visit before the ED visit indicated that for 50 (36.8%) ED visits there was no outpatient visit within six months of the ED visit, a non-significant decrease in from the baseline, at 41.9% (n=167)**,** x^2= .832, p=0.362. Although non-significant, this decrease may suggest strategies to inform member families about how to access outpatient crisis behavioral health services may have improved access to outpatient service for youth members.

Of those visits with an outpatient contact prior to the ED visit (n=87), about half (47.7%) had an outpatient visit within seven days, which was similar to the percent reported in FY '08, and two-thirds (69.8%) had an outpatient visit within 30 days. Of the ED visits with an outpatient visit seven days prior to the ED visit (n=41), the most common services received included one or more individual or family psychotherapy service (51.2%), case management service (36.6%) and psychiatric evaluation or medication management service (19.5%). In addition, six youth (14.6%) were engaged in an intensive day treatment program. The type of service received helped identify an "at risk" group of youth, those receiving day treatment services.

Last, the proportion of unduplicated youth with more than one ED visit was calculated, indicating that, for re-measurement 1, the proportion was 12.4% (n=121), which was a decrease from baseline, at 16.8% (n=143) but non-significant, x^2=1.002 p=0.317. These findings, although non-significant, provided some beginning support for specific study strategies to reduce duplicate youth ED visits and helped identify or target another at risk youth group, youth who have a history of ED visits.

Study Success: As there was a significant reduction in youth ED rates from baseline to re-measurement 1, strategies implemented through FY '09 (1st re-measurement period), appear to be successful, without taking into account internal validity threats, in reducing youth ED visits. And, although not significant at p<=.05, there was a reduction in both youth age groups' ED visits, when analyzed separately. Beyond reducing the rates of ED visits for youth, there were other successes from this study. For example, the adhoc analysis suggested that youth members seem to be less likely to use the ED as an initial behavioral health visit, perhaps due to the study strategy of distributing routine flyers to members on how to use the partner MHC crisis outpatient services. Also, as suggesting in other adhoc analyses, study strategies targeting youth with an ED visit, may be reducing multiple ED visits for specific youth. One study strategy, provider follow-up of youth with an ED visit within one business day, met with positive feedback from providers, as their follow-led to improved treatment for these families/youth. Study follow-up activities include the addition of the crisis plan to the partner MHC's EMR, so that the plan can be easily revised and printed out for family use. To date the form was added to the EMR (early FY '10). In addition, a second mailing of the flyer to all members will be completed in FY '10. Last, developing, from the data, specific "at risk" families/youth that will have a set protocol, that includes the crisis plan completion and regular revision, distribution of the "TIPs and emergency flyer, and routine follow-up after an ED visit.

Remeasurement 1 to Remeasurement 2:

Analysis of the change in ED visit rate indicated a non-significant decrease in youth ED visit rates from re-measurement 1, at 4.84/1,000 members, to re-measurement 2, at 3.87/1,000 members, x^2=3.357, p=0.067 (see Attachment 2 Table with results revised.doc for a table of

H. Activity VIIIb: Interpret study results. Describe the results of the statistical analysis, interpret the findings, and compare and discuss results/changes from measurement period to measurement period. Discuss the successfulness of the study and indicate follow-up activities. Identify any factors that could influence the measurement or validity of the findings.

results and Activity IX). Although the re-measurement 1 goal was not met results were close. In addition, analysis of the change in ED visit rates from baseline to re-measurement 2, indicated a significant decrease in youth ED visit rates, $x^2 = 19.694$, $p<.0001$. These results suggest that study strategies may have led to a sustained decrease, although non-significant, in ED visit rates from re-measurement 1 to re-measurement 2 and that the re-measurement 1 goal of a "statistically significant reduction, at p=.05, in the re-measurement 1 youth ED visit rate of 4.84 per 1,000 members, although not met was close.

Because the probability of this decrease by chance, between re-measurement 1 and re-measurement 2, was 6.7 in 100, there is inadequate evidence to reject the null hypothesis that this difference in rates was caused by chance and that something occurred to make this change – possibly through study initiatives. This does not necessarily mean that the decrease in ED visit rates wasn't related to the study strategies, but, with a p=.05 criterion, it is more likely due to chance.

Results of the analysis, for the youth subgroup of children, age 0-12, indicates a non-significant decrease in ED visit rates, from re-measurement 1, at 1.74/1,000 members to re-measurement 2, at 1.49/1,000, x^2=.0.500, p=0.4795. The adolescent subgroup analysis indicated a larger but non-significant ED visit rate decrease, from 18.82/1,000 to 14.66/1,000, x^2=2.92, p=0.088. The subgroup analysis significance testing, when subdivided, because of the decrease in study population size (for the adolescent group) and effect size (child group) resulted in a subsequent loss in power and a chi-square test result that was lower than when both subgroups were combined and tested.

<u>Threats to external and internal validity:</u> Threats to the internal validity of this study, particularly if looking at the decrease in rates between baseline and re-measurement 2, include "history," or events which take place between measurement periods; e.g. elimination of a hospital ED; "maturation" changes in the youth, particularly given the sample between study periods includes a number of the same youth; and "selection" or difference in youth membership or study population from one measurement period to another, e.g. an increase in membership proportion of specific eligibility categories that may not utilize emergency services as much as another category or vice versa. "Selection" may also interact with maturation and history of the two populations. The "selection" threat, that is, differences in illness severity, in the study population, could have a major impact on the study's internal validity. Without a control group and random assignment it is difficult to address these types of internal validity threats, although further analysis of growth in specific eligibility categories could help determine the extent of the threat.

Because a sample was not used there are no major threats to external validity, specific to the study population, other than the population includes youth from a lower socioeconomic level and a large proportion in foster care and might not be generalizable to a higher socioeconomic level. Also the setting in which the treatment strategies were implemented, in community mental health centers, may be a larger threat to external validity, where services are organized differently than in private practices, generalization to these sites may be limited. As mentioned in the first re-measurement year, the plan is to work with the external provider network to test some of the

H. Activity VIIIb: Interpret study results. Describe the results of the statistical analysis, interpret the findings, and compare and discuss results/changes from measurement period to measurement period. Discuss the successfulness of the study and indicate follow-up activities. Identify any factors that could influence the measurement or validity of the findings.

strategies, e.g. the crisis planning form.

<u>Factors affecting the ability to compare between measurement periods:</u> As mentioned under interval validity threats, a key issue affecting comparison across measurement periods has to do with changes in youth membership, which grew almost 9% from FY '08 to FY '09 and from FY '09 to FY '10 (2nd re-measurement period) approximately 16.5%. The membership growth was primarily in the income eligibility category, which increased 18%. Because youth within the income eligibility group tend to have less significant behavioral health problems compared to the foster care eligibility group, which actually decreased in membership between FY '09 and end of FY '10, comparison between measurement periods may be a problem. Another issue affecting comparability between re-measurement 1 and re-measurement 2 is that there was a change in FBHP utilization management functions to ValueOptions between FY '09 and FY '10. There was a change in procedures in monitoring ED visit payment for inappropriate diagnoses, from July through Dec, 2009, of ED visit claims, which may have increased rates slightly in the first half of FY '10. The procedures were revised in late Dec to be similar to those used in FY '09.

<u>Adhoc Analysis:</u> Additional or adhoc analysis, conducted on the relationship between the timing and type of outpatient visit before the ED visit, indicated that for re-measurement 2, 36 (28.3%) of the ED visits had no outpatient visit within 6 months of the ED visit, which was a significant decrease, at p=.05, from the baseline, which was at 41.9% (n=167), x^2 =5.762, p=0.016. This may suggest that over the two year period strategies to inform member families about how to access outpatient crisis behavioral health services may have improved access to outpatient services for youth members. The difference between re-measurement 1 and re-measurement 2, in percent of youth without a behavioral health visit 6 months prior to the ED visit decreased but was non-significant at the p=.05 criterion. The decrease was from 36.8% to 28.3%.

Of those visits with an outpatient contact prior to the ED visit (n=91), about half (46.2%) had an outpatient visit within seven days and about two-thirds (60.4%) had an outpatient contact within 30 days of the ED visit. The percent with a contact within seven days is similar to the percent reported in the baseline and the re-measurement 1 study period. The most common types of outpatient visit, seven days prior to the ED visit, were similar to what was reported in FY '09, including individual or family psychotherapy and case management service. None of the youth were involved in an intensive day treatment program.

Last, the proportion of unduplicated youth with more than one ED visit was calculated, indicating that, for re-measurement 2, the proportion was 10.5% (n=105). This was a non-significant decrease, at p=.05,from re-measurement 1. These findings, although non-

H. Activity VIIIb: Interpret study results. Describe the results of the statistical analysis, interpret the findings, and compare and discuss results/changes from measurement period to measurement period. Discuss the successfulness of the study and indicate follow-up activities. Identify any factors that could influence the measurement or validity of the findings.
significant, provide continuing support for specific study strategies to reduce duplicate youth ED visits and helped identify or target another at risk youth group, youth who have a history of ED visits. **<u>Study Success:</u> Although non-significant there was a decrease in ED Visit rates for re-measurement 1 to re-measurement 2, suggesting that study strategies are continuing to reduce ED Visits for youth, in particular for adolescents. Additional successes, beyond improving the single study indicator are suggested by the ad hoc analyses, with youth members seeming to be less likely to use the ED as an initial behavioral health visit, perhaps related to implementation of flyers to members on how to use MHC crisis services, as well as less likely to have more than one ED visit in a study period, possibly related to aggressive follow-up of ED visits the next day. The two MHCs have added the crisis planning form to the EMR, so that the plan can be easily revised and printed out for family use. Last, protocol developed for youth, in reducing ED visits, can be easily generalized to the adult population and provides a standard practice set for prevention of ED visits.** **Remeasurement 2 to Remeasurement 3:**

Appendix A: Colorado FY 2011–2012 PIP Summary Form: Reducing ED Utilization for Youth *for* Foothills Behavioral Health Partners

I. Activity IX: Assess for real improvement. Enter results for each study indicator, including benchmarks and statistical testing with complete *p* values, and statistical significance.

Quantifiable Measure 1: Enter title of study indicator Youth ED visit rates for a covered mental health diagnosis, which do not result in a hospitalization

Time Period Measurement Covers	Baseline Project Indicator Measurement	Numerator	Denominator	Rate or Results	Industry Benchmark	Statistical Test Significance and *p* value
July 1, 2007-June 30, 2008	***Baseline:***	167	25787	6.48 per 1,000	none	n/a
July 1, 2008 – June 30, 2009	**Remeasurement 1**	136	28075	4.84 per 1,000		x^2=6.40, *df*=1, p=0.0114
July 1, 2009 – June 30, 2010	**Remeasurement 2**	**127**	**32836**	**3.87 per 1,000**		**X^2 =3.357, *df*=1, p=.0672 (re-measurement 1 to re-measurement 2)**
	Remeasurement 3					
	Remeasurement 4					
	Remeasurement 5					

Describe any demonstration of meaningful change in performance observed from baseline and each measurement period (e.g., Baseline to Remeasurement 1 and Remeasurement 1 to Remeasurement 2)

There was a non-significant decrease, using the p<=.05 criterion, in overall youth ED visit rates, from re-measurement 1, at 4.84 per 1,000 youth ED visits, to re-measurement 2, at 3.87 per 1,000 youth ED visits, as demonstrated by the chi-square statistic, 3.357, p=0.0672.

There was a significant decrease, using the p<=.05 criterion, in overall youth ED visit rates, from baseline, at 6.48 per 1,000 youth ED visits to re-measurement 2, at 3.87 per 1,000 youth ED visits, as demonstrated by the chi-square statistic, 19.694, p<.0001

Appendix A: Colorado FY 2011–2012 PIP Summary Form: Reducing ED Utilization for Youth *for* Foothills Behavioral Health Partners

I. Activity IX: Assess for real improvement. Enter results for each study indicator, including benchmarks and statistical testing with complete *p* values, and statistical significance.

Quantifiable Measure 2: Enter title of study indicator

Time Period Measurement Covers	Baseline Project Indicator Measurement	Numerator	Denominator	Rate or Results	Industry Benchmark	Statistical Test Significance and *p* value
	Baseline:					
	Remeasurement 1					
	Remeasurement 2					
	Remeasurement 3					
	Remeasurement 4					
	Remeasurement 5					

Describe any demonstration of meaningful change in performance observed from baseline and each measurement period (e.g., Baseline to Remeasurement 1 and Remeasurement 1 to Remeasurement 2)

Appendix A: Colorado FY 2011–2012 PIP Summary Form: Reducing ED Utilization for Youth *for* Foothills Behavioral Health Partners

J. Activity X: Assess for sustained improvement. Describe any demonstrated improvement through repeated measurements over comparable time periods. Discuss any random, year-to-year variations, population changes, sampling errors, or statistically significant declines that may have occurred during the remeasurement process.
Sustained improvement: **Study Indicator #1: Although not significant at the p<=.05, there was a demonstrated improvement in this study indicator from re-measurement 1 to re-measurement 2 and a significant improvement, at p<=.05, from baseline to re-measurement 1, indicating that over time there has been a sustained improvement in the ED visit rates/1,000 for youth 17 years and younger. There may be random variations in the data between the study periods, in, for example, the population demographic characteristics, such as proximity to an emergency room or the MHC office sites as well as ED visit claims lag. In addition, there were changes in the study population, in particular the growth in the AFDC-C eligibility group that may have affected results (see discussion in results on internal validity). In addition, ad hoc analyses supports sustained, but non-significant, at p<=.05, improvement in reducing percent of members with multiple ED visits and percent of ED visits, without a behavioral health visit prior. Both suggest specific care improvements for youth within the MHCs.**