# State of Colorado

## Department of Health Care Policy & Financing

# FY 06–07 PIP VALIDATION REPORT

## Follow-up After Inpatient Discharge

*for*

## Northeast Behavioral Health, LLC

## June 2007

**HSAG** HEALTH SERVICES ADVISORY GROUP

# CONTENTS

for **Northeast Behavioral Health, LLC**

## Overview

The Balanced Budget Act (BBA) of 1997 (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 consumers 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 an external quality review organization. The primary objective of the PIP validation is to determine the compliance with requirements set forth in 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 for increasing or sustaining improvement.

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, was used in the evaluation and validation of the PIPs.

## Summary of Study

The **Northeast Behavioral Health, LLC (NBH)** study evaluated the percentage of children and adults who received services in a residential setting or attended an in-person outpatient appointment within 7- and 30-days after a hospital discharge.

### Study Topic

The study addressed CMS' requirement related to quality and timeliness of care and services. The study topic looked at the interval of follow-up services provided after an inpatient discharge. **NBH** reviewed its follow-up data in two ways. Results were presented for (1) any follow-up services provided within the 7-day and 30-day time frames, which included consumers receiving outpatient services and those who were transferred to residential facilities, and (2) any follow-up outpatient services, which excluded consumers who were transferred to residential facilities; state hospitals;

other hospitals for medical, psychiatric, or substance abuse services; and detention. **NBH** reported that closely monitoring follow-up care after hospitalization is necessary because the population receiving these services is vulnerable to disruptions in functioning, recidivism, and changes in health status.

## Study Methodology

The study had two indicators. **NBH** used a combination of automated and manual data collection procedures to capture data on outpatient and residential follow-up services. Data was collected continually and analyzed twice per year. There was no sampling performed because the entire eligible population was used for this study.

## Study Results

From the second to the third remeasurement, there were statistically significant increases in the rates for 7-day outpatient follow-up and 7-day outpatient and residential follow-up, a decrease in the rate for 30-day outpatient follow-up, and a slight increase in the rate of 30-day outpatient and residential follow-up, although it was still below baseline. The only rate that had a statistically significant increase from baseline to the third remeasurement was 7-day outpatient follow-up; however, the follow-up rates in all four measurement categories remained above the benchmarks for all three measurement years.

## Scoring

HSAG validates a total of 10 activities for each PIP. The PIP is validated annually. The validation reflects activities that have been completed. A health plan (BHO) may take up to three years to complete all 10 activities. Each activity consists of elements necessary for the successful completion of a valid PIP. Evaluation elements are the key CMS protocol components for each activity that reflect the intent of what is being measured and evaluated. Some of the elements are critical elements and must be scored as *Met* to produce an accurate and reliable PIP. Given the importance of critical elements, any critical element that receives a *Not Met* score results in an overall PIP validation status of *Not Met*. If one or more critical elements are *Partially Met*, but none is *Not Met*, the PIP will be considered valid with low confidence. Revisions and resubmission of the PIP would be required.

## Summary of Validation Findings

◆ For this review, 10 activities with a total of 53 elements were validated. Of this number:

- 41 evaluation elements were *Met*.
- 4 evaluation elements were *Partially Met.*
- 0 evaluation elements were *Not Met*.
- 8 evaluation elements were *Not Applicable (N/A).*

◆ The total number of <u>critical elements</u> that were evaluated equaled 11. Of this number:

- 9 critical elements were *Met*.
- 0 critical elements were *Partially Met*
- 0 critical elements were *Not Met*.
- 2 critical elements were *N/A*.

The final validation finding for **NBH**'s PIP showed an overall score of 91 percent, a critical element score of 100 percent, and a *Met* validation status.

## Conclusions

For the FY 06–07 validation cycle, this study was reviewed through Activity X, Sustained Improvement Achieved. The study addressed quality and timeliness of follow-up care and services. **NBH** provided baseline and three remeasurements for this validation cycle. From the second to the third remeasurement, there was statistically significant improvement for the first time in the rates for 7-day outpatient and 7-day outpatient and residential follow-up. The follow-up rates in all four measurement categories remained above the benchmarks for this measurement period. HSAG recommended and the Department approved the retiring of this PIP from future submissions.

## Requirements

There were no requirements identified during this validation cycle.

## Recommendations

There were no recommendations identified during this validation cycle. The Department has approved the retirement of this PIP.

## Comparison of Years 1 through 3

For Year 1, Activity I, Appropriate Study Topic, through Activity IX, Real Improvement Achieved, were assessed. **NBH** had only collected baseline and part of the first remeasurement data, so the data could not be compared and real improvement could not be determined. For Year 2, Activity I

through Activity X, Sustained Improvement Achieved, were assessed; however, there was no demonstrated improvement in any of the follow-up rates. For Year 3, there was statistically significant improvement in both 7-day follow-up rates from the second to the third remeasurement. The only rate that had a statistically significant increase from baseline to the third remeasurement was for 7-day outpatient follow-up.

Validating PIPs involves a review of the following 10 activities:

- Activity I.          Appropriate Study Topic
- Activity II.         Clearly Defined, Answerable Study Question
- Activity III.        Clearly Defined Study Indicator(s)
- Activity IV.         Use a Representative and Generalizable Study Population
- Activity V.          Valid Sampling Techniques (If Sampling was Used)
- Activity VI.         Accurate/Complete Data Collection
- Activity VII.        Appropriate Improvement Strategies
- Activity VIII.       Sufficient Data Analysis and Interpretation
- Activity IX.         Real Improvement Achieved
- Activity X.          Sustained Improvement Achieved

All PIPs are scored as follows:

| | |
|---|---|
| *Met* | (1) All critical elements were *Met*, <br> **and** <br> (2) 80 percent to 100 percent of all critical and non-critical elements were *Met*. |
| *Partially Met* | (1) All critical elements were *Met,* and 60 percent to 79 percent of all critical and non-critical elements were *Met,* <br> **or** <br> (2) One critical element or more was *Partially Met*. |
| *Not Met* | (1) All critical elements were *Met*, and <60 percent of all critical and non-critical elements were *Met*, <br> **or** <br> (2) One critical element or more was *Not Met*. |
| *Not Applicable (N/A)* | *N/A* elements (including critical elements if they were not assessed) were removed from all scoring. |

For FY 06–07, the BHOs were provided an opportunity to resubmit additional information and/or documentation. The plans were required to take action for any evaluation element receiving a score of *Partially Met* or *Not Met*. The action could include resubmission of additional PIP documentation prior to final scoring. Future annual PIP submissions should include all information pertinent to the PIP study to achieve a *Met* status.

## PIP Scores

For this PIP, HSAG reviewed Activities I through X. Table 2-1 and Table 2-2 show **NBH**'s scores based on HSAG's PIP evaluation of *Follow-up After Inpatient Discharge*. Each activity has been reviewed and scored according to HSAG's validation methodology.

| Review Activity | Total Possible Evaluation Elements (Including Critical Elements) | Total Met | Total Partially Met | Total Not Met | Total N/A | Total Possible Critical Elements | Total Critical Elements Met | Total Critical Elements Partially Met | Total Critical Elements Not Met | Total Critical Elements N/A |
|---|---|---|---|---|---|---|---|---|---|---|
| **Table 2-1—FY 06-07 Performance Improvement Project Scores** *for* **Follow-up After Inpatient Discharge** *for* **Northeast Behavioral Health, LLC** | | | | | | | | | | |
| I. Appropriate Study Topic | 6 | 6 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| II. Clearly Defined, Answerable Study Question | 2 | 2 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| III. Clearly Defined Study Indicator(s) | 7 | 6 | 0 | 0 | 1 | 3 | 3 | 0 | 0 | 0 |
| IV. Use a Representative and Generalizable Study Population | 3 | 3 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 |
| V. Valid Sampling Techniques | 6 | 0 | 0 | 0 | 6 | 1 | 0 | 0 | 0 | 1 |
| VI. Accurate/Complete Data Collection | 11 | 11 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| VII. Appropriate Improvement Strategies | 4 | 4 | 0 | 0 | 0 | No Critical Elements | | | | |
| VIII. Sufficient Data Analysis and Interpretation | 9 | 8 | 0 | 0 | 1 | 2 | 1 | 0 | 0 | 1 |
| IX. Real Improvement Achieved | 4 | 1 | 3 | 0 | 0 | No Critical Elements | | | | |
| X. Sustained Improvement Achieved | 1 | 0 | 1 | 0 | 0 | No Critical Elements | | | | |
| **Totals for All Activities** | **53** | **41** | **4** | **0** | **8** | **11** | **9** | **0** | **0** | **2** |

| **Table 2-2—FY 06-07 Performance Improvement Project Overall Score** *for* **Follow-up After Inpatient Discharge** *for* **Northeast Behavioral Health, LLC** | |
|---|---|
| **Percentage Score of Evaluation Elements Met*** | **91%** |
| **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 valid.

## Validations and Findings Summary

This section summarizes the evaluation of the activities validated for the PIP. A description of the findings, strengths, requirements, and recommendations is outlined under each activity section. See Appendix B for a complete description of CMS rationale for each activity.

The validation was performed on a PIP submitted by **Northeast Behavioral Health, LLC**, **(NBH)**. The PIP evaluated quality and timeliness of care and services. **NBH** used two study indicators to collect the data and assess the outcomes for this study. The study indicators measured children and adults receiving services in a residential setting or through an outpatient appointment with 7- and 30-days after hospital discharge. **NBH** completed ten activities for this validation cycle.

### *Activity I. Appropriate Study Topic*

#### Study Topic

**NBH** continued the topic of follow-up after inpatient discharge for its FY 06–07 PIP.

#### Finding(s)

Six of the six evaluations elements, including one critical element, were *Met* for this activity.

#### Strength(s)

The study topic assessed whether **NBH** consumers were receiving timely follow-up residential or face-to-face outpatient services after an inpatient stay. This study topic reflected a high-risk population and had the potential to affect the consumer's health and functional status.

#### Requirement(s) (for Critical Elements)

There were no requirements identified for this activity during this review.

#### Recommendation(s) (for Noncritical Elements)

There were no recommendations identified for this activity during this review.

## Activity II. Clearly Defined, Answerable Study Question

### Study Question(s)

**NBH**'s study question, as stated in its PIP Summary Form, was:

"Will increased planning and attention to the importance of follow-up after inpatient discharge improve the rate of consumers receiving follow-up services?"

### Finding(s)

Both evaluation elements for this activity were *Met*, including one critical element.

### Strength(s)

The study question stated the problem to be studied in simple terms and maintained the focus of the study, which was to increase the rate of consumers receiving follow-up services within 7- and 30-days after hospital discharge.

### Requirement(s) (for Critical Elements)

There were no requirements identified for this activity during this review.

### Recommendation(s) (for Noncritical Elements)

There were no recommendations identified for this activity during this review.

## Activity III. Clearly Defined Study Indicator(s)

### Study Indicator(s)

**NBH** had two study indicators, as stated in its PIP Summary Form, that had an A and B numerator and denominator:

- "Indicator 1: the percentage of children and adults receiving services in a residential setting or through an outpatient appointment within seven days after hospital discharge.
- Indicator 1A: the number of face-to-face contacts within residential or outpatient settings within seven days after hospital discharge.
- Indicator 1B: the number of face-to-face outpatients contacts within seven days after hospital discharge. (This is specific to consumers released to outpatient treatment following an inpatient discharge)
- Indicator 2: the percentage of children and adults receiving services at a residential setting or at an in-person outpatient appointment within 30 days after hospital discharge.

◆ Indicator 2A: the number of face-to-face contacts within residential or outpatient settings and within 30 days after hospital discharge.

◆ Indicator 2B: the number of face-to-face outpatient contacts within 30 days after hospital discharge."

## Finding(s)

Six out of seven evaluation elements were *Met* for this activity, with one being *Not Applicable*. This activity had three critical elements, all of which were *Met*.

## Strength(s)

The study indicators were well-defined, objective, and measurable and were based on practice guidelines. The study question was answerable using the study indicators. The indicators (i.e., the percentage of adults and children who received follow-up residential or outpatient services within 7- and 30-days after discharge from a hospital stay) were considered valid process alternatives for measuring changes (outcomes) in health and functional status of the consumer. There were data available to collect on each study indicator, and the PIP documentation included how these indicators were developed.

## Requirement(s) (for Critical Elements)

There were no requirements identified for this activity during this review.

## Recommendation(s) (for Noncritical Elements)

There were no recommendations identified for this activity during this review.

## Activity IV. Use a Representative and Generalizable Study Population

## Study Population

**NBH**'s population was defined as:

All consumers who received inpatient treatment. Only consumers who had been enrolled as Medicaid recipients during the measurement periods were evaluated.

## Finding(s)

All three evaluation elements for this activity were *Met,* including two critical elements.

## Strength(s)

The study population was completely defined, included the requirement for length of enrollment, and captured all consumers to whom the study question applied.

### Requirement(s) (for Critical Elements)

There were no requirements identified for this activity during this review.

### Recommendation(s) (for Noncritical Elements)

There were no recommendations identified for this activity during this review. Activity V. Valid Sampling Techniques

### Sampling Technique(s)

**NBH** did not use sampling for this PIP study. The entire eligible population was included.

### Finding(s)

Six out of six evaluation elements were *Not Applicable,* including one critical element.

### Strength(s)

The entire eligible population was used, which is an acceptable principle of research design and statistical analysis.

### Requirement(s) (for Critical Elements)

There were no requirements identified for this activity during this review.

### Recommendation(s) (for Noncritical Elements)

There were no recommendations identified for this activity during this review.

## Activity VI. Accurate/Complete Data Collection

### Data Collection

**NBH** used both administrative and manual data collection.

### Finding(s)

For this activity, 11 of 11 evaluation elements were *Met,* including one critical element.

### Strength(s)

The data elements were clearly defined, with sources for data collection identified. **NBH** used administrative data as well as medical record abstraction to obtain its data. **NBH** defined the systematic data collection process, which included how baseline and remeasurement data were

collected. Data were collected continually and analyzed twice per year. The PIP study included the automated process and the degree of administrative data completeness.

### Requirement(s) (for Critical Elements)

There were no requirements identified for this activity during this review.

### Recommendation(s) (for Noncritical Elements)

There were no recommendations identified for this activity during this review.

### Activity VII. Appropriate Improvement Strategies

### Improvement Strategies

**NBH**'s interventions included increasing staff and provider awareness, and informal monitoring of the issue. All intensive service coordinators were made more aware of the need to document efforts to arrange follow-up care and to track the actual follow-up rates after discharge. A formalized tracking procedure was developed for all consumers who had been hospitalized. Additionally, **NBH** developed a comprehensive action plan that included each center examining its data to determine reasons why consumers did not receive follow-up services within 7- and 30-days after hospital discharge. Each center was required to formulate an action plan to address those factors.

### Finding(s)

All four evaluation elements were *Met* for this activity.

### Strength(s)

The interventions were related to causes/barriers identified through data analysis and quality improvement processes. The interventions were system changes and **NBH** evaluated and revised the interventions as necessary.

### Requirement(s) (for Critical Elements)

There were no critical elements for this activity.

### Recommendation(s) (for Noncritical Elements)

There were no recommendations identified for this activity during this review.

## Activity VIII. Sufficient Data Analysis and Interpretation

### Data Analysis and Interpretation

**NBH** provided data analysis and interpretation for baseline and three remeasurements. From the second to the third remeasurement, there were increases in the rates for 7-day outpatient follow-up and 7-day outpatient and residential follow-up, a decrease in the rate for 30-day outpatient follow-up, and a slight increase in the rate of 30-day outpatient and residential follow-up, although it was still below baseline. The only rate that had a statistically significant increase from baseline to the third remeasurement was for 7-day outpatient follow-up.

### Finding(s)

Eight of nine evaluation elements for this activity were *Met*, including one critical element. One evaluation element, also a critical element, was scored *Not Applicable* because a sample was not selected.

### Strength(s)

The data analysis was performed according to the study design. Factors that threatened the internal and external validity of the findings were identified and addressed in the study. **NBH** identified the differences between the baseline and remeasurement findings and provided an interpretation of the reported results.

### Requirement(s) (for Critical Elements)

There were no requirements identified for this activity during this review.

### Recommendation(s) (for Noncritical Elements)

There were no recommendations identified for this activity during this review.

## Activity IX. Real Improvement Achieved

### Real Improvement Achieved

**NBH** provided statistical evidence demonstrating that real improvement was achieved in the rate of 7-day outpatient follow-up. Real improvement was not achieved in the rates of 7-day outpatient and residential follow-up, 30-day outpatient and residential follow-up, and 30-day outpatient follow-up from baseline to the third remeasurement.

### Finding(s)

One evaluation element was *Met* and three evaluation elements were *Partially Met* because the 7-day outpatient and residential follow-up, 30-day outpatient and residential follow-up, and 30-day

outpatient follow-up rates did not achieve statistically significant improvement from baseline to the third remeasurement.

### Strength(s)

The methodology remained the same throughout the study. The corrective action plan implemented in FY 05–06 appeared to have an impact on the 7-day follow-up rates. Additionally, during FY 05–06 **NBH** began tracking the number of consumers who refused follow-up appointments. Consumers who had refused follow-up appointments were included in the denominators. **NBH** concluded that if these consumers were removed from the denominators, the follow-up rates would improve.

### Requirement(s) (for Critical Elements)

There were no critical elements for this activity.

### Recommendation(s) (for Noncritical Elements)

There were no recommendations identified for this activity during this review.

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## Activity X. Sustained Improvement Achieved

### Sustained Improvement Achieved

Sustained improvement was not achieved; however, there was improvement in the rates of 30-day outpatient and residential follow-up, 7-day outpatient and residential follow-up, and 7-day outpatient follow-up from the second to the third remeasurement. There was a statistically significant increase in the rate of 7-day outpatient follow-up from baseline to the third remeasurement.

### Finding(s)

The one evaluation element for this activity received a *Partially Met* score.

### Strength(s)

All four follow-up rates remained above the benchmarks for all three measurement years.

### Requirement(s) (for Critical Elements)

There were no critical elements for this activity.

### Recommendation(s) (for Noncritical Elements)

There were no recommendations identified for this activity during this review. HSAG has recommended and the Department has approved the retirement of this PIP.

| DEMOGRAPHIC INFORMATION | | | |
|---|---|---|---|
| Health Plan Name: | Northeast Behavioral Health, LLC | | |
| Study Leader Name: | Neil Benson, PhD | Title: | Director of Quality Improvement |
| Phone Number: | (970) 347-2377 | E-mail Address: | neil.benson@northrange.org |
| Name of Project/Study: | Follow-up After Inpatient Discharge | | |
| Type of Study: | Clinical | | |
| Date of Study: | 7/1/2005 to 6/30/2006 | | |
| Type of Delivery System: | BHO | Number of Medicaid Consumers in BHO: | 2,500 |
| | | Number of Medicaid Consumers in Study: | 286 |
| Year 3 Validation | Resubmission | | |

| EVALUATION ELEMENTS | SCORING | COMMENTS |
|---|---|---|
| **Performance Improvement Project/Health Care Study Evaluation** | | |
| I. **Appropriate Study Topic: Topics selected for the study should reflect the Medicaid enrollment in terms of demographic characteristics, prevalence of disease, and the potential consequences (risks) of the 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 on the basis of Medicaid consumer input.** | | |
|   1. Reflects high-volume or high-risk conditions (or was selected by the State).<br><br>N/A is not applicable to this element for scoring. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | The study topic reflected high-risk conditions. |
|   2. Is selected following collection and analysis of data (or was selected by the State).<br><br>N/A is not applicable to this element for scoring. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | The study topic was selected following the collection and analysis of data. |
|   3. Addresses a broad spectrum of care and services (or was selected by the State).<br><br>The scoring for this element will be Met or Not Met. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | The study topic addressed a broad spectrum of care and services. |
|   4. Includes all eligible populations that meet the study criteria.<br><br>N/A is not applicable to this element for scoring. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | All eligible populations that met the study criteria were included. |
|   5. Does not exclude consumers with special health care needs.<br><br>The scoring for this element will be Met or Not Met. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | Consumers with special health care needs were not excluded. |
| C*   6. Has the potential to affect consumer health, functional status, or satisfaction.<br><br>The scoring for this element will be Met or Not Met. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | The study topic had the potential to affect consumer health and functional status. |

| Results for Activity I | | | | |
|---|---|---|---|---|
| **# of Elements** | | | | |
| Critical Elements** | Met | Partially Met | Not Met | Not Applicable |
| 1 | 6 | 0 | 0 | 0 |

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

\*\* 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. **Clearly Defined, Answerable Study Question: Stating the study question(s) helps maintain the focus of the PIP and sets the framework for data collection, analysis, and interpretation.** | | |
| 1. States the problem to be studied in simple terms.<br><br>N/A is not applicable to this element for scoring. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | The study question stated the problem to be studied in simple terms. |
| C* 2. Is answerable.<br><br>N/A is not applicable to this element for scoring. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | The study question was answerable. |

| Results for Activity II | | | | |
|---|---|---|---|---|
| **# of Elements** | | | | |
| **Critical Elements**\*\* | **Met** | **Partially Met** | **Not Met** | **Not Applicable** |
| 1 | 2 | 0 | 0 | 0 |

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

\*\* 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.** **Clearly Defined 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 a flu shot 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.** | | |
| C* 1. Are well-defined, objective, and measurable.<br><br>N/A is not applicable to this element for scoring. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | The study indicators were well-defined, objective, and measurable. |
| 2. Are based on current, evidence-based practice guidelines, pertinent peer review literature, or consensus expert panels. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | The study indicators were based on practice guidelines. |
| C* 3. Allow for the study question to be answered.<br><br>N/A is not applicable to this element for scoring. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | The study indicators allowed for the study question to be answered. |
| 4. Measure changes (outcomes) in health or functional status, consumer satisfaction, or valid process alternatives.<br><br>N/A is not applicable to this element for scoring. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | The indicators measured changes (outcomes) in consumer health and functional status. |
| C* 5. Have available data that can be collected on each indicator.<br><br>N/A is not applicable to this element for scoring. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | There were available data that were collected on each indicator. |
| 6. Are nationally recognized measures such as HEDIS specifications, when appropriate.<br><br>The scoring for this element will be Met or N/A. | ☐ Met ☐ Partially Met ☐ Not Met ☑ N/A | The study indicators were not nationally recognized measures. |
| 7. Includes the basis on which the indicator(s) was adopted, if internally developed. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | The basis on which each indicator was adopted was provided. |

| Results for Activity III | | | | |
|---|---|---|---|---|
| **# of Elements** | | | | |
| Critical Elements** | Met | Partially Met | Not Met | Not Applicable |
| 3 | 6 | 0 | 0 | 1 |

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

\*\* 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 enrollment population with systemwide measurement and improvement efforts to which the PIP study indicators apply.** | | |
| C* 1. Is accurately and completely defined.<br><br>N/A is not applicable to this element for scoring. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | The study population was accurately and completely defined. |
| 2. Includes requirements for the length of a consumer's enrollment in the BHO. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | Requirements for length of enrollment were specified. |
| C* 3. Captures all consumers to whom the study question applies.<br><br>N/A is not applicable to this element for scoring. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | The study population captured all consumers to whom the study question applied. |

| Results for Activity IV | | | | |
|---|---|---|---|---|
| # of Elements | | | | |
| Critical Elements** | Met | Partially Met | Not Met | Not Applicable |
| 2 | 3 | 0 | 0 | 0 |

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

\** 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. **Valid Sampling Techniques: (This activity is only scored if sampling was used.) If sampling is to be 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.** | | |
| 1. Consider and specify the true or estimated frequency of occurrence. | ☐ Met ☐ Partially Met ☐ Not Met ☑ N/A | Sampling was not used. |
| 2. Identify the sample size. | ☐ Met ☐ Partially Met ☐ Not Met ☑ N/A | Sampling was not used. |
| 3. Specify the confidence level. | ☐ Met ☐ Partially Met ☐ Not Met ☑ N/A | Sampling was not used. |
| 4. Specify the acceptable margin of error. | ☐ Met ☐ Partially Met ☐ Not Met ☑ N/A | Sampling was not used. |
| C* 5. Ensure a representative sample of the eligible population. | ☐ Met ☐ Partially Met ☐ Not Met ☑ N/A | Sampling was not used. |
| 6. Are in accordance with generally accepted principles of research design and statistical analysis. | ☐ Met ☐ Partially Met ☐ Not Met ☑ N/A | Sampling was not used. |

| Results for Activity V | | | | |
|---|---|---|---|---|
| **# of Elements** | | | | |
| **Critical Elements**** | **Met** | **Partially Met** | **Not Met** | **Not Applicable** |
| 1 | 0 | 0 | 0 | 6 |

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

\*\* 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. | **Accurate/Complete Data Collection: Data collection must ensure that the data collected on the PIP 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. Clearly defined data elements to be collected.<br><br>N/A is not applicable to this element for scoring. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | The data elements collected were clearly defined. |
| | 2. Clearly identified sources of data.<br><br>N/A is not applicable to this element for scoring. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | The sources of data were specified. |
| | 3. A clearly defined and systematic process for collecting data that includes how baseline and remeasurement data will be collected.<br><br>N/A is not applicable to this element for scoring. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | The process for collecting data was defined and systematic. |
| | 4. A timeline for the collection of baseline and remeasurement data.<br><br>N/A is not applicable to this element for scoring. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | A timeline for the collection of data was included. |
| | 5. Qualified staff and personnel to abstract manual data. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | The qualifications, experience, and training of manual data collection staff were provided. |
| C* | 6. A manual data collection tool that ensures consistent and accurate collection of data according to indicator specifications. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | The manual data collection tool ensured consistent and accurate collection of data. |
| | 7. A manual data collection tool that supports interrater reliability. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | The manual data collection tool supported interrater reliability. |
| | 8. Clear and concise written instructions for completing the manual data collection tool. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | There were clear and concise written instructions for the manual data collection tool. |
| | 9. An overview of the study in written instructions. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | An overview of the study was included in the written instructions. |
| | 10. Administrative data collection algorithms/flow charts that show activities in the production of indicators. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | A narrative description of the administrative data collection process was included. |

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

\*\* 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. **Accurate/Complete Data Collection: Data collection must ensure that the data collected on the PIP 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.** | | |
| 11. An estimated degree of administrative data completeness.<br>Met = 80 - 100%<br>Partially Met = 50 - 79%<br>Not Met = <50% or not provided | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | The estimated degree of administrative data completeness was reported as 95 to 100 percent. |

| Results for Activity VI | | | | |
|---|---|---|---|---|
| **# of Elements** | | | | |
| **Critical Elements\*\*** | **Met** | **Partially Met** | **Not Met** | **Not Applicable** |
| 1 | 11 | 0 | 0 | 0 |

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

\*\* 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. **Appropriate Improvement Strategies: Real, sustained improvements in care result from a continuous cycle of measuring and analyzing performance, and developing and implementing systemwide improvements in care. Interventions are designed to change behavior at an institutional, practitioner, or consumer level.** | | |
| 1. Related to causes/barriers identified through data analysis and quality improvement processes.<br><br>N/A is not applicable to this element for scoring. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | The interventions were related to causes/barriers identified through data analysis and quality improvement processes. |
| 2. System changes that are likely to induce permanent change. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | The interventions were system changes that were likely to induce permanent change. |
| 3. Revised if the original interventions were not successful. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | The interventions were evaluated and revised as necessary. |
| 4. Standardized and monitored if interventions were successful. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | The interventions were standardized and monitored. |

| Results for Activity VII | | | | |
|---|---|---|---|---|
| **# of Elements** | | | | |
| **Critical Elements**** | **Met** | **Partially Met** | **Not Met** | **Not Applicable** |
| 0 | 4 | 0 | 0 | 0 |

** 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. **Sufficient Data Analysis and Interpretation: Describe the data analysis process on the selected clinical or nonclinical study indicators. Include the statistical analysis techniques used.** | | |
| C* 1. Is conducted according to the data analysis plan in the study design.<br><br>N/A is not applicable to this element for scoring. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | The data analysis was conducted according to the data analysis plan. |
| C* 2. Allows for the generalization of results to the study population if a sample was selected.<br><br>If no sampling was performed, this element is scored N/A. | ☐ Met ☐ Partially Met ☐ Not Met ☑ N/A | A sample was not selected. |
| 3. Identifies factors that threaten internal or external validity of findings. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | Factors that threatened the internal or external validity of the findings were identified. |
| 4. Includes an interpretation of findings. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | An interpretation of findings was included. |
| 5. Is presented in a way that provides accurate, clear, and easily understood information. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | The data were presented in a clear and easily understood way. |
| 6. Identifies initial measurement and remeasurement of study indicators. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | Initial measurement and remeasurements of the study indicators were identified. |
| 7. Identifies statistical differences between initial measurement and remeasurement. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | Statistical differences between measurements were identified; however, the chi-square and p value were incorrect for comparison of the 30-day follow-up rate for Remeasurement 2B to Remeasurement 3B. They should have been 0.07558 and 0.783368. The p value was also incorrect for the comparison of Remeasurement 2A to Remeasurement 3A. It should have been 0.920 instead of 0.542.<br><br>Rereview April 2007<br>The chi-square and p values were corrected in NBH's resubmission. This score changed from Partially Met to Met. |

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

\*\* 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. **Sufficient Data Analysis and Interpretation: Describe the data analysis process on the selected clinical or nonclinical study indicators. Include the statistical analysis techniques used.** | | |
| 8. Identifies factors that affect the ability to compare initial measurement with remeasurement. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | Factors that affected the ability to compare measurements were identified. |
| 9. Includes interpretation of the extent to which the study was successful. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | An interpretation of the extent to which the study was successful was included. |

| Results for Activity VIII | | | | |
|---|---|---|---|---|
| **# of Elements** | | | | |
| **Critical Elements**** | **Met** | **Partially Met** | **Not Met** | **Not Applicable** |
| 2 | 8 | 0 | 0 | 1 |

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

\*\* 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. **Real Improvement Achieved: Describe any meaningful change in performance observed and demonstrated during baseline measurement. Discuss any random year-to-year variation, population changes, and sampling error that may have occurred during the measurement process.** | | |
| 1. Remeasurement methodology is the same as baseline methodology. | ☑ Met ☐ Partially Met ☐ Not Met ☐ N/A | The methodology remained the same in the study. |
| 2. There is documented improvement in processes or outcomes of care. | ☐ Met ☑ Partially Met ☐ Not Met ☐ N/A | There was some documented improvement in outcomes of care. From the second to the third remeasurement, the 7-day follow-up and 30-day outpatient and residential follow-up rates increased; however, the 30-day outpatient follow-up rate decreased. Both 30-day follow-up rates were below baseline for the third remeasurement. |
| 3. The improvement appears to be the result of planned intervention(s). | ☐ Met ☑ Partially Met ☐ Not Met ☐ N/A | Not all of the study indicators demonstrated improvement. From the second to the third remeasurement, the 7-day follow-up and 30-day outpatient and residential follow-up rates increased; however, the 30-day outpatient follow-up rate decreased. |
| 4. There is statistical evidence that observed improvement is true improvement. | ☐ Met ☑ Partially Met ☐ Not Met ☐ N/A | There was statistically significant improvement in the rate of 7-day outpatient follow-up; however, the 7-day outpatient and residential follow-up and 30-day follow-up rates did not achieve statistically significant improvement from baseline to the third remeasurement. |

| Results for Activity IX | | | | |
|---|---|---|---|---|
| **# of Elements** | | | | |
| Critical Elements** | Met | Partially Met | Not Met | Not Applicable |
| 0 | 1 | 3 | 0 | 0 |

** 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. **Sustained Improvement Achieved: Describe any demonstrated improvement through repeated measurements over comparable time periods. Discuss any random year-to-year variation, population changes, and 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 ☐ N/A | From baseline to the second remeasurement, there was no demonstrated improvement for any of the study indicators. From the second to the third remeasurement, the 7-day follow-up rates had statistically significant increases; however, the only rate that had a statistically significant increase from baseline to the third remeasurement was 7-day outpatient follow-up.<br><br>There was a slight increase in the rate of 30-day outpatient and residential follow-up and a decrease in the rate for 30-day outpatient follow-up from the second to the third remeasurement. Although both 30-day follow-up rates continued to exceed the benchmark of 59 percent used in the Medicaid Managed Behavioral Care Benchmarking Project, they were below baseline for the third remeasurement. |

| Results for Activity X | | | | |
|---|---|---|---|---|
| **# of Elements** | | | | |
| Critical Elements** | Met | Partially Met | Not Met | Not Applicable |
| 0 | 0 | 1 | 0 | 0 |

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

| Review Activity | | Total Possible Evaluation Elements (Including Critical Elements) | Total Met | Total Partially Met | Total Not Met | Total N/A | Total Possible Critical Elements | Total Critical Elements Met | Total Critical Elements Partially Met | Total Critical Elements Not Met | Total Critical Elements N/A |
|---|---|---|---|---|---|---|---|---|---|---|---|
| I. | Appropriate Study Topic | 6 | 6 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| II. | Clearly Defined, Answerable Study Question | 2 | 2 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| III. | Clearly Defined Study Indicator(s) | 7 | 6 | 0 | 0 | 1 | 3 | 3 | 0 | 0 | 0 |
| IV. | Use a representative and generalizable study population | 3 | 3 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 |
| V. | Valid Sampling Techniques | 6 | 0 | 0 | 0 | 6 | 1 | 0 | 0 | 0 | 1 |
| VI. | Accurate/Complete Data Collection | 11 | 11 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| VII. | Appropriate Improvement Strategies | 4 | 4 | 0 | 0 | 0 | 0 | No Critical Elements | | | |
| VIII. | Sufficient Data Analysis and Interpretation | 9 | 8 | 0 | 0 | 1 | 2 | 1 | 0 | 0 | 1 |
| IX. | Real Improvement Achieved | 4 | 1 | 3 | 0 | 0 | 0 | No Critical Elements | | | |
| X. | Sustained Improvement Achieved | 1 | 0 | 1 | 0 | 0 | 0 | No Critical Elements | | | |
| **Totals for All Activities** | | **53** | **41** | **4** | **0** | **8** | **11** | **9** | **0** | **0** | **2** |

**Table A-2—FY 06-07 PIP Validation Report Overall Scores:**
**Follow-up After Inpatient Discharge**
**for Northeast Behavioral Health, LLC**

| | |
|---|---|
| **Percentage Score of Evaluation Elements Met*** | **91%** |
| **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.

**HSAG** HEALTH SERVICES ADVISORY GROUP

*Section 4:* **Colorado FY 06-07 PIP Validation Tool:**
**Follow-up After Inpatient Discharge**
**for Northeast Behavioral Health, LLC**

| EVALUATION OF THE OVERALL VALIDITY AND RELIABILITY OF PIP/STUDY RESULTS |
|---|
| HSAG assessed the implications of the study's findings on the likely validity and reliability of the results based on CMS protocols. HSAG also assessed whether the State should have confidence in the reported PIP findings. Determining when an accumulation of threats to validity and reliability, and PIP design problems, reach a point at which the PIP findings are no longer credible is always a judgment call. |
| *Met* = Confidence/high confidence in reported PIP results<br><br>**Partially Met* = Low confidence in reported PIP results<br><br>***Not Met* = Reported PIP results not credible |
| **Summary of Aggregate Validation Findings**<br><br>* [ 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 study, HSAG's assessment determined confidence in the results.

# *Appendix A:* PIP Summary Form:
## Follow-up After Inpatient Discharge
### *for* Northeast Behavioral Health, LLC

| DEMOGRAPHIC INFORMATION |
|---|

**BHO Name or ID:**    **Northeast Behavioral Health, LLC**

Study Leader Name    Neil Benson, PhD                    Title: Director of Quality Improvement

Telephone Number    (970) 347-2377                    E-Mail Address: neil.benson@northrange.org

Name of Project/Study**:** *Follow-up After Inpatient Discharge*

Type of Study:    ☒ Clinical                    ☐ No

2,500    Number of Medicaid Consumers

286    Number of Medicaid Consumers in Study

**Section to be completed by HSAG**

_____ Year 1 Validation _____ Initial Submission _____ Resubmission

_____ Year 2 Validation _____ Initial Submission _____ Resubmission

__X__ Year 3 Validation _____ Initial Submission __X__ Resubmission

**A. Activity I: Choose the Selected Study Topic.** Topics selected for study should reflect the Medicaid enrollment in terms of demographic characteristics, prevalence of disease, and the potential consequences (risks) of the disease. Topics could also address the need for a specific non-clinical service. The goal of the project should be to improve processes and outcomes of health care for the full affected population. The topic may be specified by the State Medicaid agency or on the basis of Medicaid consumer input.

**Study Topic:**

As a part of its ongoing quality improvement program, NBH monitors the care coordination it provides to consumers. One aspect of care coordination is the amount of time that passes from when consumers are discharged from an inpatient setting until they are seen for residential or outpatient follow-up treatment. As the most intensive form of mental health treatment, provided in the most restrictive setting, NBH believes that it is of the utmost importance to closely monitor follow-up care after hospitalization. This high-risk population is particularly vulnerable to disruptions in functioning, recidivism, and health status.

NBH has maintained a tracking system of inpatient admissions and discharges for over five years. Previous analysis by NBH on this topic indicated that most NBH Medicaid consumers released from inpatient hospitalizations do receive timely follow-up treatment. {Included February 2006} Of concern were the cases where there was no follow-up because of the implications for quality of care. Prior to a formal analysis, such as this PIP, there was little known about those consumers who did not attend a formal outpatient follow-up appointment.

NCQA[1] addressed the issue of follow-up after hospitalization for mental illness in a paper in 2002, which stated, "Providing follow-up care to people who have been hospitalized for mental illness is an effective way to reduce future crises and re-hospitalizations." (p. 4)

The topic of this Performance Improvement Project (PIP) is the length of the interval until residential or outpatient follow-up services are provided to Medicaid enrollees (referred to as "consumers") following an inpatient treatment episode.

[1]NCQA (2002). Follow-up After Hospitalization for Mental Illness. The State of Health Care Quality. Cited on the NCQA website. http://www.ncqa.org/sohc2002/SOHC_2002_FHM.html

| **B. Activity II: The Study Question.** Stating the question(s) helps maintain the focus of the PIP and sets the framework for data collection, analysis, and interpretation. |
|---|
| **Study Question:**<br>Will increased planning and attention to the importance of follow-up after inpatient discharge improve the rate of consumers receiving follow-up services? |

| | |
|---|---|
| **C. Activity III: Selected Study Indicators.** A study indicator is a quantitative or qualitative characteristic or variable that reflects a discrete event (e.g., rates of hospital readmissions within 30 or 90 days), or a status (e.g., percent of consumers reporting that they actively participate in treatment planning) that is to be measured. The selected indicators should be appropriate for the study topic and question as well as 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:* | The indicator is the percentage of children and adults receiving services at a residential setting or attending an in-person outpatient appointment within 7 days after hospital discharge.  There are two conventional means of reviewing follow-up data: any follow-up (including transfers to residential facilities) or follow-up that is traditionally outpatient.  This indicator will be reflected in both ways, designated as Numerator A/ Denominator A and Numerator B/ Denominator B as detailed below. |
| **Numerator A:** | Number of face-to-face contacts, within residential or outpatient settings, within 7 days after hospital discharge (excludes consumers who were transferred to:  state hospitals, other hospitals for medical, psychiatric, or substance abuse services, and detention). |
| **Denominator A:** | Total number of inpatient discharges (excludes consumers who were transferred to:  state hospitals, other hospitals for medical, psychiatric, or substance abuse services, and detention) |
| **Numerator B:** | Number of face-to-face outpatient contacts within 7 days after hospital discharge (excludes consumers who were transferred to:  residential facilities, state hospitals, other hospitals for medical, psychiatric, or substance abuse services, and detention). |
| **Denominator B:** | Number of consumers released to outpatient treatment following inpatient discharges (excludes consumers who were transferred to:  residential facilities, state hospitals, other hospitals for medical, psychiatric, or substance abuse services, and detention). |
| **First Measurement Period Dates:** | July 1, 2002 – June 30, 2003 |
| **Baseline Benchmark:** | The benchmark mean for the nationwide sites studied is 47%.  The numerator and denominator in the benchmark studies are comparable to Numerator and Denominator A in this project. |
| **Source of Benchmark:** | Medicaid Managed Behavioral Health Care Benchmarking Project:  Final Report, February 2003. |
| **Baseline Goal:** | At or above the national Medicaid (2007) ~~state~~ benchmark of 47%. |

| **C. Activity III: Selected Study Indicators.** A study indicator is a quantitative or qualitative characteristic or variable that reflects a discrete event (e.g., rates of hospital readmissions within 30 or 90 days), or a status (e.g., percent of consumers reporting that they actively participate in treatment planning) that is to be measured. The selected indicators should be appropriate for the study topic and question as well as 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:* | The indicator is the percentage of children and adults receiving services at a residential setting or an in-person outpatient appointment within 30 days after hospital discharge. There are two conventional means of reviewing follow-up data: any follow-up (including transfers to residential facilities) or follow-up that is traditionally outpatient. This indicator will be reflected in both ways, designated as Numerator A/ Denominator A and Numerator B/ Denominator B as detailed below. |
| **Numerator A:** | Number of face-to-face contacts, within residential or outpatient settings, within 30 days after hospital discharge (excludes consumers who were transferred to: state hospitals, other hospitals for medical, psychiatric, or substance abuse services, and detention). |
| **Denominator A:** | Total number of inpatient discharges (excludes consumers who were transferred to: state hospitals, other hospitals for medical, psychiatric, or substance abuse services, and detention). |
| **Numerator B:** | Number of face-to-face outpatient contacts within 30 days after hospital discharge (excludes consumers who were transferred to: residential facilities, state hospitals, other hospitals for medical, psychiatric, or substance abuse services, and detention). |
| **Denominator B:** | The number of consumers released to outpatient treatment following an inpatient discharges (excludes consumers who were transferred to: residential facilities, state hospitals, other hospitals for medical, psychiatric, or substance abuse services, and detention). |
| **First Measurement Period Dates:** | July 1, 2002 – June 30, 2003 |
| **Benchmark:** | Benchmark mean for the sites studied is 59%. The numerator and denominator in the benchmark studies are comparable to Numerator and Denominator A in this project. |
| **Source of Benchmark:** | Medicaid Managed Behavioral Health Care Benchmarking Project: Final Report, February 2003. |
| **Baseline Goal:** | At or above the national Medicaid (2007) benchmark of 59%. |

**D. Activity IV: Identified Study Population.** The study population should be clearly defined to represent the entire population to which the PIP study question and indicators apply. The length of consumer enrollment should be considered and defined. All selection criteria should be listed here. Once the population is identified, a decision must be made whether to review data for the entire population or a sample of that population.

**Identified Study Population:**

NBH considers all consumers who have received inpatient treatment to be "at risk." Intensive Services Coordinators, familiar with intensive services, closely monitor all NBH consumers admitted to an inpatient setting. These Coordinators monitor a consumer's inpatient stay, and recommend and secure follow-up services from the myriad of aftercare providers. There is a continuum of intensity of aftercare services. This includes transfer to another type of 24-hour care facility, such as another inpatient hospital, skilled nursing home, residential treatment, or criminal justice system on the restrictive side of the continuum. On the non-restrictive end of the aftercare continuum is the traditional outpatient follow-up appointment.

Only those consumers who have been enrolled as Medicaid recipients during the measurement periods are used in the analyses. This is operationally defined within the data collection system as those consumers whose payor source is Medicaid.

**E. Activity V: Sampling Methods.** If sampling is to be 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 for the first time a topic is studied. In this case, an estimate should be used and the basis for that estimate indicated.

| Measure | Sample Error and Confidence Level | Sample Size | Population | Method for Determining Size (*describe*) | Sampling Method (*describe*) |
|---|---|---|---|---|---|
| No sampling method is necessary as the entire population of consumers discharged from an inpatient setting is monitored and included in the data analyses. | | | | | |

**F. Activity VIa: Data Collection Procedures.** Data collection must ensure that the data collected on the PIP 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**

[ **XX**] Hybrid (medical/treatment records and administrative)

[**XX**] Medical/treatment record abstraction
    Record Type
      [**XX**] Outpatient
      [**XX**] Inpatient
      [**XX**] Other   __the NBH Hospital Log___

    Other Requirements
      [**XX**] Data collection tool attached (used for FY 2004-2005 only, Appendix A)
      [  ] Data collection instructions attached
      [  ] Summary of data collection training attached
      [  ] IRR process and results attached

Description of Data Collection Staff

Intensive Service Coordinators and NBH Utilization Management Coordinators are masters level, licensed therapists. They have received training and instructions for documenting consumer mental health treatment, data collection and completion of forms. {Included February 2006} The experience the coordinators have with completing this form varies from two years to a few months. The purpose and intent of the PIP was described and reviewed at the meetings of the Coordinators.

[**XX**] Administrative data
    Data Source
      [**XX**] Programmed pull from claims/encounters
      [  ] Complaint/appeal
      [  ] Pharmacy data
      [  ] Telephone service data /call center data
      [**XX**] Appointment/access data
      [  ] Delegated entity/vendor data _____
      [  ] Other _____

    Other Requirements
      [  ] Data completeness assessment attached
      [  ] Coding verification process attached

[  ] Survey Data

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

    Other Requirements
      [  ] Number of waves _____
      [  ] Response rate _____
      [  ] Incentives used _____

| F. Activity VIb: Data Collection Cycle. | Data Analysis Cycle. |
|---|---|
| [ ] Once a year | [ ] Once a year |
| [ ] Twice a year | [ ] Once a season |
| [ ] Once a season | [ ] Once a quarter |
| [ ] Once a quarter | [ ] Once a month |
| [ ] Once a month | [ ] Continuous |
| [ ] Once a week | **[XX]** Other (list and describe): |
| [ ] Once a day | Twice per year.  NBH produces an in-depth analysis and description for internal use twice annually.  These reports are distributed to the QIC, Centers, and other interested stakeholders. |
| **[XX]** Continuous | |
| [ ] Other (list and describe): | |

**F. Activity VIc. Data Analysis Plan and Other Pertinent Methodological Features**

Data is collected via both automated and manual procedures. Presence of an inpatient admission is determined through InCare, a network computer database application that serves as both a claims management system and database for several BHO's in Colorado. The InCare data is expected to be {Included February 2006} 95 – 100% complete as every hospital, which provides inpatient services would contact InCare to process payment. {Included February 2006} A previous study completed by NBH noted a 97 – 98% completeness rate of the InCare data when matching services and claims reported by InCare to manually collected data by NBH.

The presence of an outpatient follow-up service is determined through a combination of automated and manual procedures. Any outpatient treatment which is billed by an external treatment provider (including non-NBH mental health centers and private providers) would be processed by InCare. Some follow-up services are not billed to InCare, and this data must be manually collected. There are situations in which data is manually collected. The first situation in which data is collected manually is when a consumer receives services that are not paid for by Medicaid. Some of those services may include: Department of Social Services core services, participation in established programs such as schools or grant-funded agencies or a contact that is recorded in the clinical record, but is not a billable activity. The second type of situation in which data is collected manually is when there are alternate funding sources for an outpatient follow-up appointment that are not processed through InCare such as Victim's Compensation or private insurance.

The Intensive Service Coordinator/s at each Center is responsible for the manual collection of the data not provided by InCare. In the case of manually collected data, there are multiple sources of information:

- The NBH Hospital Log is an NBH internal database maintained by NBH Utilization Management staff and Intensive Service Coordinators at each Center. This is a comprehensive, ongoing record of all current intensive services provided to NBH consumers, including hospitalizations.
- Each NBH consumer who receives mental health services has a clinical record at his/her local Center. This record includes a variety of medical documentation including CCAR, evaluation, and treatment information.
- Consumers who are seen in the external provider network (i.e., outside of the NBH Centers, but billable to Medicaid) also have an NBH Utilization Management administrative folder containing information necessary for claims and authorizations.

| F. Activity VIc. Data Analysis Plan and Other Pertinent Methodological Features |
|---|

The importance of this Performance Improvement Project was initially informally communicated to the Intensive Care Coordinators when the project was initiated in July 2003. In July 2004, the NBH Director of Quality Improvement talked about the importance of the project with the Intensive Care Coordinators. A Discharge Report for specified dates is generated using InCare for each Center of NBH. Data from the Discharge Report is entered into a data collection spreadsheet for the respective Centers. An overview of the study was included in the data collection spreadsheet beginning July 2005 to communicate the relevance of this PIP. The overview states:

> 'The topic of this Performance Improvement Project (PIP) is the length of the interval until residential or outpatient follow-up services are provided to Medicaid enrollees ("consumers") following an inpatient treatment episode. One aspect of care coordination is the amount of time that passes from when consumers are discharged from an inpatient setting until they are seen for residential or outpatient follow-up treatment. As the most intensive form of mental health treatment, provided in the most restrictive setting, NBH believes that it is of the utmost importance to closely monitor follow-up care after hospitalization. The information gathered in this spreadsheet will be used to track the number of days until that first appointment. Please contact Laura Martinez (phone/email) with any questions you may have on the completion of this form. Thank you for your attention to this project.'

The data collection spreadsheet is provided to the Intensive Services Coordinator/s at each Center with a list of all hospitalizations, including consumer name, date of birth, hospital used, and admission and discharge dates. The Discharge Report sometimes contains discharge-planning information and that is included in the data collection spreadsheet when available. An Intensive Services Coordinator at each Center is responsible for providing: confirmation of discharge status and the number of days to in-person residential or outpatient follow-up. There is space for comments or explanatory information as needed. This space is particularly useful for consumers who were not seen within 30 days and consumers who received no follow-up care. The QI Committee reviewed the codes and instructions and the Quality of Care Coordinator followed up with the Intensive Services Coordinators at each Center to assure uniformity of coding.

| **F. Activity VIc. Data Analysis Plan and Other Pertinent Methodological Features** | |
|---|---|

The completed data collection spreadsheets are forwarded to a member of the NBH QI Committee (Quality of Care Coordinator) for coding and analysis.  The coding is as follows:

| # | Number of days until in-person outpatient clinical contact, regardless of when previous missed appointments had been scheduled |
|---|---|
| D | Detention |
| HM | Discharged to other inpatient hospitalization—medical |
| HP | Discharged to other inpatient hospitalization—psychiatric (not State Hospital) |
| HS | Discharged to other inpatient hospitalization—substance |
| NA | Moved out of MHASA service area, lost Medicaid benefits |
| NA* | Consumer had appointment with non-Center provider, but unable to track to see if consumer actually attended appointment or readmitted to an inpatient setting before follow-up appointment. |
| NF | Discharged to outpatient but no follow-through by consumer, refused services, did not respond to attempts to contact them, missed appointments and did not reschedule, could not be contacted, or do not know what happened to them |
| R | Residential treatment, ATU |
| RN | Nursing home or assisted-living |
| SH | Transfer to State Hospital |

**G. Activity VII. Improvement Strategies.** Real, sustained improvements in care result from a continuous cycle of measuring and analyzing performance, and developing and implementing system-wide improvements in care. Describe interventions designed to change behavior at an institutional, practitioner, or consumer level.

**Describe interventions.**

**Baseline to Remeasurement 1**

The FY 02-03 data was used as a baseline with which to compare future remeasurement years. Follow-up services were scheduled and care was coordinated at each Center in accordance with the Utilization Management process.

**Intervention of increased awareness and informal monitoring:** Changes in the FY 03-04 inpatient follow-up data were presumed to be due to increased awareness and informal monitoring of the issue. Between collecting data from FY 02 – 03 and studying the no follow-up cases, all Intensive Services Coordinators were made more aware of the need for documenting efforts at arranging follow-up care and the actual follow-up rates after discharge. This issue has been further discussed at several NBH Quality Improvement Meetings and at a meeting of the Clinical Care Coordinators, on July 13, 2004, when the Director of QI reviewed the latest readmission results and discussed follow-up after discharge. The goal was to ensure appropriate follow-up and to accurately document when follow-up occurred. If the follow-up did not occur, the goal was to document the circumstances surrounding the no follow-up.

**Remeasurement 1 to Remeasurement 2**

**Intervention of further awareness and formal monitoring:** The Quality Improvement Administrative Subcommittee and the Intensive Services Coordinators developed a formalized tracking procedure for all consumers who have been hospitalized. Please see the tracking form in Appendix A. The change was included to standardize the monitoring and measuring process, as there were various means of tracking the outcomes across the three Centers.

Increased awareness and more formal monitoring did not have the desired impact of increasing the follow-up after discharge rates. It is important to point out that all measures of seven-day and 30-day follow-up rates remained above benchmarks during all three measurement periods.

**G. Activity VII. Improvement Strategies.** Real, sustained improvements in care result from a continuous cycle of measuring and analyzing performance, and developing and implementing system-wide improvements in care. Describe interventions designed to change behavior at an institutional, practitioner, or consumer level.

*Remeasurement Three to Remeasurement 4*

*Increased awareness of executive management staff at centers:* *In November of 2005, a comprehensive action plan was developed by NBH staff working with the deputy directors of the three centers. Some of the key points are listed below. The complete plan is detailed on page 34 to of this report.*

- *Each Center shall examine the data to determine reasons/causes why persons were not followed up or received follow-up appointments within 30 days from discharge. In addition, each Center shall validate the accuracy of the follow-up data sent to NBH.*
- *Upon analysis of the data, each Center shall formulate an action plan to address those factors that caused consumers to have no follow-up appointment after inpatient discharge, or in follow-up appointment greater than 30 days after discharge. Each Center shall take immediate steps to address these factors.*
- *Each Center shall present an action plan at the December 2005 QI Committee Meeting.*
- *NBH will produce quarterly data regarding the follow-up after inpatient discharge rates. This data shall be broken down by Center to facilitate corrective actions. (February 2007)*


*At the January 2006 meeting of the Executive Directors and Deputy Directors of the three Centers with the staff of NBH, the NBH Director of Quality Improvement described the uniform failure to obtain success for this Performance Improvement Project and its implications. This overview achieved the desired result of making the success of this Performance Improvement Project a matter of the highest priority at the Centers. The CEOs directed their deputies to assure the successful implementation of each Center's action plan and work with NBH to increase the follow-up of consumers discharged from inpatient settings. (February 2007)*

| **H. Activity VIIIa. Data analysis:** Describe the data analysis process in accordance with the analysis plan and any ad-hoc analysis done on the selected clinical or non-clinical study indicators.  Include the statistical analysis techniques utilized and *p* values. |
|---|

**Baseline Measurement**

**Seven-day Follow-up Appointment Rate**

The entire population was used for the study.  No sampling was conducted for any of the measures.

The baseline measures for fiscal year 2002-2003 for the seven-day follow-up after inpatient discharge rate  for consumers who utilized outpatient and residential services (Baseline A) and consumers who utilized only outpatient services (Baseline B), are shown in  I, Activity IX, (Page 26).  All data for the baseline year and subsequent remeasurement years were entered into the Statistical Package for Social Sciences (SPSS).  In accordance with the analysis plan, chi-square analyses were used to determine if changes between the baseline year and the first remeasurement year were statistically significant.  In a similar manner, chi-square analyses were used to determine if changes between the first remeasurement year and a second remeasurement year were statistically significant.   There were no changes in the measurement criteria which would have limited the ability to compare the baseline and subsequent remeasurement years.

Remeasurement Year One

The numerators and denominators used to obtain the seven-day follow-up rates for the first remeasurement year, fiscal year 2003-2004, are presented on page 21.   The outpatient only follow-up after inpatient discharge rate declined from 63.9% in the baseline measurement year to 61.1% in the first remeasurement year.  A chi-square analysis was conducted utilizing the data for the numerator and denominator for both the baseline and first remeasurement year.  The resultant chi-square value was 0.337 with a *p*-value of 0.562, which was not statistically significant.

The outpatient and residential follow-up after inpatient discharge rate declined from 78.0% in the baseline measurement year to 75.5% in the first remeasurement year.  A chi-square analysis was conducted utilizing the data for the numerator and denominator for both the baseline and first remeasurement year.  The resultant chi-square value was 0.595 with a *p*-value of 0.440, which was not statistically significant.

**H. Activity VIIIa. Data analysis:** Describe the data analysis process in accordance with the analysis plan and any ad-hoc analysis done on the selected clinical or non-clinical study indicators.  Include the statistical analysis techniques utilized and *p* values.

## Remeasurement Year Two

The outpatient only follow-up after inpatient discharge rate increased from 61.1% in the remeasurement year one to 61.5% in remeasurement year two.  A chi-square analysis was conducted utilizing the data for the numerator and denominator for the first remeasurement year and the second remeasurement year.  The resultant chi-square value was 0.008 with a *p*-value of 0.927, which was not statistically significant.

The outpatient and residential follow-up after inpatient discharge rate declined from 75.5% in the first remeasurement year to 72.5% in the second remeasurement year.  A chi-square analysis was conducted utilizing the data for the numerator and denominator for the first remeasurement year and second remeasurement year.  The resultant chi-square value was 0.689 with a *p*-value of 0.407, which was not statistically significant.

*Remeasurement Year Three*

*The outpatient only seven-day follow-up rate for after inpatient discharge increased from 61.5% in the second remeasurement to 69.8% in the third remeasurement.  A chi-square analysis was conducted utilizing the data for the numerator and denominator for the second remeasurement year and the third remeasurement year.  The resultant chi-square value was 2.994 with a p-value of 0.083, which was statistically significant.*

*The outpatient and residential seven-day follow-up after inpatient discharge increased from 72.5% in the second remeasurement year to 80.1% in the third remeasurement year.  A chi-square analysis was conducted utilizing the data for the numerator and denominator for the second remeasurement year and third remeasurement year.  The resultant chi-square value was 4.487 with a p-value of 0.034, which was statistically significant.  (February 2007)*

## 30 Day Follow-up Appointment Rate

The baseline measures for fiscal year 2002-2003 for the 30-day follow-up after inpatient discharge rate  for consumers who utilized outpatient and residential services (Baseline A) and consumers who utilized only outpatient services (Baseline B), are show in  I, Activity IX, (Page 26).  All data for the baseline year and subsequent remeasurement years were entered into the Statistical Package

**H. Activity VIIIa. Data analysis:** Describe the data analysis process in accordance with the analysis plan and any ad-hoc analysis done on the selected clinical or non-clinical study indicators. Include the statistical analysis techniques utilized and *p* values.

for Social Sciences (SPSS).

## Remeasurement Year One

The numerators and denominators used to obtain the 30-day follow-up rates for the first remeasurement year, fiscal year 2003-2004, are presented on page 26. The outpatient only follow-up after inpatient discharge rate declined from 80.6% in the baseline measurement year to 76.4% in the first remeasurement year. A chi-square analysis was conducted utilizing the data for the numerator and denominator for both the baseline and first remeasurement year. The resultant chi-square value was 1.032 with a *p*-value of 0.310, which was not statistically significant.

The 30-day outpatient and residential follow-up after inpatient discharge rate declined from 88.2% in the baseline measurement year to 85.2% in the first remeasurement year. A chi-square analysis was conducted utilizing the data for the numerator and denominator for both the baseline and first remeasurement year. The resultant chi-square value was 1.306 with a *p*-value of 0.253, which was not statistically significant.

## Remeasurement Year Two

The outpatient only follow-up after inpatient discharge rate increased from 76.4% in the remeasurement year one to 81.0% in the second remeasurement year. A chi-square analysis was conducted utilizing the data for the numerator and denominator for the first remeasurement year and the second remeasurement year. The resultant chi-square value was 1.262 with a *p*-value of 0.261, which was not statistically significant.

The outpatient and residential follow-up after inpatient discharge rate increased from 85.2% in the first remeasurement year to 86.4% in the second remeasurement year. A chi-square analysis was conducted utilizing the data for the numerator and denominator for the first remeasurement year and second remeasurement year. The resultant chi-square value was 0.202 with a *p*-value of 0.653, which was not statistically significant.

*Remeasurement Year Three*

*The outpatient only follow-up after inpatient discharge rate decreased from 81.0% in the second remeasurement year to 79.9% in the*

**H. Activity VIIIa. Data analysis:** Describe the data analysis process in accordance with the analysis plan and any ad-hoc analysis done on the selected clinical or non-clinical study indicators.  Include the statistical analysis techniques utilized and *p* values.

*third remeasurement year.  A chi-square analysis was conducted utilizing the data for the numerator and denominator for the second remeasurement year and the third remeasurement year.  The resultant chi-square value was 0.371 with a p-value of 0.920, which was not statistically significant.*

*The outpatient and residential follow-up after inpatient discharge rate increased from 86.4% in the second remeasurement year to 86.7% in the third remeasurement year.  A chi-square analysis was conducted utilizing the data for the numerator and denominator for the second remeasurement year and third remeasurement year.  The resultant chi-square value was 0.010 with a p-value of 0.542, which was not statistically significant.  (February 2007)*

**H. Activity VIIIb. Interpretation of study results:** Describe the results of the statistical analysis, interpret the findings, and discuss the successfulness of the study and indicate follow-up activities. Also, identify any factors that could influence the measurement or validity of the findings.

There are four quantifiable measures in this Performance Improvement Project. These are: 7-day follow-up appointment rate for outpatient only, 7-day follow-up rate for outpatient and residential, 30-day follow-up appointment rate for outpatient only, and 30-day appointment rate for outpatient and residential. For the purpose of interpreting the findings it seems more useful to look at the follow-up rates for outpatient only, and then look at the follow-up rates for outpatient and residential. All measurement time periods are for the fiscal year beginning July 1 and ending June 30.

**Outpatient Only**

The 7-day follow-up rate of 63.9% in the baseline period declined to a rate of 61.1% in the first remeasurement period. This decline was not statistically significant. There was a slight increase from the 61.1% rate in the first remeasurement period to a rate of 61.5% in the second remeasurement period. This slight increase was not statistically significant. *The seven-day follow-up rate increased from 61.5% in the second remeasurement period to 69.8% in the third remeasurement period. This increase was statistically significant and represents the first demonstrable improvement during the three remeasurement years.* (February 2007) ~~The trend for the 7-day follow-up rate was for a slight decline in the two remeasurement years compared to the baseline year. This pattern does not provide any evidence of sustained success. It should be noted that the 7-day outpatient only follow-up rate remained above the Medicaid benchmark during all three years. Potential interventions will be discussed in the overall corrective action plan of intervention for this Performance Improvement Project.~~

**H. Activity VIIIb. Interpretation of study results:** Describe the results of the statistical analysis, interpret the findings, and discuss the successfulness of the study and indicate follow-up activities.  Also, identify any factors that could influence the measurement or validity of the findings.

TABLE 1
Outpatient Only Follow-up after Discharge Rates

|  | 7-day outpatient follow-up rate | Medicaid benchmark | 30-day outpatient follow-up rate | Medicaid benchmark |
|---|---|---|---|---|
| FY 02-03 | 63.9% | 47% | 80.6% | 59% |
| FY 03-04 | 61.1% | 47% | 76.4% | 59% |
| FY 04-05 | 61.5% | 47% | 81.0% | 59% |
| FY 05-06 | 69.8% | 47% | 79.9% | 59% |

The 30-day follow-up rate of 80.6% in the baseline period declined to a rate of 76.4% in the first remeasurement period.  This decline was not statistically significant.  There was an increase from the 76.4% rate in the first remeasurement period to a rate of 81.0% in the second remeasurement period.  This increase was not statistically significant.  *The 30-day follow-up declined in the third remeasurement year to 79.9% from 81.0% in the second remeasurement year.  This decrease was not statistically significant.  Over the four-year period, starting with the baseline measurement, and continuing through the end of the third remeasurement year, there was no consistent of pattern of increase or decrease in the 30-day follow-up rate.* (February 2007)  ~~The trend for the 30-day follow-up rate was for a slight decline in the first remeasurement year and then an increase in the second remeasurement year.  The follow-up rate in the second remeasurement year was slightly higher than the follow-up rate in the baseline measurement year.  Again, such a finding cannot be considered a success because there is little evidence of any improvement~~. (February 2007) Despite the lack of sustained improvement, the 30-day outpatient only follow-up rate remained above the benchmark during all three years.  As with the 7-day follow-up rate, interventions for the 30-day outpatient only follow-up rate will be discussed as part of the overall corrective action plan of intervention for this Performance Improvement Project

**H. Activity VIIIb. Interpretation of study results:** Describe the results of the statistical analysis, interpret the findings, and discuss the successfulness of the study and indicate follow-up activities.  Also, identify any factors that could influence the measurement or validity of the findings.

**Outpatient and Residential Follow-up Rates**
The 7-day follow-up rate of 78.0% in the baseline period declined to a rate of 75.5% in the first remeasurement period.  This decline was not statistically significant.  There was a decrease from the 75.5% rate in the first remeasurement period to a rate of 72.5% in the second remeasurement period.  This decrease was not statistically significant.  *The follow-up rate increased from 72.5% in the second remeasurement year to  80.1% in the third remeasurement period.  This increase was statistically significant and represents demonstrable improvement during the third remeasurement year. (February 2007)*  ~~The trend for the 7-day follow-up rate was for consecutive declines in the first remeasurement and second remeasurement years.   This continued decrease was not anticipated and does not provide any evidence of sustained success. Despite the continued declines, the 7-day outpatient and residential follow-up rate remained above the benchmark for all three years.~~

TABLE 2
Outpatient and Residential Follow-up after Discharge Rates

|  | 7-day outpatient and residential follow-up rate | Medicaid benchmark | 30-day outpatient and residential follow-up rate | Medicaid benchmark |
|---|---|---|---|---|
| FY 02-03 | 78.0% | 47% | 88.2% | 59% |
| FY 03-04 | 75.5% | 47% | 85.2% | 59% |
| FY 04-05 | 72.5% | 47% | 86.4% | 59% |
| FY 05-06 | 80.1% | 47% | 86.7% | 59% |

The 30-day follow-up rate of 88.2% in the baseline period declined to a rate of 85.2% in the first remeasurement period.  This decline was not statistically significant.  There was a slight increase from the 85.2% rate in the first remeasurement period to a rate of 86.4% in the second remeasurement period.  This increase was not statistically significant. *There was a slight increase from the 86.4% follow-up rate in the second remeasurement year to 86.7% in the third remeasurement year.  This increase was not statistically significant. Overall, after a decline from the baseline measurement period to the first remeasurement period, there were very slight increases in the*

**H. Activity VIIIb. Interpretation of study results:** Describe the results of the statistical analysis, interpret the findings, and discuss the successfulness of the study and indicate follow-up activities. Also, identify any factors that could influence the measurement or validity of the findings.

*next two remeasurement periods. However, these increases did not reach the level obtained in the baseline measurement. (February 2007)* ~~The trend for the 30-day follow-up rate was for a decline in the first remeasurement year as compared to the baseline year. There was an increase in the second remeasurement year compared to the first remeasurement year. However, the follow-up rate in the second remeasurement year remained below the follow-up rate in the baseline period.~~ While there is no evidence of sustained improvement, the 30-day outpatient and residential follow-up rate remained above the benchmark for all three years. ~~Interventions will be discussed as part of the overall corrective action plan.~~ The specific interventions of the corrective action plan are detailed later in this section. (February 2007)

**Summary**
*In the third remeasurement year, there were demonstrable improvements in the seven-day follow-up rates for outpatient only consumers and for outpatient and residential consumers. The changes for the outpatient only consumers and the outpatient plus residential consumers were statistically significant. This was a shift from the pattern of the two previous remeasurement years in which there was not demonstrable change on any consistent basis. There were no demonstrable improvements for either the 30-day outpatient follow-up rate or the 30-day outpatient plus residential follow-up rate in the third remeasurement year. Thus, the pattern of lack of success continued through all three remeasurement periods. A further analysis, which includes data on the number of clients who refused follow-up appointments, presents a significant new factor that had a mitigating effect on the lack of success in increasing the 30-day follow-up rates. This will be discussed in more detail in Activity IX. (February 2007)*

~~There was a slight decline in the 7-day follow-up rate for outpatient only and very modest increase from the baseline year to the second remeasurement year in the 30-day follow-up rate for outpatient only. There was a continued decline in the 7-day follow-up rate for outpatient and residential. The 30-day follow-up rate for outpatient and residential declined from the baseline to the first remeasurement year and then increased slightly in the second remeasurement year. However, the follow-up rate in the second remeasurement year remained below the rate in the baseline period. There was no pattern of sustained success in any of the four measurement categories. Rather, there was a pattern of slightly decreasing follow-up rates from the baseline year to the second remeasurement year in three of the four measurement categories. Only in the outpatient only 30-day follow-up rate was there the slightest increase from the baseline period to the second remeasurement year. The overall pattern of the Performance Improvement Project did not achieve the goal of sustained improvement over the two remeasurement years. Despite the lack of sustained improvement in all four follow-up rate measures (7-day outpatient only, 30-day outpatient only, 7-day outpatient and residential, and 30-~~

**H. Activity VIIIb. Interpretation of study results:** Describe the results of the statistical analysis, interpret the findings, and discuss the successfulness of the study and indicate follow-up activities.  Also, identify any factors that could influence the measurement or validity of the findings.

~~day outpatient and residential), the follow-up rates remained above the Medicaid benchmark standards in each of the three-year time periods.~~

**Intervention**

*All of the action steps described in the previous report began in the second remeasurement year and were continued in the third remeasurement year. (February 2007*) ~~At the time of the writing of this report, all of the above action steps had taken place.  In fact, some of them will be described below.~~

Factors that could affect the *reliability and (February 2007)* validity of the study include a lessened availability of post-inpatient placements; this was not noted in FY 03-04, FY 04-05, or *FY 05-06.  The random review of 10% of the data to validate its accuracy addressed the reliability issue.*  (2007) Staff reductions could reduce follow-up rates because there would be a lessening in coordination efforts.
A critical internal threat is the validity of the data provided by the provider Centers (hereinafter called Centers).  If the Centers do not provide data that is accurate at 97% or above, then the validity of the study would be compromised.  Small random errors would not compromise the overall validity of the study; however, systematic larger errors could invalidate the findings.

*As stated in the previous report, (February 2007)* ~~above~~, the action plan called for the retrospective examination of the data for FY 04-05.  It was decided not to examine the data for accuracy for the baseline year (FY 02-03) and the first remeasurement year (03-04) because of the amount of time that had passed since this data had been collected.  In addition, the amount of time involved in an effort to re-examine the data for the three fiscal years would have been a substantial burden on the Centers.  As part of this plan, NBH sent the data for FY 04-05 to all three Centers and they were responsible to assure the accuracy of the data that had been submitted.  There was a special focus on consumers who had been coded as having no follow-up or who had a follow-up in more than 30 days.

The re-evaluation of the data submitted for FY 04-05 determined that there were inaccuracies in the data, almost entirely in terms of consumers who had been incorrectly coded as having no follow-up.   The degree, or percentage of inaccuracies, determines the nature of the threat to validity of the study   The first step was to correct the data for FY 04-05.  There were 9 instances when a

**H. Activity VIIIb. Interpretation of study results:** Describe the results of the statistical analysis, interpret the findings, and discuss the successfulness of the study and indicate follow-up activities.  Also, identify any factors that could influence the measurement or validity of the findings.

consumer was initially indicated as having no follow-up, and upon re-evaluation was determined to have had a follow-up.  This resulted in a 3.9% increase in the total number of consumers who received follow-up care.  There were 10 instances when a consumer was initially indicated as having no follow-up, and upon re-evaluation was determined to have gone to jail, hospital, or other categories that led to the removal of the consumer from both the numerator and the denominator.  This amounts to a 3.4% decrease in the denominator.

The total number of incorrectly coded consumers (n=19) resulted in a 5.5% "error rate" of the total of 346 inpatient episodes in FY 04-05.  This includes inpatient episodes when a consumer went to a nursing home, detention center, or other placements that were not included in the numerator and denominator as outlined earlier in this report.  If we focus only on the data that was included, the numerator and denominator the error rate become slightly higher (6.5%).   An error rate of 2% to 3% might have been expected, which would have resulted in a 97% to 98% reliability rate.  The current error rate amounts to a 93.5% reliability rate, which is less than acceptable under these circumstances.  It is important to note that there were no consumers who were initially coded as having received follow-up care, but changed to not having received follow-up care.  The data in this PIP for FY 04-05 is the corrected data.

The second step involved assuring the accuracy of future (starting July 1, 2005) data.  This involved the close monitoring of all data received by the NBH staff person to whom such data was submitted.  In addition, as part of the action plan, quarterly reports broken down by Center were produced starting with the first quarter of FY 05-06.  While not part of the action plan, NBH will conduct random audits of selected data to assure the continued accuracy of data submitted.  *Starting with the first quarter of FY 05-06 validity checks were conducted by each of the centers on the follow-up after discharge data before it was sent to NBH.  These validity checks consisted of having someone other than the person collecting and sending the data review a sample of 10% of the data and verify that the sample data was correct.  An NBH staff person reviewed the validity data to determine it had been conducted in the appropriate fashion.  The NBH staff person reviewed all data before it was entered into the computer.  (February 2007)*

~~Chart 2 (Appendix E, p. 32 shows the first two quarters of FY 05-06 compared with the full corrected data for FY 04-05.  Here it can be seen that there was a slight improvement in the 7-day follow-up rate in the first quarter.  There was improvement in the second quarter, most especially in the 7-day follow-up rate.  This report was distributed as part of the Corrective Action Plan at the NBH Quality Improvement Committee Meeting, and copies were distributed to the Deputy Directors of all three Centers.  The data for the first six~~

**H. Activity VIIIb. Interpretation of study results:** Describe the results of the statistical analysis, interpret the findings, and discuss the successfulness of the study and indicate follow-up activities.  Also, identify any factors that could influence the measurement or validity of the findings.

~~months of FY 05-06 is presented in Activity IX (Pp 18 and 19).  Chi-square analyses were not conducted inasmuch as the full year data has not been collected.~~  (February 2007)

An analysis of the 19 instances where incorrect data had been initially sent to NBH was conducted.  It was determined that the majority of errors (N=16) were due to inattention on the part of the person submitting the data to NBH.  Staff turnover, and lack of training was viewed as the secondary factor (N=3).  As stated earlier, NBH will randomly select 10% of the data submitted from each Center and require that a staff person involved in the quality management process review the selected data to verify its accuracy.  Any Center with a reliability rate of less than 97% will be required to submit an action plan.  This will be done on a quarterly basis to prevent a systematic error rates from continuing more than a brief period of time.

The third and final step involved informing the Board of Managers, which included the Center Directors, Deputy Directors, and other key personnel that this Performance Improvement Project was not a success and that each Center needed to make efforts to increase the rate of follow-up after discharge from inpatient settings.  While an increase in awareness had been a previous intervention, the current efforts involved an increase in awareness of the lack of success of the project of the key management staff of the provider Centers.   The involvement of the Deputy Directors at the Centers is expected to increase the accuracy of the data reported.  It is also expected to increase the follow-up after discharge rate by assuring that each Center has optimal mechanisms for assuring timely follow-up of consumers discharged from outpatient settings.

**I. Activity IX. Study Results Summary and Improvement:** List study results and describe any meaningful change in performance observed during the time period of analysis.

**#1 Quantifiable Measure: 7-day follow-up appointment rate**

| Time Period Measurement Covers | Baseline Project Indicator Measurement | Numerator | Denominator | Rate or Results | Industry Benchmark | Statistical Test and Significance* | |
|---|---|---|---|---|---|---|---|
| | | | | | | $x^2$ | *p*-value |
| 07/01/2002 – 06/30/2003 | **Baseline A (outpatient and residential):** | 245 | 314 | 78.0% | 47%^ | Not applicable | Not applicable |
| | **Baseline B (outpatient only):** | 122 | 191 | 63.9% | 47%^ | Not applicable | Not applicable |
| 07/01/2003 – 06/30/2004 | **Remeasurement 1A (outpatient and residential):** | 249 | 330 | 75.5% | 47%^ | 0.595 (Baseline to remeasurement 1) | 0.440 (Baseline to remeasurement 1) |
| | **Remeasurement 1B (outpatient only):** | 127 | 208 | 61.1% | 47%^ | 0.337 (Baseline to remeasurement 1) | 0.562 (Baseline to remeasurement 1) |
| 07/01/2004 – 06/30/2005 | **Remeasurement 2A (outpatient and residential):** | 203 | 280 | 72.5% | 47%^ | 0.689 (Remeasurement 1 to remeasurement 2) | 0.407 (Remeasurement 1 to remeasurement 2) |
| | **Remeasurement 2B (outpatient only):** | 123 | 200 | 61.5% | 47%^ | 0.008 (Remeasurement 1 to remeasurement 2) | 0.927 (Remeasurement 1 to remeasurement 2) |
| 07/01/2005 – 06/30/2006 | **Remeasurement 3A (outpatient and residential):** | 229 | 286 | 80.1% | 47%^ | 4.487 (Remeasurement 1 to remeasurement 2) | 0.034 (Remeasurement 2 to remeasurement 3) |
| | **Remeasurement 3B (outpatient only):** | 132 | 189 | 69.8% | 47%^ | 2.994 (Remeasurement 2 to remeasurement 3) | 0.083 (Remeasurement 2 to remeasurement 3) |
| 07/01/2006 12/31/2006 | **Remeasurement 4A (outpatient and residential):** | 117 | 149 | 78.5% | 47%^ | Not applicable | Not applicable |
| | **Remeasurement 4B (outpatient only):** | 70 | 102 | 68.6% | 47%^ | Not applicable | Not applicable |

^ Benchmark source is Medicaid Managed Behavioral Health Care Benchmarking Project:  Final Report, February 2003.
**Note:  This data is for the partial year.

**I. Activity IX. Study Results Summary and Improvement:** List study results and describe any meaningful change in performance observed during the time period of analysis.

**#2 Quantifiable Measure: 30-day follow-up appointment rate**

| Time Period Measurement Covers | Baseline Project Indicator Measurement | Numerator | Denominator | Rate or Results | Industry Benchmark | Statistical Test and Significance* | |
|---|---|---|---|---|---|---|---|
| | | | | | | $x^2$ | *p*-value |
| 07/01/2002 – 06/30/2003 | **Baseline A (outpatient and residential):** | 277 | 314 | 88.2% | 59%^ | Not applicable | Not applicable |
| | **Baseline B (outpatient go to sleep only):** | 154 | 191 | 80.6% | 59%^ | Not applicable | Not applicable |
| 07/01/2003 – 06/30/2004 | **Remeasurement 1A (outpatient and residential):** | 281 | 330 | 85.2% | 59%^ | 1.306 (Baseline to remeasurement 1) | 0.253 (Baseline to remeasurement 1) |
| | **Remeasurement 1B (outpatient only):** | 159 | 208 | 76.4% | 59%^ | 1.032 (Baseline to remeasurement 1) | 0.310 (Baseline to remeasurement 1) |
| 07/01/2004 – 06/30/2005 | **Remeasurement 2A (outpatient and residential):** | 242 | 280 | 86.4% | 59%^ | 0.202 (Remeasurement 1 to remeasurement 2) | 0.653 (Remeasurement 1 to remeasurement 2) |
| | **Remeasurement 2B (outpatient only):** | 162 | 200 | 81.0% | 59%^ | 1.262 (Remeasurement 1 to remeasurement 2) | 0.261 (Remeasurement 1 to remeasurement 2) |
| 07/01/2005 – 06/30/2006 | **Remeasurement 3A (outpatient and residential):** | 248 | 286 | 86.7% | 59%^ | 0.010 (Remeasurement 2 to remeasurement 3) | 0.920 (Remeasurement 1 to remeasurement 2) |
| | **Remeasurement 3B (outpatient only):** | 151 | 189 | 79.9% | 59%^ | 0.076 (Remeasurement 2 remeasurement 3) | 0.783 (Remeasurement 1 to remeasurement 2) |
| 07/01/2006 12/31/2006** | **Remeasurement 4A (outpatient and residential):** | 121 | 149 | 81.2% | 59%^ | Not applicable | Not applicable |
| | **Remeasurement 4B (outpatient only):** | 74 | 102 | 75.5% | 59%^ | Not applicable | Not applicable |

**I. Activity IX. Study Results Summary and Improvement:** List study results and describe any meaningful change in performance observed during the time period of analysis.

\* If used, specify the test, *p* value, and specific measurements (e.g., baseline to remeasurement #1, remeasurement #1 to remeasurement #2, etc., or baseline to final remeasurement) included in the calculations.

^ Benchmark source is Medicaid Managed Behavioral Health Care Benchmarking Project:  Final Report, February 2003.

\*\*Note:  This data is for the partial year.

**I. Activity IX. Study Results Summary and Improvement:** List study results and describe any meaningful change in performance observed during the time period of analysis (cont.).

*The results of the study showed statistically significant improvement in the third remeasurement year for the 7-day follow-up rates after discharge for outpatient only and outpatient and residential consumers. The first six months data for the fourth remeasurement period show that there has been a maintenance of effort for the seven-day outpatient and outpatient plus residential follow-up rates. Maintenance of effort occurred despite the slight decline in the seven-day outpatient only follow-up rate from 69.8% in the third remeasurement year to 68.6% in the first six months of the fourth remeasurement year. This was true for the outpatient plus residential seven-day follow-up rates which declined from 80.1% to 78.5%. This statistical significance of changes for the fourth remeasurement year will not be calculated until the data is available for the entire year. (February 2007)*

*The overall pattern for the four years, starting with the baseline year and ending with the third remeasurement year, showed no change in the follow-up rates after discharge for the 30-day outpatient only and 30-day outpatient and residential consumers. There was no demonstrable improvement in the 30 day follow-up rates for outpatient only or outpatient plus residential in the first six months of the fourth remeasurement year. In fact they was a decline in the outpatient only follow-up rate from 79.9% to 75.5%. This was unexpected at a time when these follow-up rates should have remained at least at a level with the previous remeasurement year. There was also a decline in the outpatient plus residential 30 day follow-up rate from 86.7% to 81.2% in the fourth remeasurement year. A more complete analysis will be conducted when data is available for the full fiscal year. In particular, an effort will be made to determine why there was a decrease in a time when the rates should have at least remained the same. (February 2007)*

*On May 18, 2006, there was a telephone conference call among representatives of the Department Of Health Care Policy and Finance, the Human Services Advisory Group, and members of the Quality Improvement Department of Northeast Behavioral Health. At that time, there was a discussion of the factors leading to a change in the rate of consumers follow up as a result of the corrective action plan. Northeast Behavioral Health was asked to document the steps taken by the individual centers to increase their follow-up rates, and to describe the barriers that the centers found that prevented them from reaching 100% follow-up. The specifics are found in Appendix F, p. 34. (February 2007)*

**I. Activity IX. Study Results Summary and Improvement:** List study results and describe any meaningful change in performance observed during the time period of analysis (cont.).

*During FY 05-06, an important variable was tracked for the first time. This was the number of consumers who refused any follow-up appointments offered them after their inpatient discharge. Such people cannot be reasonably expected to receive follow-up after inpatient discharge unless some other significant factor causes them to change their mind. There were at least 15 consumers who refused a follow-up appointment during FY 05-06. It is likely there were more such consumers, but official tracking of consumers who refused follow-up appointments did not begin until the first quarter was underway. It can be argued that consumers who refused any appointment should be removed from the denominator, which would result in a significant change in the follow-up rate. For example, 151 of the 189 outpatient only consumers had follow-up appointments within 30 days, resulting in a follow-up rate of 81%. If the 15 consumers who refused appointments were removed from the denominator, then 151 of the 174 consumers received follow-up appointments, resulting in a follow-up rate of 86.8%. Using the same logic, the outpatient and residential 30-day follow-up rate changes from 86.7% to 91.5%. This analysis is limited to the data for FY 05-06, because it is the only year in which the number of consumers who refused follow-up appointments is known. It is reasonable to assume that similar rates of consumers refused appointments in preceding remeasurement years. Changing the denominator for the previous year would have likely resulted in similar increases in follow-up rates. Thus, part of the reason for the lack of sustained increases in the 30-day follow-up rates was not a function of lack of effort or failure to implement the action plan, but rather that the "true" follow-up rates were so high that only a marginal amount of improvement was possible. This is most true of the 30-day follow-up rate for outpatient and residential which exceeded 91%. Other consumers may have accepted appointments but moved out of the area without any intention of receiving follow-up services. This is known to have happened and several cases, but this was not tracked on a formal basis. (February 2007)*

~~the results of the study showed no continued improvement increasing the rate at which NBH consumers had a face-to-face follow-up appointment or other services after their discharge from the inpatient settings.~~ The remeasurement methodology was the same as the baseline methodology and was not a factor in the lack of change noted in the remeasurement years. *The interventions of increasing awareness on the part of Intensive Service Coordinators regarding the importance of arranging for follow-up after Inpatient Care Services and the use of a formalized tracking procedure, appeared to have no impact. The action plan implemented in the fall of FY 05-06 appeared to have an impact on the seven-day follow-up rate. (February 2007). The previously described action plan, which is part of the quality improvement process brought about permanent changes at the center level (These changes are described in detail in appendix F p.34)*

**I. Activity IX. Study Results Summary and Improvement:** List study results and describe any meaningful change in performance observed during the time period of analysis (cont.).

~~It is not entirely possible to rule out the effects of these interventions because it is possible that in their absence there would have been a decrease in the follow-up rates.~~ *As stated earlier, it is important to note that the follow-up rates in all four-measurement categories remained above the benchmark rates for all three-measurement years. While sustained improvement in the follow-up rates is expected and possible, there is an upper limit to which such rates can be improved. Therefore, while staff at the centers involved in the follow-up care of persons discharged from inpatient units will strive to maximize the 30-day follow-up rate, there is minimal expectation that a significant change can be achieved. Therefore, no additional interventions are contemplated to bring about changes in the 30-day follow-up rates, but there is the expectation that the current array's be maintained. Finally, there will be continued tracking on the number of consumers who refused follow-up appointments.*

Table 3 below shows the data for the 7-day and 30-day follow-up rates for outpatient only and residential and outpatient follow-ups after discharge from inpatient setting. None of the *p*-values are listed because none of them were significant.

**TABLE 3**
**Three-year Trends for Outpatient Only and Outpatient and Residential Follow-up Rates**

|  | 7-day outpatient follow-up rate | 30-day outpatient follow-up rate | Seven-day outpatient and residential follow-up rate | 30-day outpatient and residential follow-up rate |
|---|---|---|---|---|
| FY 02-03 | 63.9% | 80.6% | 78.0% | 88.2% |
| FY 03-04 | 61.1% | 76.4% | 75.5% | 85.2% |
| FY 04-05 | 61.5% | 80.6% | 72.5% | 86.4% |
| FY 05-06 | 69.8%* | 79.9% | 80.1%** | 86.7% |

*significant at the .05 level
**significant at the .10 level

**J. Activity X.  Sustained improvement:** Describe any demonstrated improvement through repeated measurements over comparable time periods.  Discuss any random year-to-year variation, population changes, and sampling error that may have occurred during the remeasurement process.

The previous year's report stated that (February 2005) there was no demonstrated improvement in the <u>first</u> (February 2007) two remeasurement years.  The ~~previous~~ statement is true despite the fact that the 7-day and 30-day follow-up rates for FY 04-05 were increased when the follow-up review of the data submitted by the Centers determined that 19 of the consumers initially reported as having no follow-up, actually had follow-up appointments within 7 and 30 days.  Since the data for the baseline period of FY 02-03 and the first remeasurement period of FY 03-04 were not subject to a follow-up data validation process, it is not possible to know what the "true" differences between the baseline period and the remeasurement years would have been had those two years been subject to the same secondary review of the data submitted by the Centers for FY 04-05.

*For the first time, in the third remeasurement year, there was statistically significant improvement for the outpatient only and outpatient was residential 7-day follow-up.  This improvement continued to be demonstrated during the first six months of FY 06-07. Levels of statistical significance are calculated for the six-month data because they are incomplete data sets. (February 2007)*

*There was no demonstrated statistically significant improvement in the outpatient only and outpatient and residential 30-day follow-up rates through the third remeasurement year (FY 05-06).  There was no improvement demonstrated d in the data for the first six months of FY 06-07 for either of the 30-day follow-up rates.  In fact, there were decreases in the follow-up rate for the clients in both of the 30-day measures.  An effort s will be made to determine possible reasons for declines at a time when follow-up rates should be at least holding steady for these 30-day time periods.  Both follow-up rates continue to exceed the benchmark figure of 59% used in the Medicaid Managed Behavioral Care Benchmarking Project. The 30-day outpatient only and outpatient and residential follow-up rates for the second and third remeasurement years all exceeded the 90th percentile in the 2003 HEDIS Medicaid benchmark data.  When the consumers who refused follow-up appointments are taken into account and subtracted from the denominator than the 30-day follow-up rates for the third remeasurement year would likely have exceeded the 95th percentile in the 2003 HEDIS Medicaid data.  The information about consumers who refused follow-up combined with the HEDIS Medicaid benchmark data is used to point out that the likelihood of making statistically significant improvement was probably quite limited. (February 2007)*

| |
|---|
| **J. Activity X. Sustained improvement:** Describe any demonstrated improvement through repeated measurements over comparable time periods. Discuss any random year-to-year variation, population changes, and sampling error that may have occurred during the remeasurement process. |

*The issues related to error rates discussed in the first paragraph of this section was addressed by the corrective action plan implemented in the fall of 2005 and the accuracy of the data for the third remeasurement year is in excess of 99%. Despite the validation procedure, it is unlikely the data is 100% accurate. (February 2007)*

~~As pointed out earlier,~~  The follow-up rate data for the FY 04-05 remeasurement year was changed by the follow-up review of that data.  The "true" variation in the data among the three-year period is unknown because the baseline period and first remeasurement period were not subject to the follow-up review of the data for those years. *In FY 05-06 data, the validation procedure was carried out at the three centers and the data was reliable and valid.  (February 2007)*

The total number of inpatient episodes was 314 in the baseline year, 330 in the first remeasurement year, 280 in the second remeasurement year, *and 286 in the third remeasurement year. Based on these numbers there does not appear to be a "clear" trend in the number of inpatient episodes, although the second and third remeasurement years were both lower than the baseline and first remeasurement years.* ~~Based on these numbers, it is too soon to describe a trend in the number of inpatient episodes.~~ (February 2007) The 15% decrease from the first remeasurement year to the second remeasurement year is notable, and according to the Director of Utilization Management is largely attributable to increase in alternatives to hospitalization.  It is possible that consumers with less serious psychiatric and behavioral problems were most likely to be diverted into the alternatives.  This would mean that the 280 inpatient episodes in the second remeasurement year consisted of a consumer population with more serious psychiatric problems.  However, there is no evidence that the severity of psychiatric symptomatology and/or behavioral disturbance has any relationship with follow-up after inpatient discharge rates.

It is likely there are minor random population fluctuations from year to year.  Given the number of consumers involved, it is unlikely these fluctuations would significantly influence the results.

APPENDIX A

NBH Inpatient Discharge Follow-Up Form

Client Name:_____

Medicaid Number:_____

__CMHC Counties' Medicaid          __Medicaid

__Larimer County Medicaid            __Medicare/Medicaid

__Weld County Medicaid               __Private insurance/Medicaid

__Voluntary Admission

__72 hour hold

__Other, please explain:_____

Age:     __Child (0-11)

           __Adolescent (12-17)

           __Young Adult (18-21)

           __Adult (22-59)

           __Geriatric (60+)

Admission Site:_____

Date of Admission:_____

Date of Discharge:_____

Discharge Planning:

__Detention_____

__Discharged to other inpatient hospitalization, please specify:

           __Medical_____

           __Psychiatric, not state hospital_____

           __Substance_____

           __State hospital_____

__Residential treatment, please specify:

           __RTC_____

           __ATU_____

__Nursing home_____

__Discharged to outpatient mental health treatment, please specify:

    __to an NBH Center

        __Location:_____

        __Provider name:_____

        __Appointment date:_____

    __to an NBH external provider:

        __Provider name:_____

        __Appointment date:_____

        __Authorization provided?　__yes　　__no

    __Other, please describe and include appointment and payor information.

        _____

        _____

__Mental Health discharge planning not provided

    __Client refuses further treatment

    __Further treatment not medically necessary

    __Discharged to non-mental health follow-up (Medical, DD, Substance, Offender treatment,
etc):_____

    __NBH staff not consulted to coordinate care

    __Other_____

Please complete if client was discharged to outpatient mental health treatment, but was not seen as planned:

__Unknown reason

__Client declined further services

__Client did not follow-through with appointments

__Client could not be contacted to follow-up

__Moved away from MHASA service area, lost Medicaid benefits

__Appointments not available

__Other:_____

Number of days until in-person follow-up session: _____

Notes:_____

_____

_____

_____

Care Coordinator:_____

Date completed:_____

APPENDIX B

Table 1

Follow-up rates for NBH cases following inpatient treatment during Fiscal Years 02-03, 03-04,04-05 and 05-06 (February 2007)

| | NRBH | | | | Centennial | | | | Larimer | | | | Total NBH | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | FY 02-03 | FY 03-04 | FY 04-05 | FY 05-06 | FY 02-03 | FY 03-04 | FY 04-05 | FY 05-06 | FY 02-03 | FY 03-04 | FY 04-05 | FY 05-06 | FY 02-03 | FY 03-04 | FY 04-05 | FY 05-06 |
| 7-day general follow-up* | 66.7% | 65.5% | 59.6% | 78.4 | 87.3% | 80.4% | 87.3% | 87.8 | 81.9% | 81.2% | 75.4% | 78.8 | 78.0% | 75.5% | 72.5% | 80.1 |
| 7-day outpatient only follow-up** | 43.5% | 48.8% | 44.4% | 66.7 | 67.9% | 70.0% | 83.0% | 79.3 | 75.2% | 68.4% | 64.2% | 69.1 | 63.9% | 61.1% | 61.5% | 69.8 |
| 30-day general follow-up* | 81.0% | 80.7% | 80.8% | 89.2 | 94.4% | 93.5% | 88.9% | 93.9 | 90.6% | 86.1% | 89.8% | 82.2 | 88.2% | 85.2% | 86.4% | 86.7 |
| 30-day outpatient only follow-up** | 67.7% | 71.3% | 73.6% | 83.3 | 85.7% | 90.0% | 85.1% | 89.6 | 87.1% | 76.5% | 85.2% | 74.5 | 80.6% | 76.4% | 81.0% | 79.9 |

*Numerator:  Cases seen in residential or outpatient treatment within 7/30 days (excludes consumers who were transferred to:  state hospitals, other hospitals for medical, psychiatric, or substance abuse services, and detention)
Denominator:  Total cases (excludes consumers who were transferred to:  state hospitals, other hospitals for medical, psychiatric, or substance abuse services, and detention)
**Numerator:  Cases seen in outpatient treatment within 7/30 days (excludes consumers who were transferred to:  residential facilities, state hospitals, other hospitals for medical, psychiatric, or substance abuse services, and detention)
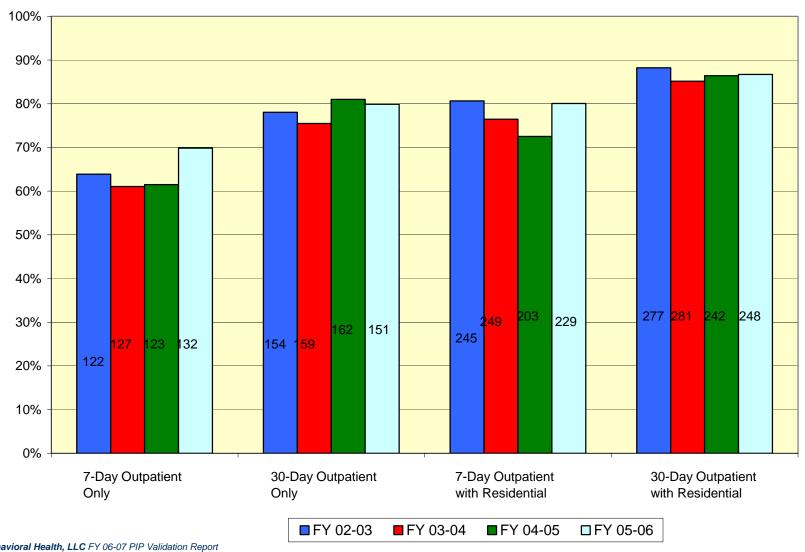Denominator:  Number of cases discharged to outpatient treatment (excludes consumers who were transferred to:  residential facilities, state hospitals, other hospitals for medical, psychiatric, or substance abuse services, and detention)
**Note**.  Percentage of cases discharged to outpatient treatment excludes consumers who were transferred to:  residential facilities, state hospitals, other hospitals for medical, psychiatric, or substance abuse services, and detention.

**NBH Percentage of Clients Attending Appointments within 7 and 30 days for Both Outpatient Only and outpatient and Residential Across FYs 02-03, 03-04 and 04-05 (February 2007)**



| | 7-Day Outpatient Only | 30-Day Outpatient Only | 7-Day Outpatient with Residential | 30-Day Outpatient with Residential |
|---|---|---|---|---|
| FY 02-03 | 122 | 154 | 245 | 277 |
| FY 03-04 | 127 | 159 | 249 | 281 |
| FY 04-05 | 123 | 162 | 203 | 242 |
| FY 05-06 | 132 | 151 | 229 | 248 |

■ FY 02-03    ■ FY 03-04    ■ FY 04-05    □ FY 05-06

**APPENDIX D**

**NORTHEAST BEHAVIORAL HEALTH**
**FOLLOW-UP AFTER INPATIENT DISCHARGE PIP**
**Corrective Action Plan**
**(Adopted at November 16, 2005 NBH QI Committee Meeting)**

Specific interventions based on action plans need to be determined to address the continuing decline in follow-up after inpatient discharge (see tables below).  The first step involves a determination if there are differences among the three provider Centers.  Each Center will review the reasons why a consumer received no follow-up after discharge, or received a follow-up that was greater than 30 days.  The staff of the provider Centers will work closely with the NBH Director of Quality Improvement, the Clinical Director, and the Director of Utilization Management to determine what trends, if any, emerge from the analysis of the data.  Interventions and action plans will be developed on the NBH-wide level, and on a Center specific level as appropriate.
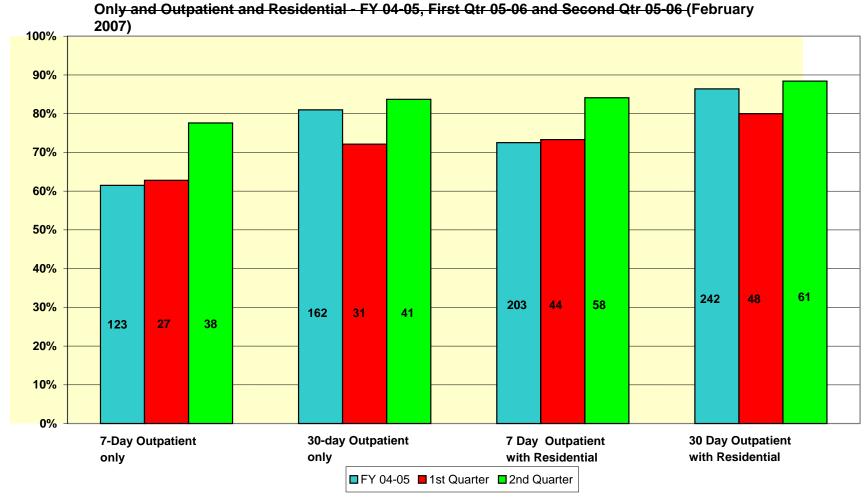
- By October 21, 2005, NBH will provide the appropriate administrative staff of each Center with a list of all consumers who had no follow-up, or had follow-up appointments greater than 30 days for fiscal year 2004-2005.
- Each Center shall examine the data to determine reasons/causes why persons were not followed up or received follow-up appointments after 30 days from discharge.  Also, each Center shall validate the accuracy of the data.
- Upon analysis of the data, each Center shall formulate an action plan to address those factors which caused consumers to have no follow-up appointment after inpatient discharge, or in follow-up appointment greater than 30 days after discharge.  Each Center shall take immediate steps to address these factors.
- Each Center shall present an action plan at the December 2005 QI Committee Meeting.
- NBH will produce quarterly data regarding the follow-up after inpatient discharge rates.  This data shall be broken down by Center to facilitate corrective actions.

**APPENDIX E**
Chart 2

**NBH Percentage of Clients Attending Follow-up Appointments Within 7 and 30 Days for Outpatient**

**Only and Outpatient and Residential - FY 04-05, First Qtr 05-06 and Second Qtr 05-06 (February 2007)**



Legend: FY 04-05 | 1st Quarter | 2nd Quarter

Data labels on bars:
- 7-Day Outpatient only: 123, 27, 38
- 30-day Outpatient only: 162, 31, 41
- 7 Day Outpatient with Residential: 203, 44, 58
- 30 Day Outpatient with Residential: 242, 48, 61

**APPENDIX   F**

**Qualitative Analysis in Response to May 18, 2006 Conference Call with HSAG and HCPF**

1. **Each center put into place to increase follow-up rate in FY 05-06 and maintain that success in FY 06-07.**
   - North Range created 1.5 FTEs dedicated to work on Intensive Services Coordination.  The Intensive Service Coordinators go daily to the inpatient setting where most of the consumers are admitted, thereby increasing collaboration in discharge planning and increasing follow-up after discharge.  These positions were created in FY 05-06 and continued into FY 06-07.
   - At Larimer, all consumers in higher levels of care are staffed on at least a weekly basis.  These meetings include the Larimer Executive Vice President, Medical Director three Program Directors, two Clinical Care Coordinators and the supervisor of Adult Residential Programs.  This was developed in FY 05-06 and continued into FY 06-07.
   - Centennial instituted a Hospital Discharge Tracking Procedure which encompassed an internal discharge form called the Hospital Discharge Plan (HDP) that is filled out by the discharge planner as well as the assigned clinician responsible for follow-up and outreach.  The HDP encompasses discharge diagnosis, medications, recommendations for treatment, transportation and identified potential barriers.  This allows for the clinician and MD to gather a snapshot of the clinical care received in inpatient prior to the medical records arriving.  Twice monthly reports are run to identify rates of follow-up and assist with documentation regarding outreach provided when necessary.

2. **Identification of biggest obstacles to 100% follow-up.**

A major obstacle to obtaining a 100% follow-up rate was the number of consumers who refused the offer of a follow-up appointment following their discharge from the inpatient setting (n= 15).  This was most prominent at the Larimer Center that had 10 of the 15 consumers who refused follow-up appointment.
   - Barriers reported by North Range included cases in which the consumer had did not have a telephone or the contact information that was given was incorrect, and cases when the clients are in the DHS services system and DHS places the consumer in an unknown location after discharge.
   - Larimer cited instances where the Larimer DHS placed youth out of county.  Larimer also had the majority of instances where clients refused follow-up services.
   - Centennial cited problems in coordination of services by the hospitals as a major barrier to increasing the rates of follow-up after inpatient discharge.  It pointed out that many times consumers are hospitalized or discharged with no notification or coordination with Centennial and the appropriate clinician and consumers are expected to arrange for their own follow-up care.

PIPs provide a structured method of assessing and improving the processes, and thereby outcomes, of care for the population that a BHO serves. This structure facilitates the documentation and evaluation of improvements in care or service. PIPs are conducted by the BHOs to assess and improve the quality of clinical and nonclinical health care services received by consumers.

The PIP evaluation is based on CMS guidelines as outlined in the 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 (CMS PIP Protocol).

This document highlights the rationale for each activity as established by CMS. The protocols for conducting PIPs can be used to assist the BHOs in complying with requirements.

## CMS Rationale

### Activity I.  Appropriate Study Topic

All PIPs should target improvement in relevant areas of clinical care and nonclinical services. Topics selected for study by Medicaid managed care organizations must reflect the BHO's Medicaid enrollment in terms of demographic characteristics, prevalence of disease, and the potential consequences (risks) of disease (CMS PIP Protocol, page 2).

### Activity II.  Clearly Defined, Answerable Study Question

It is important for the BHO to clearly state, in writing, the question(s) the study is designed to answer. Stating the question(s) helps maintain the focus of the PIP and sets the framework for data collection, analysis, and interpretation (CMS PIP Protocol, page 5).

### Activity III.  Clearly Defined Study Indicator(s)

A study indicator is a quantitative or qualitative characteristic (variable) reflecting a discrete event (e.g., an older adult has/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.

Each project should have one or more quality indicators for use in tracking performance and improvement over time. All indicators must be objective, clearly and unambiguously defined, and based on current clinical knowledge or health services research. In addition, all indicators must be capable of objectively measuring either consumer outcomes, such as health status, functional status, or consumer satisfaction, or valid proxies of these outcomes.

Indicators can be few and simple, many and complex, or any combination thereof, depending on the study question(s), the complexity of existing practice guidelines for a clinical condition, and the availability of data and resources to gather the data.

Indicator criteria are the set of rules by which the data collector or reviewer determines whether an indicator has been met. Pilot or field testing is helpful in the development of effective indicator criteria. Such testing allows the opportunity to add criteria that might not have been anticipated in the design phase. In addition, criteria are often refined over time based on results of previous studies. However, if criteria are changed significantly, the method for calculating an indicator will not be consistent and performance on indicators will not be comparable over time.

It is important, therefore, for indicator criteria to be developed as fully as possible during the design and field testing of data collection instruments (CMS PIP Protocol, page 5).

## Activity IV.  Use a Representative and Generalizable Study Population

Once a topic has been selected, measurement and improvement efforts must be systemwide (i.e., each project must represent the entire Medicaid enrolled population to which the PIP study indicators apply). Once that population is identified, the BHO must decide whether to review data for that entire population or use a sample of that population. Sampling is acceptable as long as the samples are representative of the identified population (CMS PIP Protocol, page 8). (See "Activity V.  Valid Sampling Techniques.")

## Activity V.  Valid Sampling Techniques

If the BHO uses a sample to select consumers for the study, proper sampling techniques are necessary to provide valid and reliable (and therefore generalizable) information on the quality of care provided. When conducting a study designed to estimate the rates at which certain events occur, the sample size has a large impact on the level of statistical confidence in the study estimates. Statistical confidence is a numerical statement of the probable degree of certainty or accuracy of an estimate. In some situations, it expresses the probability that a difference could be due to chance alone. In other applications, it expresses the probability of the accuracy of the estimate. For example, a study may report that a disease is estimated to be present in 35 percent of the population. This estimate might have a 95 percent level of confidence, plus or minus 5 percentage points, implying a 95 percent certainty that between 30 percent and 40 percent of the population has the disease.

The true prevalence or incidence rate for the event in the population may not be known the first time a topic is studied. In such situations, the most prudent course of action is to assume that a maximum sample size is needed to establish a statistically valid baseline for the project indicators (CMS PIP Protocol, page 9).

### Activity VI.  Accurate/Complete Data Collection

Procedures used by the BHO to collect data for its PIP must ensure that the data collected on the PIP 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. The BHO should employ a data collection plan that includes:

- Clear identification of the data to be collected.
- Identification of the data sources and how and when the baseline and repeat indicator data will be collected.
- Specification of who will collect the data.
- Identification of instruments used to collect the data.

When data are collected from automated data systems, development of specifications for automated retrieval of the data should be devised. When data are obtained from visual inspection of medical records or other primary source documents, several steps should be taken to ensure the data are consistently extracted and recorded:

1. The key to successful manual data collection is in the selection of the data collection staff. Appropriately qualified personnel, with conceptual and organizational skills, should be used to abstract the data. However, their specific skills should vary depending on the nature of the data collected and the degree of professional judgment required. For example, if data collection involves searching throughout the medical record to find and abstract information or judge whether clinical criteria were met, experienced clinical staff, such as registered nurses, should collect the data. However, if the abstraction involves verifying the presence of a diagnostic test report, trained medical assistants or medical records clerks may be used.

2. Clear guidelines for obtaining and recording data should be established, especially if multiple reviewers are used to perform this activity. The BHO should determine the necessary qualifications of the data collection staff before finalizing the data collection instrument. An abstractor would need fewer clinical skills if the data elements within the data source are more clearly defined. Defining a glossary of terms for each project should be part of the training of abstractors to ensure consistent interpretation among project staff.

3. The number of data collection staff used for a given project affects the reliability of the data. A smaller number of staff members promotes interrater reliability; however, it may also increase the amount of time it takes to complete this task. Intrarater reliability (i.e., reproducibility of judgments by the same abstractor at a different time) should also be considered (CMS PIP Protocol, page 12).

### Activity VII.  Appropriate Improvement Strategies

Real, sustained improvements in care result from a continuous cycle of measuring and analyzing performance and developing and implementing systemwide improvements in care. Actual improvements in care depend far more on thorough analysis and implementation of appropriate solutions than on any other steps in the process.

An improvement strategy is defined as an intervention designed to change behavior at an institutional, practitioner, or consumer level. The effectiveness of the intervention activity or activities can be determined by measuring the BHO's change in performance, according to predefined quality indicators. Interventions are key to an improvement project's ability to bring about improved health care outcomes. Appropriate interventions must be identified and/or developed for each PIP to ensure the likelihood of causing measurable change.

If repeat measures of quality improvement (QI) indicate that QI actions were not successful (i.e., the QI actions did not achieve significant improvement), the problem-solving process begins again with data analysis to identify possible causes, propose and implement solutions, and so forth. If QI actions were successful, the new processes should be standardized and monitored (CMS PIP Protocol, page 16).

## Activity VIII. Sufficient Data Analysis and Interpretation

Review of the BHO data analysis begins with examining the BHO's calculated plan performance on the selected clinical or nonclinical indicators. The review examines the appropriateness of, and the BHO's adherence to, the statistical analysis techniques defined in the data analysis plan (CMS PIP Protocol, page 17).

## Activity IX. Real Improvement Achieved

When a BHO reports a change in its performance, it is important to know whether the reported change represents real change, is an artifact of a short-term event unrelated to the intervention, or is due to random chance. The external quality review organization (EQRO) will need to assess the probability that reported improvement is actually true improvement. This probability can be assessed in several ways, but is most confidently assessed by calculating the degree to which an intervention is statistically significant. While this protocol does not specify a level of statistical significance that must be met, it does require that EQROs assess the extent to which any changes in performance reported by a BHO can be found to be statistically significant. States may choose to establish their own numerical thresholds for finding reported improvements to be significant (CMS PIP Protocol, page 18).

## Activity X. Sustained Improvement Achieved

Real change results from changes in the fundamental processes of health care delivery. Such changes should result in sustained improvements. In contrast, a spurious, one-time improvement can result from unplanned accidental occurrences or random chance. If real change has occurred, the BHO should be able to document sustained improvement (CMS PIP Protocol, page 19).

This document was developed by HSAG as a resource to assist BHOs in understanding the broad concepts in each activity related to PIPs. The specific concept is delineated in the left column, and the explanations and examples are provided in the right column.

| Definitions and Explanations | |
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| **Activity I. Appropriate Study Topic** | |
| **Broad Spectrum of Care** | ◆ Clinical focus areas: includes prevention and care of acute and chronic conditions and high volume/high-risk services. High-risk procedures may also be targeted (e.g., care received from specialized centers). <br><br> ◆ Nonclinical areas: continuity or coordination of care addressed in a manner in which care is provided from multiple providers and across multiple episodes of care (e.g., disease-specific or condition-specific care). |
| **Eligible Population** | ◆ May be defined as consumers who meet the study topic parameters. |
| **Selected by the State** | ◆ If the study topic was selected by the state Medicaid agency, this information is included as part of the description under Activity One: Choose the Selected Study Topic in the PIP tool. |
| **Activity II.  Clearly Defined, Answerable Study Question** | |
| **Study Question** | ◆ The question(s) directs and maintains the focus of the PIP and sets the framework for data collection, analysis, and interpretation. The question(s) must be measurable and clearly defined. <br><br> ◆ Examples: <br> 1. Does outreach immunization education increase the rates of immunizations for children 0–2 years of age? <br> 2. Does increasing flu immunizations for consumers with chronic asthma impact overall health status? <br> 3. Will increased planning and attention to follow-up after inpatient discharge improve the rate of mental health follow-up services? |

| Definitions and Explanations | |
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| **Activity III. Clearly Defined Study Indicator(s)** | |
| **Study Indicator** | ◆ A quantitative or qualitative characteristic reflecting a discrete event or status that is to be measured. Indicators are used to track performance and improvement over time.<br><br>◆ Example: The percentage of enrolled consumers who were 12–21 years of age who had at least one comprehensive well-care visit with a primary care practitioner or an obstetrician-gynecologist during the measurement year. |
| **Sources Identified** | ◆ Documentation/background information that supports the rationale for the study topic, study question, and indicators.<br><br>◆ Examples: HEDIS®[1] measures, medical community practice guidelines, evidence-based practices, or provider agreements.<br><br>◆ Practice guideline examples: American Academy of Pediatrics and American Diabetes Association. |
| **Activity IV. Use a Representative and Generalizable Study Population** | |
| **Eligible Population** | ◆ Refers to consumers who are included in the study.<br><br>◆ Includes age, conditions, enrollment criteria, and measurement periods.<br><br>◆ Example: the eligible population includes all children ages 0–2 as of December 31 of the measurement period, with continuous enrollment and no more than one enrollment gap of 30 days or less. |
| **Activity V. Valid Sampling Techniques** | |
| **True or Estimated Frequency of Occurrence** | ◆ This may not be known the first time a topic is studied. In this case, assume that a maximum sample size is needed to establish a statistically valid baseline for the study. HSAG will review whether the BHOs defined the impact the topic has on the population or the number of eligible consumers in the population. |
| **Sample Size** | ◆ Indicates the size of the sample to be used. |
| **Representative Sample** | ◆ Refers to the sample resembling the entire population. |
| **Confidence Level** | ◆ Statistical confidence is a numerical statement of the probable degree of certainty or accuracy of an estimate (e.g., 95 percent level of confidence with a 5 percent margin of error). |

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[1] **HEDIS®** refers to the Health Plan Employer Data and Information Set and is a registered trademark of the National Committee for Quality Assurance (NCQA).

| Definitions and Explanations | |
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| **Activity VI. Accurate/Complete Data Collection** | |
| **Data Elements** | ◆ Identification of data elements includes unambiguous definitions of data that will be collected (e.g., the numerator/denominator, laboratory values). |
| **Interrater Reliability (IRR)** | ◆ The HSAG review team evaluates if there is a tool, policy, and/or process in place to verify the accuracy of the data abstracted. Is there an over-read (IRR) process of a minimum-percentage review?<br><br>◆ Examples: a policy that includes how IRR is tested, documentation of training, and instruments and tools used. |
| **Algorithms** | ◆ The development of any systematic process that consists of an ordered sequence of steps. Each step depends on the outcome of the previous step.<br><br>◆ The HSAG review team looks for the BHOs to describe the process used in data collection. What are the criteria (e.g., what Current Procedural Terminology and/or source codes were used)? |
| **Data Completeness** | ◆ For the purposes of PIP scoring, data completeness refers to the degree of complete administrative data (e.g., encounter data or claims data). BHOs that compensate their providers on a fee-for-service basis require a submission of claims for reimbursement. However, providers generally have several months before they must submit the claim for reimbursement, and processing claims by the health plan may take several additional months, creating a claims lag. Providers paid on a capitated or salaried basis do not need to submit a claim to be paid, but should provide encounter data for the visit. In this type of arrangement, some encounter data may not be submitted.<br><br>◆ PIPs that use administrative data need to ensure the data has a high degree of data completeness prior to its use. Evidence of data completeness levels may include claim processing lag reports, trending of provider submission rates, policies and procedures regarding timeliness requirements for claims and encounter data submission, encounter data submission studies, and comparison reports of claims/encounter data versus medical record review. Discussion in the PIP should focus on evidence at the time the data was collected for use in identifying the population, sampling and/or calculation of the study indicators. Statements such as, "Data completeness at the time of the data pull was estimated to be 97.8 percent based on claims lag reports (see attached Incurred But Not Reported report)," along with the attachment mentioned, usually (but not always) are sufficient evidence to demonstrate data completeness. |

| Definitions and Explanations | |
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## Activity VII. Appropriate Improvement Strategies

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| **Causes and Barriers** | ◆ Interventions for improvement are identified through evaluation or barrier analysis. If there was no improvement, what problem-solving processes were put in place to identify possible causes and proposed changes to implement solutions?<br><br>◆ It is expected that interventions associated with improvement of quality indicators will be system interventions. |
| **Standardized** | ◆ If the interventions have resulted in successful outcomes, the interventions should continue and the BHO should monitor to assure the outcomes remain.<br><br>◆ Examples: if an intervention is the use of practice guidelines, then the BHOs continue to use them; if mailers are a successful intervention, then the BHOs continue the mailings and monitor outcomes. |

## Activity VIII. Sufficient Data Analysis and Interpretation

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| **Analysis Plan** | ◆ Each study should have a plan for how data analysis will occur.<br><br>◆ The HSAG review team will ensure that this plan was followed. |
| **Generalization to the Study Population** | ◆ Study results can be applied to the general population with the premise that comparable results will occur. |
| **Factors that Threaten Internal and External Validity** | ◆ Did the analysis identify any factors (internal or external) that would threaten the validity of study results?<br><br>◆ Example: there was a change in record extraction (e.g., a vendor was hired or there were changes in HEDIS methodology). |
| **Presentation of the Data Analysis** | ◆ Results should be presented in tables or graphs with measurement periods, results, and benchmarks clearly identified. |
| **Identification of Initial Measurement and Remeasurement of Study Indicators** | ◆ Clearly identify in the report which measurement period the indicator results reflect. |
| **Statistical Differences Between Initial Measurement and Remeasurement Periods** | ◆ The HSAG review team looks for evidence of a statistical test (e.g., a t-test, or chi square test). |
| **Identification of the Extent to Which the Study Was Successful** | ◆ The HSAG review team looks for improvement over several measurement periods.<br><br>◆ Both interpretation and analysis should be based on continuous improvement philosophies such that the BHO document data results and what follow-up steps will be taken for improvement. |

| Definitions and Explanations | |
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| **Activity IX. Real Improvement Achieved** | |
| **Remeasurement Methodology Is the Same as Baseline** | ◆ The HSAG review team looks to see that the study methodology remained the same for the entire study. |
| **Documented Improvement in Processes or Outcomes of Care** | ◆ The study report should document how interventions were successful in impacting system processes or outcomes.<br><br>◆ Examples: there was a change in data collection or a rate increase or decrease demonstrated in graphs/tables. |
| **Activity X. Sustained Improvement Achieved** | |
| **Sustained Improvement** | ◆ The HSAG review team looks to see if study improvements have been sustained over the course of the study. This needs to be demonstrated over a period of several (more than two) remeasurement periods. |