

Colorado Medicaid
Community Mental Health Services Program

**FY 2008–2009
ENCOUNTER DATA VALIDATION
REPORT**

April 2009

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



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Introduction

Accurate and complete encounter data are critical to the success of any managed care program. The Colorado Department of Health Care Policy and Financing (the Department) relies on the quality of encounter data submissions from its contracted behavioral health organizations (BHOs) in order to monitor and improve the quality of care, establish performance measures, generate accurate and reliable reports, and set financially valid capitation rates. The completeness and accuracy of these data are essential for the overall management and oversight of Colorado's Medicaid Community Mental Health Services Program.

In 2006, an audit was conducted by Mercer Government Human Services Consulting (Mercer) to assess the accuracy and completeness of service data reported by the BHOs to the Department.¹⁻¹ Results of the audit indicated that the quality of encounter data may be compromised through the use of self-developed procedure codes and crosswalks by providers and BHOs, inconsistent coding, and incomplete data.

The Department contracted Health Services Advisory Group, Inc. (HSAG) to conduct the 2008 Behavioral Health Encounter Data Validation (EDV) study. The purpose of the EDV study was to evaluate the extent to which administrative encounters for behavioral health services are accurate and complete. Using a variety of methods, HSAG evaluated inpatient, outpatient, and physician/practitioner behavioral health encounters with dates of services (or discharge dates for institutional encounters) between January 1, 2008, and March 31, 2008, for Colorado Medicaid members enrolled in one of the five participating BHOs:

- ◆ Colorado Access Behavioral Care (ABC)
- ◆ Behavioral HealthCare, Inc. (BHI)
- ◆ Colorado Health Partnerships, LLC (CHP)
- ◆ Foothills Behavioral Health, LLC (FBH)
- ◆ Northeast Behavioral Health, LLC (NBH)

In order to evaluate the accuracy and completeness of the Department's encounter data, HSAG conducted a review of members' behavioral health records. During the record review, certified coders reviewed all submitted documentation to determine whether key data elements (i.e., date of service, date of birth, diagnosis, procedure, and unit) obtained from the electronic encounter file were present in the submitted behavioral health records. The coders also determined the accuracy of electronic encounter data based on documentation contained in the behavioral health record.

In addition to the behavioral health record review, HSAG also conducted three supplemental analyses to augment the evaluation and understanding of data quality issues associated with behavioral health encounters submitted to the Department. These analyses included a clinical reasonableness review of

¹⁻¹ Mercer Government Human Services Consulting. *Medicaid Mental Health Rates Performance Audit*. November 2006.

the crosswalks used by participating BHOs, an evaluation of the prevalence of inconsistent coding patterns in the administrative data, and an information system review.

The crosswalk reasonableness review focused on evaluating the extent to which proprietary crosswalks, developed by the BHOs, facilitated proper translation of home-grown procedure codes to Health Insurance Portability and Accountability Act (HIPAA) compliant codes. In the administrative analysis of the inconsistent coding patterns, HSAG classified all the procedures with a date of service during the review period into one of the three categories—i.e., duration-inherent, duration-dependent, and duration-independent. Inconsistent coding patterns were individually identified for procedures in these categories. In addition, HSAG assessed the clinical relevance of these coding practices among the sampled cases. Lastly, in the information system review, HSAG examined the responses filled out by the BHOs and the Department on the Information Systems Capabilities Assessment Tool (ISCAT). For this review, HSAG also interviewed select Department staff members in order to understand the internal mechanisms used to process submitted encounters. Findings from these three supplemental analyses were used to improve the understanding of the current quality of behavioral encounters as submitted in the Medicaid Management Information System (MMIS).

Key Findings

Information Systems Review/Staff Interview

The interviews conducted with Department staff members from the Rates, Information Systems, and Business Analysis sections identified that the MMIS system was still in its early stage of testing and implementation at the time of this review. Despite having most of the system edits turned off to facilitate the acceptance of submitted encounters in the MMIS system, issues associated with encounter data completeness were prevalent. Staff members indicated that, historically, different sections handled separate encounter submission environments (i.e., flat-file versus MMIS environment); and that insufficient communication, support, and coordination among the sections resulted in an ineffective collaborative environment. Furthermore, staff members identified that decisions made during the initial implementation of the MMIS system to support the processing of fee-for-service claims may not address or accommodate the unique qualities of behavioral health encounter data. One major issue related to the use of the MMIS system was related to the challenge of balancing the need for functional system edits to verify the completeness and accuracy of submitted encounters with the need to allow flexibility in accommodating the service packages designed by BHOs.

BHO Crosswalk Reasonableness Review

Overall, BHOs' crosswalks were generally characterized by a high degree of clinical reasonableness. However, several areas for improvement were noted for some sets of service codes, including:

- ◆ Mapping local service codes to deleted or non-compliant HIPAA codes
- ◆ Bundling local service codes to a HIPAA-compliant code without explanation
- ◆ Mapping missed appointments to a HIPAA-compliant code

Additionally, the lack of details and guidelines for determining specific service units based on time or duration information, as well as unclear service descriptions, appeared to be prevalent issues among the BHOs' crosswalks. Most crosswalks did not have lengthy service descriptions in the crosswalks, leading contracted providers to rely on abbreviated service description text to identify how rendered services map to the appropriate CPT codes.

Inconsistent Coding Analysis

Overall, findings from the inconsistent coding analysis indicated that issues highlighted in the 2006 Mercer Audit Report¹⁻² were not widespread. With the exception of encounters being repeatedly submitted to the MMIS system, the encounter data does not appear to have major issues associated with inconsistent coding. HSAG identified the following specific results based on its coding analysis of encounter coding practices:

- ◆ 0.8 percent of outpatient encounters and 0.4 percent of professional encounters contained duplicated detail lines (i.e., same date of service, procedure codes, and units).
- ◆ Fewer than 5 percent of encounters were submitted with multiple dates of services bundled together.
- ◆ Seven out of 10 outpatient and professional encounters appeared to be submitted repeatedly to the MMIS system.
- ◆ Less than 1 percent of outpatient and professional encounter detail lines were reported with questionable units for duration-inherent (time-based) procedures and larger-than-expected units for duration-dependent (unit-based) procedures.
- ◆ About 3.8 percent of professional encounter detail lines may contain questionable units for duration-independent procedures.

Based on HSAG's review, the issue of the repeated submission of encounters may be an artifact of accepting both paid and denied encounters into the MMIS system. If the duplicate submissions do not represent adjudicated or reversed encounters—since this finding is evident only for some BHOs—the data issue may be related to how BHOs communicate to their contracted providers in terms of submitting claims/encounters. The duplicate submission of an encounter increases the number of units associated with an encounter and impacts the overall unit accuracy rates. Based on HSAG's findings from the behavioral health record review, BHO performance on the unit accuracy (50 percent statewide) was much lower than diagnosis (87.9 percent) and procedure code (81.6 percent) accuracy. The impact of submitting duplicate encounters will impact the accuracy of reported rates by inflating client group utilization rates, as well as the ability to set accurate capitation rates.

HSAG noted variation regarding the prevalence of these issues among BHOs. ABC was found to have a higher rate of encounters submitted with duplicated detail lines or bundled dates of services than the other four BHOs. In addition, BHI and NBH were found to have a much higher proportion of encounters submitted repeatedly to the MMIS system.

¹⁻² The 2006 Mercer report cited a concern that similar behavioral health services could be submitted in multiple ways by different providers leading to inconsistency in the coding of services. For example, providers could submit an encounter for a behavioral health service with three units spread across three detail lines (one unit each) or one detail line listed with three units.

Encounter Data Completeness and Accuracy

Omission

At the date of service level, 95 percent of sampled encounters had supporting documentation in the behavioral health records for either their first date of service or the discharge date of service. Behavioral health record omission rates for the discharge date of service (15.1 percent) were generally higher than those for the first/admit date of service (4.3 percent). In general, BHO variations in omission rates were larger for discharge date of service (0 percent to 22.6 percent) than for first/admit date of service (2.3 percent to 6.8 percent).

For diagnosis codes, the overall behavioral health omission rate was 6.4 percent (135 of the 2,095 diagnoses), with the majority of these omissions corresponding to encounters for which the dates of services were also omitted in the behavioral health record. Variations among the BHOs were larger than 5 percent (8.2 percent, ranging from 2.7 percent to 10.9 percent). In addition, among the encounters with validated dates of services, 87 diagnoses were identified in the behavioral health records but not in the administrative data (encounter data omission rate: 4.7 percent). The difference among BHOs was 3.3 percentage points (ranging from 2.9 percent to 6.2 percent).

For procedure codes, about 1 out of 10 procedures (9.4 percent) in the administrative data was not supported by documentation in the behavioral health records. Wide variations among BHOs were observed for both the behavioral health record and encounter data omission rates. For behavioral health record omission rates, the variation was 11 percentage points with BHO rates ranging from 6.8 percent to 17.5 percent. For encounter data omission rates, the overall rate was 5 percent, with BHO rates varying from 0 percent to 20.9 percent.

Accuracy

Overall, there were more than 8 out of 10 diagnoses in the administrative data (87.9 percent) among encounters with validated dates of services. About 60 percent of the invalid diagnoses were related to specificity errors. Across BHOs, a 21 percentage point difference was observed in the accuracy rate (from 73.3 percent to 94.1 percent). BHOs also varied in the type of errors identified for the diagnoses. Except for FBH, the majority of the invalid diagnoses were associated with incorrect codes; FBH diagnosis errors were largely associated with specificity errors.

With regard to procedure codes, approximately 8 out of 10 procedure codes (1,746 out of 1,986 procedures, 81.6 percent) submitted for an encounter with a valid date of service were supported by documentation in the behavioral health records. Outpatient and professional encounters tended to have similar procedure code accuracy rates. Overall, about two-thirds of the 285 incorrect procedure codes were related to two procedures: 90887 and 90882. Three BHOs exhibited a high degree of accuracy (9 out of 10 procedure codes validated) while two BHOs had fewer than 7 out of 10 validated procedure codes. The incorrect procedures identified during the record review appeared to be related to the BHOs' crosswalk not providing definitive guidelines for code assignment rather than the providers' unfamiliarity with the crosswalk or the miscoding the services.

For unit accuracy, slightly over half of the units reported with a valid procedure (i.e., 902 out of 1,747 procedures) were also supported by documentation in the behavioral health records. One in 10 of the invalid units did not have any units information documented in the records. At the statewide level, the three most common procedure codes with invalid units were 90806, T1016, and 90862. Considerable differences were observed among the BHOs, with two BHOs having a rate below 6 percent and one BHO with a rate as high as 95.5 percent. BHOs with low unit accuracy rates tended to have a high degree of documentation, suggesting that the error in unit reporting may be closely related to unclear documentation. In addition, corroborating results from the inconsistent coding analysis with the unit accuracy rates suggests that the noticeably lower rates for two BHOs is related to a high percentage of potentially duplicated encounters—i.e., the same date of service and procedure submitted multiple times to the MMIS system.

In reviewing the accuracy of members' documented dates of birth, more than 96 percent of the dates of birth in the administrative encounters were accurate, with individual BHO rates ranging from 92.9 percent to 99.0 percent. The majority of the invalid entries were related to a lack of documentation in the behavioral health records, rather than a wrong date of birth.

Conclusions and Recommendations

Conclusions

The findings from the behavioral health record review—as supplemented by the BHO crosswalk reasonableness review, coding analysis, and staff interviews—suggested that, overall, the quality of the encounters submitted by the participating BHOs to the MMIS system was good. In terms of encounter data omissions, fewer than 6 percent of dates of services, 7 percent of diagnosis codes, and 10 percent of procedure codes were omitted from the behavioral health documentation. Encouraging results were also found in the accuracy of data elements submitted in the encounters. For dates of birth, more than 96 percent of the evaluated cases were accurate. Among those encounters with behavioral health record documentation, a high proportion of cases illustrated that accurate diagnosis and procedure codes were being submitted to the MMIS system. Overall, the diagnosis code accuracy rate was 87.9 percent and the procedure rate was 81.6 percent. A notable proportion of the invalid procedure codes were likely related to the appropriateness of mapping by some BHOs of the internal service codes to CPT/HCPCS codes. Although the accuracy rate for units of service was much lower than either diagnosis or procedure codes (51.6 percent), the results may be related to the repeated submission of encounters in the MMIS system. Because the inconsistent coding analysis suggests that very few encounters have issues related to larger-than-expected units of service, the relatively lower accuracy rate for units across BHOs will likely be improved once the MMIS system is modified to account for adjusted encounters.

Recommendations

Based on the findings presented in this report, HSAG recommends the following:

- ◆ The Department should take a leadership role in organizing encounter data work groups to discuss policies and procedures that will ensure high-quality data. Initial meeting topics, held internally, should focus on developing clearer data submission requirements and standards, monitoring measures, and system edits and report. The Department should also use these meetings to prioritize and address issues identified by staff members from different data user sections. Regular meetings should also be held with BHOs and information system staff to address data quality issues and encounter data submission issues. Additionally, solutions related to the inflexibility of system edits can be explored through the use of informational and critical edits allowing for behavioral health innovation.
- ◆ The Department should encourage the BHOs to work with their provider networks to ensure that services provided to their clients (including all visits and associated diagnoses/procedures) are fully documented in the behavioral health record and submitted to the Department. Since date of service omission rates appeared to be higher among inpatient and outpatient services, BHOs discuss and educate, as appropriate, institutional providers on how dates of services should be submitted in the encounter for each service episode. The Department should also work with BHOs to clearly identify and document different service types. Additionally, regular provider training and continuing education should be conducted to ensure all providers are aware of required/covered behavioral health services, and how to appropriately translate services into HIPAA compliant codes.
- ◆ Although both diagnosis and procedure code omission rates were generally below 10 percent, there was still room for improvement in submitting the complete list of diagnoses and procedure codes associated with a service episode. The Department should work with the BHOs to ensure State requirements regarding the submission of complete and accurate encounter data are understood and integrated into the BHOs' internal processing of encounters. In the case of diagnosis and procedure code accuracy (81.6 percent), the BHOs should work with providers to enforce and/or enhance current documentation standards to facilitate the accurate submission of encounter data. This activity can be achieved through provider network outreach and continuing education. For the documentation of diagnoses, the BHOs should make sure that contracted providers fully specify and document members' diagnoses to the nearest fifth digit, as appropriate.
- ◆ As BHOs are still using internal crosswalks to translate services to appropriate HIPAA compliant codes, the BHOs should provide periodic training in using the crosswalk materials, in order to facilitate its appropriate use. BHOs should also regularly review their crosswalk documentation and specifications to ensure it is up-to-date and accurate. This activity should be conducted as part of an internal data quality committee. Further, the lack of sufficient documentation in members' behavioral health records to support the administrative data suggested possible deficiencies in the BHOs' use and application of internal crosswalks. As such, HSAG suggests that BHOs conduct a critical examination of the clinical relevance and reasonableness of the crosswalks. In addition, the BHOs should ensure that crosswalk documents are thoroughly written and include a full description of services, including specific

policies and procedures surrounding unit of service determination and the appropriate rounding of time. The BHOs should also encourage providers to retire the use of local service codes and, instead, work toward storing and submitting HIPAA-compliant CPT/HCPCS codes on claims or encounters.

- ◆ Slightly over half of the units of service submitted on encounters with valid procedure codes were not supported in the behavioral health records. Corroborating results from the inconsistent coding analysis and behavioral health record review suggest that this may be related to the acceptance of repeated submission of encounters in the MMIS system. Due to the inability of the current system to ascertain whether the “duplicated” encounters refer to the same service transaction, the ability of this study to evaluate unit accuracy rates conclusively was affected. The Department, therefore, should evaluate how the current MMIS system handles the submission of adjusted encounters by BHOs and assesses the impact of the current design on the calculation of performance measures and rate-setting. In addition, the Department should ensure that either BOA or COGNOS decision support systems can accept the BHOs’ unique transaction control numbers. The Department should also work with BHOs to identify the root cause for this issue and explore strategies for improvement. If the issue is shown to be related to how BHOs’ providers submit claims/encounters, the Department should require BHOs to provide clear language within their provider contracts outlining the submission of claims and adjudicated claims. In addition, the Department should require BHOs to initiate internal processes to evaluate the submission of duplicated claims. This modification can be achieved by submitting the same TCN on submitted encounters to ensure the appropriate overlay of the original encounter in the MMIS system.
- ◆ The BHOs should encourage their contracted providers to report time and duration information in members’ behavioral health records. The clearer documentation of time will facilitate the identification of the appropriate time-based CPT/HCPCS codes by the billing staff. Clearer documentation also supports good practices and service planning. The BHOs could identify examples of clear documentation and organize periodic audits to ensure that service providers are clearly documenting members’ services in support of the BHOs’ complete and accurate encounter submission to the Department.
- ◆ The Department should consider conducting an in-depth information systems review of the MMIS encounter data system and internal processes. The focus of this review would go beyond the staff interviews conducted in this study and should evaluate internal systems responsible for acquiring, processing, and storing encounter data submitted by the BHOs. As part of this review, the Department should investigate, in collaboration with the BHOs, whether system-based barriers impact the accurate and complete submission of encounter data. Detection of incomplete data fields, questionable data values, or abnormal fluctuations in encounter volume by service type at the initial submission stage may help the BHOs more quickly correct issues dealing with completeness and accuracy. The development of a robust set of data quality measures and methods will help to guide and evaluate the BHOs’ ability to submit appropriate data to the Department.
- ◆ The Department should work collaboratively with all BHOs to develop encounter data quality standards. These standards can then be assessed annually to ensure that submitted encounter data is of sufficient quality for State reporting and rate setting. To complement the development standards, the Department should consider implementing strategies to motivate the BHOs to

meet established short-term and long-term benchmarks. These strategies can include financial incentives or penalties, or the development of corrective action plans through enhanced monitoring and reporting. Additionally, it is recommended that the Department develop guidelines for BHOs to perform ongoing reviews of encounter data quality in order to monitor and address the quality of data being collected and submitted to the Department's encounter data system. Ongoing reporting could include additional, targeted reviews of coding accuracy and other administrative, data-based analyses (i.e., age/gender coding discrepancies, field accuracy reviews, utilization measures, and encounter timeliness and volume).

Background

The completeness and accuracy of the encounter data are essential for the overall management and oversight of the Colorado Medicaid Community Mental Health Services Program. Encounters submitted by the contracted BHOs have a direct impact on how the Department establishes performance measures, monitors the BHOs' performance via reports, and sets valid capitation rates for contracts.

In 2006, the State Auditor contracted with Mercer to conduct performance audits.²⁻¹ Part of the Mercer audit included an assessment of the accuracy and completeness of service data reported by the BHOs to the Department. Findings from the audit report indicated that the quality of encounter data may have been compromised through the use of self-developed procedure codes and crosswalks by providers and BHOs, inconsistent coding, and incomplete data.

Purpose

In response to Mercer's recommendations, the Department contracted HSAG to conduct the 2008 Behavioral Health EDV project. The purpose of this study was to evaluate the extent to which administrative encounters for behavioral health services are accurate and complete. In addition to the two core activities (i.e., behavioral health record review and information systems review) outlined in the Centers for Medicare & Medicaid Services' (CMS) Validating Encounter Data Protocol,²⁻² this study also included an analysis of inconsistent coding patterns in reported units of service and a review of BHO-developed coding crosswalks. Together, these analyses will address the following two study questions:

- ◆ To what extent are administrative encounters for behavioral health services complete?
- ◆ To what extent are administrative encounters for behavioral health services accurate?

²⁻¹ Mercer Government Human Services Consulting. *Medicaid Mental Health Rates Performance Audit*. November 2006.

²⁻² Department of Health and Human Services, Centers for Medicare & Medicaid Services. Validating encounter data: A protocol for use in conducting Medicaid external quality review activities. *Protocols for External Quality Review of Medicaid Managed Care Organizations and Prepaid Inpatient Health Plans*. Final Protocol, Version 1.0, May 1, 2002. Available at: http://www.cms.hhs.gov/MedicaidSCHIPQualPrac/07_Tools,%20Tips,%20and%20Protocols.asp. Accessed on: March, 15, 2007.

The primary focus of the EDV study was an evaluation of encounter data completeness and accuracy via behavioral record review and three supplemental analyses: reasonableness review of BHO-specific crosswalks; inconsistent coding analysis; and an information system review. Since each component required different methodological approaches, each of the methodologies is described in a separate subsection that follows.

Encounter Data Completeness and Accuracy

Study Population

The 2008 EDV study evaluated inpatient, outpatient, and physician/practitioner behavioral health encounters with dates of services (or discharge dates for institutional encounters) between January 1, 2008, and March 31, 2008, for Colorado Medicaid members enrolled in one of the five BHOs.

Sampling

HSAG selected a sample of 411 cases for each BHO, for a final study sample size of 2,055 cases. To generate the sample for this study, HSAG employed a two-stage sampling strategy. In the first stage, 411 members, stratified by service type, were sampled from the eligible population. Based on a preliminary review of the data, HSAG found that institutional encounters accounted for less than 1.5 percent of all encounters (0.3 percent for inpatient and 1.2 percent for outpatient). Due to their small proportion institutional encounters were over-sampled. More specifically, a random sample of 30 members who had at least one inpatient episode was first selected. For those BHOs that had fewer than 30 members with an inpatient episode during the study period, all members with an inpatient episode were selected. Once the inpatient member sample was defined, members with outpatient or professional service episodes were randomly selected until a total sample of 411 cases was selected.

In the second stage, one episode was randomly selected from the total list of encounters associated with the sampled member. For this evaluation, an episode was defined as all services provided to a member on the same date of service by the same billing provider. As such, if a provider submitted more than one encounter for multiple services on the same date, these encounters were grouped and treated as a single episode.

Data Collection

After the sample was generated, HSAG forwarded the complete sample list to each participating BHO. The sample list contained members' demographic information and any provider information that was available in the encounter record. Since dummy provider IDs were the only information available in the Department's encounter data, dates of services for the sampled encounters were provided in the sample list to assist the BHOs in locating specific providers for the sampled episode. The BHOs were responsible for locating the members' inpatient discharge summaries, outpatient records, or behavioral health records from all the providers associated with the supplied date of service. In addition to this documentation, the BHOs were responsible for procuring the initial/interim assessments completed prior to January 1, 2008, or completed and associated with encounters rendered during the review period.

Behavioral health record procurement was scheduled for October 6, 2008, through December 15, 2008. BHOs used several means to submit their records to HSAG, including electronic record remote access, scanned electronic copies, and mailed hard copies. Table 3-1 shows the behavioral health record submission rate by BHO.

Table 3-1—Record Submission Rates					
BHO	Initial Sample Size (n)	Valid Exclusions	Adjusted Sample Size	Number of Records Submitted	Percentage of Records Submitted
ABC	411	0	411	410	99.8%
BHI	411	5	406	406	100.0%
CHP	411	19	392	391	99.7%
FBH	411	0	411	410	99.8%
NBH	411	0	411	410	99.8%
Colorado Overall	2,055	24	2,031	2,027	99.8%

Trained and experienced coders abstracted information from each submitted record and recorded the validation results using an electronic record abstraction tool. During the record review, certified coders reviewed all the submitted documentation to determine whether key data elements obtained from the electronic encounter file were present in the submitted behavioral health records. Table 3-2 presents the specific data elements that were validated by encounter type.

Table 3-2—Data Elements For Validation

Data Element	Inpatient Encounter	Outpatient Encounter	Physician/Practitioner Encounter
Date of Birth	X	X	X
Date of Service		X	X
Date of Admission ^A	X	X	
Date of Discharge ^A	X	X	
Diagnoses	X	X	X
Service Procedures		X	X
Service Units		X	X

^A Based on discussions with the Department, the first date of service and last date of service for institutional encounters were used for validation of admission and discharge dates. A preliminary data review indicated that some outpatient encounters had the first date of service different than the last date of service. As such, the dates of these outpatient encounters will follow the date of service validation rules set up for inpatient encounters.

Study Indicators

HSAG reported the overall rates and BHO-specific rates for all the study indicators. Results from the behavioral health record review were analyzed and summarized via the following indicators:

- Behavioral health record omission rate**—This rate evaluated the proportion of data elements identified in the electronic encounter file that were absent in the behavioral health record. This measure identified the extent to which submitted encounters did not have corresponding documentation in the behavioral health record. These rates were reported at the date of service, diagnosis, and procedure code level. For diagnosis codes, the behavioral health record omission rate identified the extent to which diagnoses submitted in the administrative data were supported by the behavioral health record.
- Encounter data record omission rate**—This rate measured the degree to which data elements documented in the member's behavioral health records were absent in the electronic encounter file. Due to limitations in the administrative data, the present study did not select an additional date of service from the behavioral health records for evaluating encounter data omission rates. As a result, encounter record omissions were evaluated only for procedures and diagnoses with dates of services present in both the encounter data and the behavioral health records. However, since it is likely that a validated date of service has diagnoses and procedures documented in the behavioral health records but not in the administrative data, this study reports encounter data omission for the diagnosis and procedure codes.
- Accuracy rate**—This rate evaluated the proportion of elements present in both the electronic encounter file and behavioral health records that contained valid values. In other words, it identified the extent to which the submitted encounter contained valid clinical information for the services rendered based on documentation in the behavioral health records. The rates were assessed for date of birth, diagnosis codes, procedure codes, and units of service. Reasons for accuracy errors associated with diagnosis codes were also reported (i.e., specificity errors and incorrect codes with additional appropriate codes).

HSAG also reported the procedure and unit accuracy rates among a predetermined set of procedures requested by the Department.³⁻¹ HSAG reported the number of encounters submitted with these procedures in the administrative data, the number (and percentage) of procedures with documentation in the behavioral health records, and the number (and percentage) of valid procedures with correct units documented in the records.

BHO-specific Crosswalk Reasonableness Review

As managed care becomes more prevalent in behavioral health practices, it was necessary for BHOs to develop crosswalks to facilitate proper translation of the internal service codes to HIPAA-compliant codes for billing purpose. This analytical component focused on evaluating the reasonableness of the clinical relationship between the service descriptions identified in the local service codes and the assigned HIPAA-compliant CPT/HCPCS codes for each BHO-specific crosswalk. An HSAG reviewer experienced in behavioral health coding reviewed all crosswalk materials supplied by BHOs and highlighted issues related to these materials. Since HSAG had already conducted a crosswalk reasonableness review for CHP in July 2008, results were presented in a separate report and submitted to the Department. This report presents results for the four other BHOs (i.e., ABC, BHI, FBH, and NBH).

Inconsistent Coding Analysis

The inconsistent coding analysis focused on quantifying the prevalence of inconsistent coding patterns for units of service. Accurate reporting of the unit associated with a particular service procedure code provides important information to behavioral health organizations and the Department on the utilization patterns, resource allocation, and appropriateness of care related to different client groups. In general, the reporting of units is dependent upon the types of procedure codes:

- ◆ Duration-inherent³⁻² (time-based) codes
- ◆ Duration-dependent³⁻³ (unit-based) codes
- ◆ Duration-independent codes: The time duration may not be immediately relevant in describing the service. For example, time duration would not be an important feature for describing medication administration (injections or oral). Instead, the number of administration would be important. For these services, the number of units is still an important component in reporting, but the interpretation of the unit would be different than those duration-dependent procedure codes.

³⁻¹ The request was made via an email from the Department on July 3, 2008. The selected procedures include 90804, 90805, 90806, 90807, 90808, 90810, and H2011.

³⁻² For example, CPT code 90804 is appropriate only when the individual psychotherapy service rendered is between 20 to 30 minutes. When the service lasts longer than 35 minutes, a different CPT code (90806) should be used.

³⁻³ For example, a provider reporting the use of a crisis intervention service is required to also report the number of 15-minute units for the amount of time they provide such service. If the service lasts for 30 minutes, the provider will submit an encounter containing the CPT code H2011 with two units associated with this code.

To accomplish this task, HSAG first classified all the procedures performed during the study period into these three categories, and then examined the frequency distribution of coding patterns within each category. For duration-inherent codes, questionable units (i.e., units more than one) were identified and reported. For duration-dependent codes, a maximum number of units for a day was predetermined as the upper limit and encounters with units that exceeded that upper limit were identified and reported. For example, procedure code 96101 (Psychological testing – per hour) would have a potential maximum number of units of eight for one day (equivalent to eight hours of psychological testing). Encounters with units exceeding eight would be flagged and considered questionable. Table 3-3 presents the duration-dependent/unit-based codes with maximum units.

Table 3-3—Maximum Units Used for Investigating Procedure-Unit Relationships for Duration-Dependent Procedures

Procedures/Description	Maximum Units
97535 (Self-care/home management training, each 15 min.) H0034 (Medication training and support, per 15 min.) H0036 (Community psychiatric supportive treatment, face to face, per 15 min.) H0038 (Self-help/peer services, per 15 min.) H2011 (Crisis intervention service, per 15 min.) H2014 (Skills training and development, per 15 min.) H2032 (Activity therapy, per 15 min.) T1016 (Case management, per 15 min.) T1017 (Targeted case management, per 15 min.)	16
H0018 (Behavioral health, short-term residential, without room and board, per diem) H0019 (Behavioral health, long-term residential, >30 days, without room and board, per diem) H0037 (Community psychiatric supportive treatment program, per diem) H0044 (Supported housing, per month) H0045 (Respite care services, not in the home, per diem) H2013 (Psychiatric health facility service, per diem) H2022 (Community-based wrap-around services, per diem) H2024 (Supported employment, per diem) H2031 (Mental health clubhouse services, per diem)	1
96101 (Psychological testing, per hour) H2012 (Behavioral health day treatment, per hour)	8

In addition to investigating the relationships between the procedure codes and the units submitted in the administrative encounters, HSAG also examined the extent to which outpatient and professional encounters contained the following submission patterns:

- ◆ Duplicated detail lines as defined by the same date of service, procedure code, and unit of service within an encounter
- ◆ Encounters bundled with multiple dates of services as defined by detail lines with different dates of services, but submitted as one encounter (header)
- ◆ Encounters with the same information submitted multiple times as defined by an encounter with the same date of service, procedure code, and unit of service but different transaction control numbers (TCNs)

During the staff interviews conducted in January 2009, it was noted that, although the MMIS system currently did not have a formal overlay and delete process for adjusted encounters, paid encounters could be determined by a specific value (“E” for encounters and “F” for denied encounters) in the *Batch_Document_Type* field. Another extraction of encounters with this field was conducted in early February. Further investigation revealed repeated entries for the same encounters (defined by same date of service, billing provider ID, diagnosis, procedure, and units) for both values in the field. Since understanding the current mechanism of assigning value to adjusted encounters was beyond the current scope of this project, the inconsistent coding analysis presented findings based on the analyses of the original set of encounters extracted in November 2008.

Information System Review

To understand how the encounter data submission and processing affects data quality, HSAG incorporated findings from the performance measure validation activities, responses submitted by each BHO and the Department on the ISCAT, and conducted phone interviews with select Department staff. Results were used to supplement results revealed from the behavioral health record review.

Study Limitations

During the course of the study, HSAG identified several limitations:

1. The unavailability of a true/accurate provider ID in the encounter data file posed a major limitation to the accurate assessment of completeness and accuracy of the behavioral encounter data. Current encounter data file contains a dummy provider ID for each encounter. This dummy provider ID more closely aligned with the provider type for a specific BHO rather than a unique provider identifier. Because this provider ID was used as a means to select random sample of date of service, study results related to accuracy may be biased as procedure codes and diagnosis codes for the same date of service but different providers may be aggregated and reported as the same service. The inability to identify a true/accurate provider ID also limited the ability of the study to evaluate behavioral health omission.

2. Although BHOs were instructed to provide all applicable documentation for a selected member based on the identified provider, some BHOs only submitted documentation related to the sampled date of service. Further, the study was also limited to reporting the encounter data omission rate for date of service.
3. Based on its current set of edits, the MMIS system accepted encounters that were still undergoing adjudication in the system. As a result, HSAG found an unusually high proportion of encounters with the same procedure code rendered on the same date of service submitted in the system. There did not appear to be a unique approach to identify adjudicated encounters. Consequently, results generated by the inconsistent coding analysis may have been biased.

Introduction

Because encounter data are used for many important operational functions (such as program monitoring, performance evaluation, rate-setting), it is crucial for the Department to receive timely, complete, and accurate encounters from the contracted BHOs. Encounter data quality is primarily affected by several components—namely, the Department’s ability to receive and store encounters as they are submitted by the BHOs, the ability to monitor the BHOs’ use of HIPAA-compliant codes in their encounter submissions, and the ability to evaluate the BHOs’ performance in submitting accurate and complete encounters. The Colorado Behavioral Health EDV study was conducted to identify the quality of Colorado’s behavioral health encounter data and suggest improvements.

Information System Review/Staff Interview

In addition to a review of the Department’s FY 2007–2008 responses to the ISCAT, HSAG also scheduled three separate interviews with staff members from different departments that process or use submitted encounter data. These interviews were intended to solicit feedback on the current MMIS system and encounter data submission process, as well as any suggestions for further improvements. Responses solicited for the ISCAT tool referred primarily to receiving encounters via the legacy flat-file submission process. The information was not as applicable as the information collected from the staff interviews.

Historically, BHOs submitted their behavioral health encounters in a flat-file format to the Department via a secure FTP site by a predefined due date. These encounters were processed through a series of system edits, including checks on all required fields, distinct client counts, client counts by service type, unit counts by service type, and duplication checks. The BHOs would then receive a report of their submission based on these edits and were given a two-week period to resolve any issues and resubmit encounters. This process was primarily managed by the Rates section at the Department. The Rates section used concatenation functions (linking in a series) to create unique keys in the data to identify duplicates. This group also mapped procedure codes contained in the flat file to an internal classification bucket for pricing purpose. Encounters in the flat file were primarily used by the Rates section in the calculation of performance measures and pricing, as well as by other departments, such as the Business Analysis section, for ad hoc analyses. It is the Department’s intention to move behavioral health encounter submission from the current flat-file process to the MMIS system. The Department anticipates that once the transition to the MMIS system is complete and the MMIS system is processing all behavioral health encounters, most of the manual backend edits and manipulation processes will be automated. Additionally, it is anticipated that more sophisticated encounter edits (e.g., eligibility and enrollment checks, gender- or age-appropriate procedure checks, and restricted service checks for inpatient hospital) will be applied to evaluate the accuracy of encounters on the front end of encounter processing. Still in the testing stage at the time of this validation, the MMIS system had only minimal edits in operation for behavioral health

encounters. This was intentional to allow a maximum number of encounters to be accepted into the MMIS system for testing. More system edits will be activated once the system becomes more robust.

In addition to the transition from a flat file to an MMIS submission environment, the Department is also undergoing changes associated with purchasing a new decision support system for MMIS. Historically, the decision support system for the MMIS system had been Business Objects Applications (BOA). IS staff indicated in the interview that since November 2008, the Department has purchased Cognos to replace BOA because of an outdated business license and incompatibility with the Colorado Benefits Management System (CBMS). At the time of the validation, the Department was running both applications concurrently.

Since the MMIS system was first set up to process fee-for-service claims, decisions made several years ago may not address and accommodate unique circumstances associated with behavioral health encounter data. A major issue identified by end-user staff members was related to balancing the need for functional system edits to check for completeness and accuracy against the need to allow flexibility to accommodate service packages designed by BHOs. Specific issues noted included:

- ◆ The absence of a rendering provider ID.
- ◆ Inconsistent pricing/automated pricing that was not functional.
- ◆ The use of MMIS system-assigned TCNs rather than BHO-assigned TCNs.
- ◆ The absence of system edits that facilitate encounter suspension and trigger further investigations.
- ◆ A system that was not up-to-date with rate-setting program management principles.

The staff members also suggested that data issues present in the current flat-file submission environment may carry over to the MMIS and Cognos systems. These issues included challenges in differentiating inpatient versus outpatient encounters, calculating inpatient days (with the same first and last date without admit and discharge dates), and distinguishing physical health-related encounters from behavioral health-related encounters.

In addition to system-related issues, the staff members also expressed there were challenges in communication and leadership in setting priorities and developing forward-moving business processes. Since the Rates and Information System sections were responsible for different data systems, communication has been sporadic and mostly on an ad hoc basis. To ensure that complete and accurate data are maintained in the MMIS system, it is key for staff members and end users to meet regularly and discuss data quality issues.

Because this study extracted encounter data from the MMIS through BOA, some of these issues had significant ramifications on the results of the study. For example, since the MMIS system is still in its testing stage, the Department's lack of confidence in using encounters in the system may suggest a premature use of behavioral health record review for encounter data validation. The absence of a rendering provider ID limited the scope of the current study to examine behavioral health record omissions only. The extent to which dates of services/episodes were documented in behavioral health records but were not submitted as encounters was excluded from the study. The MMIS system-assigned TCNs did not allow the sampled encounters to be easily tracked by BHOs to

retrieve the behavioral health records, causing another revision of the study methodology to release the sample dates of services to the BHOs for record procurement. Since the date of service field was one of the critical encounter data elements validated in the EDV study, the release of this field potentially biased the findings since the independence of the behavioral health record review was compromised.

BHO-specific Crosswalk Reasonableness Review

The purpose of the reasonableness review was twofold: (1) to evaluate the clinical reasonableness of the crosswalk based on information supplied by BHOs and (2) to evaluate the degree of variation observed across the BHOs' internally developed crosswalks.

Acknowledging that BHOs may have different policies for governing the approach to ensure HIPAA-compliant procedure codes are submitted to the Department, HSAG asked BHOs to submit all documents related to its crosswalk development and all communications with their contracted providers. HSAG also requested that BHOs submit any documents that the BHOs or their contracted providers used for assigning codes for services, including documented algorithms, written business processes, super bills, cheat sheets, and crosswalks. Since HSAG had already conducted a crosswalk reasonableness review for CHP in July 2008, results were presented in a separate report and submitted to the Department. This study reports crosswalk reasonableness results for ABC, BHI, FBH, and NBH only.

The crosswalk materials supplied by the BHOs for review came in a variety of formats and with a variety of content. Table 4-1 lists the documents received from the four BHOs. Variations in the supporting documents provided were observed not only among BHOs but also across documents for community mental health centers (CMHC) within each BHO. The amount of details also varied, with one notable theme across all BHOs' crosswalks being the absence of detailed service descriptions. Most of the BHOs submitted the crosswalk documents without reference tables (e.g., place of service, specific program type, or provider type).

Table 4-1—Documents Supplied by BHO for Reasonableness Review

	ABC	BHI	FBH	NBH
Documents	<ul style="list-style-type: none"> One Excel spreadsheet for one CMHC (i.e., Mental Health Corporation of Denver) 	<ul style="list-style-type: none"> One Excel workbook with three spreadsheets, one for each CMHC 	<ul style="list-style-type: none"> One spreadsheet for crosswalk Coding documentation standards Event entry guidelines Business rules 	<ul style="list-style-type: none"> Three Excel spreadsheets, one for each CMHC
Contents	<ul style="list-style-type: none"> 140 rows mapping activity codes with service description to CPT codes 	<ul style="list-style-type: none"> Aurora Mental Health Center (AUMHC) had more than 450 rows mapping with CPT codes Community Reach Center and Arapahoe/Douglas Mental Health crosswalks had fewer than 60 rows 	<ul style="list-style-type: none"> More than 12,500 rows 	<ul style="list-style-type: none"> All crosswalks contained more than 350 rows
Crosswalk characteristics	<ul style="list-style-type: none"> No unit or duration columns 	<ul style="list-style-type: none"> Most have a short service description (AUMHC crosswalk also had a long service description) 	<ul style="list-style-type: none"> Reference table for place of service provided in the Excel workbook 	<ul style="list-style-type: none"> Contained local service codes, reporting unit, recipient codes, attendance codes, location, duration, CPT/HCPCS codes, and State B3 modifier
		<ul style="list-style-type: none"> Place of service crosswalk and B3 modifier assignment logic in the same spreadsheet 	<ul style="list-style-type: none"> Contained tier code, service description, time, program code, program description, CPT/HCPCS code, CPT/HCPCS description, and whether it was a State service, modifier, nature of the unit 	<ul style="list-style-type: none"> Only Larimer Center Mental Health and Northrange Behavioral Health crosswalks had a short service description with effective lapse dates

Table 4-2 provides an overview of the findings from the clinical reasonableness reviews. The table presents issues identified in each crosswalk supplied by the four BHOs. In general, these crosswalks maintained a high degree of clinical reasonableness with a few areas in need of improvement. While most of the identified issues were minor, a few items posed potential problems to the integrity of the crosswalks. These issues included the mapping of local service codes to deleted or non-HIPAA-compliant codes, bundling local service codes to a HIPAA-compliant code without explanation, and mapping missed appointments to HIPAA-compliant codes.

Table 4-2—Issues Identified in the Crosswalk by BHO

Issue	ABC	BHI	FBH	NBH
Major Issues				
Service codes mapped to deleted CPT codes or non-HIPAA-compliant codes	X	X		
Missed appointment mapped to a CPT code	X			
Single local service code mapped to multiple CPT codes		X		
Lack of information provided in the service description—unable to evaluate how to map to a CPT code		X		
Minor Issues				
Unclear or absence of methods of determining service unit (based on time/duration)	X	X	X	
Insufficient information provided in the service description	X			X
Some local service codes could be mapped to a better code	X	X		
Local service codes were bundled without explanation of the circumstances for bundling	X			

Although none of these issues was prevalent across all BHOs, Table 4-2 identifies areas for improvement among the BHOs. In general, issues that potentially impact the integrity of a BHO's crosswalk were generally associated with two BHOs and only affected a very small set of service codes. For example, issues related to missed appointments being mapped to a CPT code affected two service codes and one CPT code. Similarly, only three CPT codes were affected for having a single local service code mapped to multiple CPT codes.

One issue that was prevalent in three of the four BHOs' crosswalks was the lack of details and guidelines in determining units based on time or duration of the service. This issue affected both the time-based and unit-based codes. For example, several time-based CPT codes (90804, 90806, and 90808) were mapped to a service description (individual psychotherapy) without clear duration information. For unit-based codes, service descriptions listed in the crosswalk did not include the number of service hours required for coding a specific CPT code. As an example, the crosswalk service description for "Day Treatment Short" was mapped to the CPT code *H2012*, and "Day Treatment Long" was mapped to *H0037*.

A related issue to the unclear documentation of service unit determination was the inadequate information provided in the service description. In most cases, the short service description captured the essence of the services only when the CPT code description was provided in the same crosswalk (e.g., "Individual, 31 min. to 1 hour" in the local service description mapped to "Individual

Therapy, 2–30 Minutes” in the CPT/HCPCS description). In other cases, the service description did not lend much in linking with the CPT codes (e.g., a local service code *2001030* with a description “ForISOT” mapped to CPT code *90801*). Since most crosswalks did not have long service descriptions provided in the document, contracted providers were left to rely on the abbreviated service description text to identify their services and map to the CPT codes. Unless additional provider education or training was provided, providers may have been more likely to misinterpret the codes and to face some challenges in billing their services appropriately for the services they provided for their clients. Unclear documentation of service unit and service description would affect the pricing of each service at the Department, as well.

Some services were also found to be inappropriately mapped to a CPT code. For example, in both the ABC and BHI crosswalk, a service with a case management description was found to be mapped to *90882* (Environmental intervention for the purpose of medical management). HSAG coders suggested that the service would be more appropriately mapped to *T1016* (Case management, per 15 min.).

Despite these issues, the crosswalks used by the BHOs generally mapped services to appropriate CPT/HCPCS codes. As HSAG performed the behavioral health record review, trained abstractors used the crosswalks as a reference when evaluating the completeness and accuracy of procedures submitted in the encounter.

Inconsistent Coding Analysis

Although the request for analyzing inconsistent coding came as a result of the findings from the Mercer report, the inconsistent coding analysis also provided an opportunity to examine coding patterns of providers and the pattern of submitting encounters by the BHOs into the MMIS system. The majority of the analyses for this section were performed from November to December 2008. During the staff interviews in January 2009, it was noted that although the MMIS system currently did not have a formal overlay and delete process for adjusted encounters, paid encounters could be determined by a specific value (“E” for encounters and “F” for denied encounters) in the *Batch_Document_Type* field. Another extraction of encounters with this field was conducted in early February. Further investigation revealed repeated entries for the same encounters (defined by same date of service, billing provider ID, diagnosis, procedure, and units) for both values in the field. Since understanding the current mechanism of assigning value to adjusted encounters was beyond the current scope of this project, the inconsistent coding analysis presented findings based on the analyses of the original set of encounters extracted in November 2008. Consequently, results related to multiple entries of the same encounters may be related primarily to how MMIS addresses adjusted encounters rather than to the BHOs’ submission practices.

Administrative Analysis

All professional and outpatient encounters with a date of service during the review period (January 1, 2008, to March 31, 2008) were included in this analysis.⁴⁻¹ Close to 370,000 professional encounters (391,775 detail lines) and slightly more than 7,000 outpatient encounters (n=7,117 with 7,730 detail lines) were reported for this review period. Table 4-3 presents the frequency distribution of outpatient and professional encounter detail lines by procedure code type (i.e., duration-inherent, duration-dependent, and duration-independent).

Table 4-3—Frequency Distribution of Procedure Codes and Encounter Detail Lines by Encounter Type ^A						
Procedure Code Type	Outpatient Encounters			Professional Encounters		
	Number of Unique Codes	Number of Detail Lines	% of Total Detail Lines	Number of Unique Codes	Number of Detail Lines	% of Total Detail Lines
Duration-Inherent	6	1,182	15.3%	31	86,524	22.1%
Duration-Dependent	2	53	0.7%	47	137,511	35.1%
Duration-Independent	148	4,636	60.0%	66	167,631	42.8%
Procedure Code Field as Missing or Invalid Value		1,859	24.0%		109	0.03%
Total	156	7,730	-	144	391,775	-

^A There were 752 inpatient encounters and 1,340 inpatient detail lines. Close to half (45.2 percent, or 397 of 752 encounters) did not have any procedure codes submitted in the encounters. Since almost all of the remaining encounters (98.6 percent, or 350 of 355 encounters) were submitted with the 99499 code (Evaluation and management services unlisted), frequency distribution of inpatient encounters by procedure code type is not presented in the table.

About one-fourth (24.0 percent, or nearly 2,000 detail lines) of outpatient detail lines were without procedure codes. The majority (60 percent) of the outpatient detail lines were submitted with duration-independent codes. Procedure codes with the highest frequencies of submission were 90806 (Individual Psychotherapy Office or Outpatient Facility, 45–50 min.), 90862 (Pharmacologic Management), 99499 (Evaluation and Management Services Unlisted), 80101 (Drug Screen), and 90801 (Psychiatric Diagnostic Interview Exam).

Professional encounters had far fewer detail lines submitted without procedure codes (0.03 percent). Encounters tended to be evenly distributed across the three procedure-code types. Common duration-inherent/time-based codes were 90806 (Individual Psychotherapy Office or Outpatient Facility, 45–50 min.), 90804 (Individual Psychotherapy Office or Outpatient Facility, 20–30 min.), and 90816 (Individual Psychotherapy, Hospital/Institutional Setting, 20–30 min.). Common duration-dependent/unit-based codes are T1016 (Case Management, each 15 min.), H2031 (Mental Health Clubhouse Services, per diem), and H0034 (Medication Training and Support, per 15 min.). Common duration-independent codes include 90882 (Environmental Intervention for Medical Management Purpose on a Psychiatric Patient's Behalf with Agencies, Employers, or Institutions),

⁴⁻¹ Communications with CHP indicated that the current MMIS-BOA system did not allow adjusted encounters to replace original encounters. As such, the total number of encounters stored in the MMIS-BOA system may not contain only encounters that were covered by Medicaid.

90853 (Group Psychotherapy), and 90862 (Pharmacologic Management). The majority of the encounters were submitted with procedure codes not included in the covered procedure list provided by the Department. Appendix B provides the frequency distribution of procedure codes submitted for professional encounters, with those codes listed in the covered procedure list highlighted.

Table 4-4 provides an overview of the coding and submission patterns identified in the encounter data. The table is divided into two panels. The first one presents results of coding and submission patterns, such as duplicated detail lines, encounters with bundled dates of services, and encounters that appeared to be submitted multiple times in the MMIS. The second panel lists frequencies of occurrence at the detail-line level for potential procedure unit issues.

Table 4-4—Prevalence of Encounter-Related and Unit-Related Issues in Outpatient and Professional Encounters						
	Outpatient Encounters (n=7,117)			Professional Encounters (n=369,723)		
	Number of Unique Codes	Number of Encounters/Detail Lines	% of Total	Number of Unique Codes	Number of Encounters/Detail Lines	% of Total
Coding/Submission Patterns (Unit of Reporting: Encounters)						
Duplicated Detail Lines	5	60	0.8%	21	1,295	0.4%
One Encounter Bundled with Multiple Dates of Services	8	39	0.5%	51	9,616	2.6%
Submission of Multiple Encounters for the Same Date of Service	147	5,096	71.6%	111	277,806	75.1%
Potential Procedure-Unit Related Issues (Unit of Reporting: Detail Lines)						
Questionable Units for Duration-Inherent Procedures	1	2	0.03%	6	150	0.04%
Larger-Than-Expected Units for Duration-Dependent Procedures	1	9	0.13%	20	629	0.2%
Questionable Units for Duration-Independent Procedures	23	75	1.1%	14	1,400	3.8%
Note: Percentages reported were not mutually exclusive of the categories of patterns or issues presented. Since encounters may have more than one type of issue, the proportion of encounters having any one of these issues is estimated to be less than the sum of the percentages reported in this table.						

Overall, the encounters in the MMIS did not appear to have serious coding issues. First, fewer than 1 percent of outpatient and professional encounters were submitted with duplicated detail lines. About 0.8 percent of outpatient encounters contained detail lines with the same date of service, procedure codes, and units. For professional encounters, the rate was 0.4 percent. Consequently, the

concern regarding inconsistent coding that was raised in the 2006 Mercer Audit Report⁴⁻² did not appear to be widespread based on this finding. Second, fewer than 5 percent of encounters were submitted with multiple dates of services bundled together. Bundled date-of-service encounters tended to occur more among practitioners who had successive service sessions (such as individual psychotherapy) with their clients. Hence, this pattern is more prominent among professional encounters than the outpatient encounters (2.6 percent versus 0.5 percent, respectively). This finding suggests that it was not a common practice among providers to submit encounters of services provided across a period of time. Usually, providers submitted an encounter for services rendered on a single date.

A significant number of encounters appeared to be submitted multiple times into the MMIS. These multiple encounters had the same date of service, procedures, and units. Overall, 7 out of 10 outpatient and professional encounters appeared to be submitted repeatedly to the administrative encounter data. This seemingly repeated submission of encounters may be an artifact of the MMIS accepting both paid and denied encounters. Nonetheless, it had significant implications on the validation of units in this study. More specifically, since units were rolled up by date of service and procedure, repeated submission of an encounter may increase the number of units populated to the abstraction tool and, therefore, would be likely to impact the unit accuracy rates.

In terms of how units were submitted at the detail-line level, Table 4-4 shows that fewer than 1 percent of outpatient and professional encounter detail lines were reported with questionable units for duration-inherent (time-based) procedures and larger-than-expected units for duration-dependent (unit-based) procedures. About 3.8 percent of professional encounter detail lines might be suspected to report with questionable units for duration-independent procedures.

Nonetheless, specific issues related to inconsistent coding could not be fully determined because of the confounding impact of repeated submission of encounters.

Table 4-5 shows that the various issues identified for the encounters in the MMIS may be more prevalent in some BHOs than in others. For example, the duplicated detail lines and bundled dates of services issues appeared to be more prevalent in ABC than in the other four BHOs. The majority of the ABC encounters with duplicated detail lines were submitted with CPT codes such as 90882 (Environmental Intervention for Medical Management Purpose) and 90887 (Interpretation or Explanation of Results of Psychiatric, Other Medical Examinations, and Procedures). Although all BHOs had repeated submission of encounters, the prevalence was much higher for BHI and NBH than for the other three BHOs. If the repeated submission was the result of the BHO resubmitting adjusted encounters, the findings may suggest that BHOs may vary in submitting complete and accurate encounters in the MMIS during their first/initial submission.

⁴⁻² The 2006 Mercer report cited a concern that similar behavioral health services could be submitted in multiple ways by different providers, leading to inconsistency in the coding of services. For example, providers could submit an encounter for a behavioral health service with three units spread across three detail lines (one unit each), or one detail line listed with three units.

Table 4-5—Prevalence of Reporting and Coding Issues Across BHOs

	ABC (N=22,585)	BHI (N=162,080)	CHP (N=104,667)	FBH (N=39,093)	NBH (N=70,971)
Coding/Submission Patterns (Unit of Reporting: Encounters)					
Duplicated Detail Lines	1,137 (5.03%) ^A	120 (0.07%)	46 (0.043%)	36 (0.09%)	16 (0.02%)
One Encounter Bundled with Multiple Dates of Services	3,372 (14.93%)	944 (0.58%)	4,006 (3.83%)	511 (1.31%)	822 (1.16%)
Submission of Multiple Encounters for the Same Date of Service	3,124 (13.83%)	161,407 (99.58%)	44,266 (42.3%)	4,381 (11.21%)	69,724 (98.24%)
Potential Procedure Unit-Related Issues (Unit of Reporting: Detail Lines)					
Questionable Units for Duration-Inherent Procedures	2 (<0.01%)	71 (0.04%)	62 (0.06%)	17 (0.04%)	0 (0.0%)
Larger-Than-Expected Units for Duration-Dependent Procedures	17 (0.08%)	250 (0.15%)	166 (0.16%)	98 (0.25%)	98 (0.14%)
Questionable Units for Duration-Independent Procedures	82 (0.36%)	177 (0.11%)	1,187 (1.13%)	29 (0.07%)	0 (0.0%)

^A Percentages of the total number of encounters having the specific reporting/coding issue are reported in the parentheses.

Table 4-5 also shows that a very small number of detail lines were submitted with potentially questionable units based on their procedure types. With the exception of CHP, all BHOs had fewer than 1 percent of their detail lines having procedure unit-related issues, although the rates varied notably, especially for encounters with potentially questionable units for duration-independent procedures (from 0 percent to 0.13 percent).

Encounter Data Completeness and Accuracy

Although administrative analyses and crosswalk reasonableness reviews may provide insights on the state of encounter data quality in the MMIS, behavioral health record review remains the only method for true assessments of encounter data completeness and accuracy. An expensive and time-consuming endeavor, behavioral health record review is usually conducted after an information system review and an administrative analysis are performed with an indication that the State's information system is robust enough for further investigation of encounter data completeness and accuracy. In the State of Colorado, where the Department was in the process of transitioning encounter data submission from a flat-file system to the MMIS system, behavioral health record review would still be able to provide some initial insights into encounter data quality. Nonetheless, because the MMIS system was in the testing phase, results should be interpreted as preliminary and with caution, including findings related to unit accuracy.

Completeness

Encounter data completeness was evaluated by identifying discrepancies between the administrative data and the behavioral health-related records. In general, two aspects of completeness were considered: behavioral health record omission and encounter data omission. Behavioral health record omissions occurred when an encounter data element (e.g., date of service, diagnosis, procedure, or unit) was not supported by documentation in the member's behavioral health record. Since the behavioral health record was considered the gold standard, behavioral health record omissions indicate issues with internal processes, such as claims processing or poor record documentation by the provider. The most common reasons for behavioral health record omissions were:

- ◆ The provider did not document the services rendered in the behavioral health record, despite submitting a claim/encounter.
- ◆ There was a data entry error for one or more elements (e.g., date of service).
- ◆ The behavioral health record could not be located.
- ◆ The provider did not actually render the service.

Encounter data omission occurred when service-related elements, such as date of service, diagnosis, or procedure documented in the behavioral health record were not submitted in the encounter data. This type of omission could be related to oversight from staff in the provider's billing office, restrictions in encounter submission requirements related to the Department's encounter data system (e.g., number of diagnosis or procedures fields), use of different provider IDs while submitting the encounters, or time lag in encounter submission by providers and the BHOs. Because the current MMIS system contained only a dummy provider ID for the behavioral health encounters, encounter data omission at the date-of-service level was not evaluated in the study. As such, encounter data omission was only reported for diagnosis and procedures for administrative encounters with date of service documented in the behavioral health records.

Date of Service

At the date-of-service level, behavioral health record omission was calculated based on the date of service contained in the administrative data and not completely matched with the date of service documented in the behavioral health record for the selected sample cases. Omission at this level was interpreted as a lack of complete match on the date of service encounter data element.

Since different types of documentation were requested for validation review, the type of date of service being validated varied by the type of service. For *Inpatient* and *Outpatient 1* encounters,⁴⁻³ the last or the discharge date of service was used as the critical date-of-service element for validation. For *Outpatient 2* and *Professional* encounters, the first date of service was used as the critical date-of-service element for validation. Table 4-6 displays statewide results for date-of-service-level behavioral health record omission, stratified by service type. Since the study contained a very small number of *Outpatient 1* sampled encounters, results associated with this service type should be interpreted with caution.

Table 4-6—Statewide Results for Date-of-Service-Level Behavioral Health Record Omission Rates

Service Type	Admit/First Date of Service			Discharge/Last Date of Service		
	Date of Service in Administrative Data	Not Present in Behavioral Health Records	Percent	Date of Service in Administrative Data	Not Present in Behavioral Health Records	Percent
Inpatient		-	-	135	20	14.8%
Outpatient 1 ^A	-	-	-	4	1	25.0%
Outpatient 2	98	8	8.2%	-	-	-
Professional	1,794	73	4.1%	-	-	-
Colorado Overall	1,892	81	4.3%	139	21	15.1%

^A Since the denominator for this service type was smaller than 30, any results calculated based on this denominator should be interpreted with caution.

Overall, 95 percent of sampled cases (summing across all service types) had either their admit/first or discharge/last date of service matched with the supporting documents. Wide differences in the behavioral health record date-of-service omission rates were observed across service types. The inpatient behavioral health record omission rate was 14.8 percent for discharge dates, suggesting that 15 out of 100 inpatient encounters had discharge dates of services that were not supported in the discharge summary. Professional encounters had the lowest date-of-service omission rate (4.1 percent). Anecdotal information from HSAG reviewers revealed that for some BHOs, policies related to submitting encounters for an inpatient and outpatient episode varied and, hence, this led to discrepancy in the discharge date between the administrative data and discharge summaries. Table 4-7 reports BHO-specific behavioral health record omission rates at the date-of-service level. BHO-

⁴⁻³ Inpatient episodes were defined by an encounter in the BOA with a “B” value in the claim_code_type field. Outpatient episodes were defined as having a “C” value in the claim_code_type field and the last date of service being different from the first date of service. These outpatient institutional episodes were defined as *Outpatient 1* encounters in the study. *Outpatient 2* encounters had a “C” value in the claim_code_type field and the same first and last date of service.

specific rates stratified by service type are reported in the Appendix. BHOs showed a 4.5 percentage-point variation in the first/admit date of service omission rate from one another, with FBH having the lowest rate (2.3 percent) and ABC the highest rate (6.8 percent).

Table 4-7—BHO Results for Date-of-Service Level Behavioral Health Record Omission Rates

BHO	First/Admit Date of Service			Last/Discharge Date of Service		
	Date in Administrative Data	Not Present in Behavioral Health Records	Percent	Date in Administrative Data ^A	Not Present in Behavioral Health Records	Percent
ABC	380	26	6.8%	31	7	22.6%
BHI	376	11	2.9%	30	5	16.7%
CHP	360	13	3.6%	32	5	15.6%
FBH	395	9	2.3%	16	0	0.0%
NBH	381	22	5.8%	30	4	13.3%
Colorado Overall	1,892	81	4.3%	139	21	15.1%

^A The total number of last/discharge dates of services was smaller than that of the first/admit dates of services because only *Inpatient* and *Outpatient 1* encounters had discharge dates of services. Since the total number of last/discharge dates of services in administrative data was fewer than 30 cases for some BHOs, any results calculated based on this denominator should be interpreted with caution.

In general, behavioral health record omission rates for the discharge dates of services were higher than those for the first/admit dates of services. Except for FBH, where all the discharge dates of services were completely and correctly documented in the discharge summaries or behavioral health records, the BHOs had an overall 15.1 percent behavioral health record omission rate for discharge dates of services, with individual BHO rates ranging from 13.3 percent to 22.6 percent.

Diagnosis Code

Table 4-8 shows the statewide diagnosis omission results. Of the 2,095 diagnoses found in the administrative data, no evidence was documented in the behavioral health records for 135 diagnoses (6.4 percent). Inpatient and outpatient encounters tended to have higher omission rates than professional encounters. Further investigation showed that of the 135 diagnoses omitted in the behavioral health records, about four-fifths of them corresponded to encounters in which the date of service was also omitted in the behavioral health record. This finding suggests that, in general, when there was documentation of the date of service in the behavioral health records, diagnosis information was fairly complete.

Table 4-8—Statewide ICD-9-CM Omission Results

Service Type	Behavioral Health Record Omission			Encounter Data Omission		
	Diagnosis in Administrative Data	Not Present in Behavioral Health Records	Percent	Diagnosis in Behavioral Health Records	Not Present in Administrative Data	Percent
Inpatient	176	33	18.8%	142	25	17.6%
Outpatient 1 ^A	4	1	25.0%	5	2	40.0%
Outpatient 2	101	9	8.9%	105	20	19.0%
Professional	1,814	92	5.1%	1,580	39	2.5%
Colorado Overall	2,095	135	6.4%	1,832	86	4.7%

^A Since the denominator for this service type was smaller than 30, any results calculated based on this denominator should be interpreted with caution.

Among those behavioral health records available for review, 86 diagnoses were identified in the records but not in the administrative data, yielding an encounter data omission rate of 4.7 percent. As for the inpatient encounters, omission in diagnosis could be related to variations in training among inpatient billing staff members as to which diagnosis takes precedence in the encounter.

Table 4-9 reports BHO-specific ICD-9-CM omission rates. BHO-specific omission rates stratified by service type are reported in Appendix C. The lowest behavioral health record omission rate was 2.7 percent by FBH and the highest was 10.9 percent by ABC, yielding an 8.2 percentage-point difference. As for the encounter data omission rates, the overall percentage was 4.7 percent, with the difference among BHOs being 3.3 percentage points.

Table 4-9—BHO-Specific ICD-9-CM Omission Results

Service Type	Behavioral Health Record Omission			Encounter Data Omission		
	Diagnosis in Administrative Data	Not Present in Behavioral Health Records	Percent	Diagnosis in Behavioral Health Records	Not Present in Administrative Data	Percent
ABC	439	48	10.9%	385	24	6.2%
BHI	406	18	4.4%	378	16	4.2%
CHP	423	31	7.3%	385	24	6.2%
FBH	414	11	2.7%	306	9	2.9%
NBH	413	27	6.5%	378	14	3.7%
Colorado Overall	2,095	135	6.4%	1,832	87	4.7%

Procedure Code

For procedure validation, HSAG reviewers looked for documentation in the behavioral health record of the services rendered on the selected date of service and validated the codes listed in the administrative encounter data. Table 4-10 presents findings for the CPT-4 procedure omission. Because few procedure codes were submitted in the inpatient administrative encounters, validation of procedures was performed for outpatient and professional encounters only. Overall, fewer than 1 in 10 procedures (9.4 percent) submitted in the administrative data lacked supporting evidence in the behavioral health records. Since preliminary analyses of the administrative data indicated that not all outpatient encounters were populated with a procedure code, this finding suggests that, in addition to the small number reported for outpatient encounters, the CPT-4 validation results for outpatient encounters should be interpreted with caution. As for the encounter data omission, among those procedures documented in the behavioral health records, 5 percent were omitted in the administrative data.

Table 4-10—Statewide CPT-4 Omission Results						
Service Type	Behavioral Health Record Omission			Encounter Data Omission		
	Procedures In Administrative Data	Not Present in Behavioral Health Records	Percent	Procedures In Behavioral Health Records	Not Present in Administrative Data	Percent
Outpatient 1 ^A	8	8	100.0%	1	1	100.0%
Outpatient 2	159	26	16.4%	126	6	4.8%
Professional	2,078	177	8.5%	1,712	85	5.0%
Colorado Overall	2,245	211	9.4%	1,839	92	5.0%

^A Since the denominator for this service type was smaller than 30, any results calculated based on this denominator should be interpreted with caution.

Although diagnoses were not used for reimbursement purpose, diagnosis omission rates were relatively lower than the procedures. For *Outpatient 2* and *Professional* encounters, the omission rates for CPT-4 procedures (16.4 percent and 8.5 percent) were higher than those for ICD-9-CM diagnosis codes (8.9 percent and 5.1 percent). The higher procedure omission rates may be due to a multitude of reasons, including lack of standards in the behavioral and mental health community, clarity of the crosswalks used for coding services, and providers' familiarity in using those crosswalks. In addition, because behavioral health clients typically have diagnoses that would likely be chronic in nature compared to procedures that can change in every visit, the likelihood of committing omission in diagnosis is generally lower than that of the procedure.

Table 4-11 reports BHO-specific CPT-4 omission rates. BHO-specific procedure omission rates stratified by service type are reported in Appendix C. Wide variations among BHOs were observed for behavioral health record and encounter data omission rates. For behavioral health record omission, the variation was observed as 11 percentage points, with BHI having the lowest omission rate (6.5 percent) and ABC the highest rate (17.5 percent). ABC also had the highest encounter data omission rate (20.9 percent). Of note was that for NBH, all the procedures documented in the behavioral health records were submitted in the administrative data.

Table 4-11—BHO-Specific CPT-4 Omission Results						
Service Type	Behavioral Health Record Omission			Encounter Data Omission		
	Procedures in Administrative Data	Not Present in Behavioral Health Records	Percent	Procedures in Behavioral Health Records	Not Present in Administrative Data	Percent
ABC	498	87	17.5%	358	75	20.9%
BHI	445	29	6.5%	299	3	1.0%
CHP	398	27	6.8%	362	8	2.2%
FBH	466	34	7.3%	428	6	1.4%
NBH	438	34	7.8%	392	0	0.0%
Colorado Overall	2,245	211	9.4%	1,839	92	5.0%

Accuracy

For data accuracy, the encounter data element (e.g., date of birth, diagnosis, procedure, and unit) was considered correct (or valid) if documentation in the behavioral health record supported the values submitted in the administrative data. During the behavioral health record review, HSAG reviewers identified *incorrectly* submitted codes/units and provided the correct codes/units based on behavioral health record documentation. Incorrect codes were noted for both ICD-9-CM and CPT-4 codes. In addition, the abstractors reviewed unit information for the procedure codes. Universally, incorrect codes represented errors related to office billing and coding staff—e.g., overuse of *not otherwise specified (NOS)* or *not elsewhere specified (NEC)* codes. In general, invalid codes were related to one of the following three sources of errors, based on the determination of the professional coders:

- ◆ Documentation in the behavioral health record did not support the code
- ◆ Specificity error for ICD-9 codes
- ◆ The up-coding or down-coding of CPT-4/HCPCS codes

Specificity errors occur when a provider submits an encounter that has an ICD-9-CM code without the required fourth or fifth digit (e.g., an ICD-9-CM code of 296.0 for Bipolar I disorder, single manic episode, should include fifth-digit specificity, such as 296.01, to indicate the degree of manic episode). Specificity errors can be prevented with updated claims processing software and by requiring providers to submit claims using full specificity, when required. The up-coding or down-coding of CPT-4/HCPCS codes may be related to how service duration was charged for time-based codes (e.g., 90804 versus 90806) as well as the BHOs' rounding policies for both time-based and unit-based codes.

Diagnosis Code

Table 4-12 shows the statewide results for diagnosis accuracy and the type of errors associated with invalid diagnoses. Accuracy rates were calculated based on the number of diagnoses submitted in the administrative data for those dates of services that were validated by the behavioral health records. Overall, the statewide ICD-9-CM accuracy rate was moderately high (87.9 percent), with more than 8 out of 10 diagnoses in the administrative data being supported by behavioral health record documentation. The accuracy rate for professional encounters was 88.6 percent compared to 78 percent for inpatient encounters. The lower accuracy rates could be related to the type of documentation being submitted for review, especially for inpatient and outpatient encounters. For professional encounters, the relatively higher accuracy rate may be due to the fact that diagnoses were generally being pulled from the Colorado Client Assessment Record (CCAR). In addition, BHOs expressed uncertainty in submitting diagnosis-related documentations for encounters categorized as outpatient service type in the MMIS system. This also may be related to the relatively lower diagnosis accuracy rate.

Table 4-12—Statewide ICD-9-CM Accuracy and Error Results								
Service Type	Accuracy Results			Invalid Diagnoses ^B	Incorrect Code		Specificity Error	
	Diagnoses from Validated DOS in Administrative Data	Validated in Behavioral Health Records	Percent		N	Percent	N	Percent
Inpatient	150	117	78.0%	26	17	65.4%	9	34.6%
Outpatient 1 ^A	3	3	100.0%	0	0	.	0	.
Outpatient 2	93	85	91.4%	7	3	42.9%	4	57.1%
Professional	1,740	1,541	88.6%	181	65	35.9%	116	64.1%
Colorado Overall	1,986	1,746	87.9%	214	85	39.7%	129	60.3%

^A Since the denominator for this service type was smaller than 30, any results calculated based on this denominator should be interpreted with caution.

^B The number of validated diagnoses and of invalid diagnoses may not add up to the total number of diagnoses from the validated date of service in the administrative data. Some of the diagnoses may be considered as omissions from the behavioral health records and, therefore, were not strictly being treated as invalid diagnoses.

Invalid diagnoses appeared to be related more to specificity errors. Table 4-13 shows that 60.3 percent of the invalid diagnoses were related to specificity errors. Thirty percent of the specificity errors were concentrated on three diagnosis codes: 295.3 (to 295.30), 295.7 (to 295.70), and 314 (to 314.01).

Table 4-13 presents BHO-specific ICD-9-CM accuracy and error findings. A 21 percentage-point difference was observed among the BHO rates, with FBH having the lowest accuracy rate (73.3 percent) and NBH the highest rate (94.1 percent). BHOs also varied in the type of errors identified in the diagnoses. All BHOs, except for FBH, appeared to have the majority of the invalid diagnoses as incorrect codes. For FBH, nearly 90 percent (87.7 percent) of the errors were associated with specificity. Anecdotal information from HSAG reviewers indicated that a particular community health center from FBH consistently used four-digit ICD-9 codes when five digits were necessary. The CCAR or Electronic Client Expect Technology (eCET) Assessment Module documents contained all five digits, but only four were submitted in the encounter data file. This information appeared to support the low diagnosis accuracy rate and corresponding high specificity error rate for FBH.

Table 4-13—BHO-Specific ICD-9-CM Accuracy and Error Results

BHO	Accuracy Results			Invalid Diagnosis ^A	Incorrect Code		Specificity Error	
	Diagnoses from Validated DOS In Administrative Data	Validated in Behavioral Health Records	Percent		N	Percent	N	Percent
ABC	404	362	89.6%	29	19	65.5%	10	34.5%
BHI	390	362	92.8%	26	19	73.1%	7	26.9%
CHP	400	361	90.3%	31	19	61.3%	12	38.7%
FBH	405	297	73.3%	106	13	12.3%	93	87.7%
NBH	387	364	94.1%	22	15	68.2%	7	31.8%
Colorado Overall	1,986	1,746	87.9%	214	85	39.7%	129	60.3%

^A Since the denominator for most BHOs was smaller than 30, any results calculated based on this denominator should be interpreted with caution. Also, the number of validated diagnoses and of invalid diagnoses may not add up to the total number of diagnoses from the validated date of service in the administrative data. Some of the diagnoses may be considered as omissions from the behavioral health records and, therefore, were not strictly being treated as invalid diagnoses.

Procedure Code

The variations in the application of procedure codes by the BHOs were related, at least in part, to insufficient documentation and guidelines established by the Department. Procedure code accuracy was evaluated only for outpatient and professional encounters and was based on the procedures submitted to the MMIS system with a date of service being validated by behavioral health records. Table 4-14 shows that, in general, more than 8 out of 10 encounters (81.6 percent) with a valid date of service submitted to the administrative data were supported by behavioral health records. Outpatient and professional encounters tended to have similar CPT-4/HCPSC accuracy rates.

Table 4-14—Statewide CPT-4/HCPCS Accuracy and Error Results

Service Type	Accuracy Results			Invalid Procedures ^A
	Procedures from Validated DOS in Administrative Data	Validated in Behavioral Health Records	Percent	
Outpatient 1	0	0	0.0%	0
Outpatient 2	145	120	82.8%	13
Professional	1,997	1,627	81.5%	274
Colorado Overall	2,142	1,747	81.6%	287

^A The number of valid procedures and of invalid procedures may not add up to the total number of procedures from the validated date of service in the administrative data. Some of the procedures may be considered as omissions from the behavioral health records and, therefore, were not strictly being treated as invalid procedures.

Further investigation showed that two-thirds of the 287 incorrect procedure codes at the statewide level concentrated in two procedures: 90887 and 90882. More than 90 percent (92.7 percent) of the services described in the behavioral health records and cross-checked as 90882 (Environmental Intervention for Medical Management Purpose) in the BHO crosswalk should be more appropriately coded to T1016 (Case Management). In addition, about 64 percent of services described in the behavioral health records and cross-checked as 90887 (Interpretation or Explanation of Results of Psychiatric, Other Medical Exams, and Procedure) should be more appropriately coded to 90882 (Environmental Intervention for Medical Management Purpose).

Table 4-15 reports the BHO-specific CPT-4/HCPCS accuracy findings. A distinct pattern was observed in that three BHOs (CHP, FBH, and NBH) had at least 9 out of 10 of their procedures supported by behavioral health records, whereas two (ABC and BHI) had fewer than 7 out of 10 procedures as valid. Investigation of invalid procedures at the BHO level further indicated that more than a notable portion of the ABC and BHI incorrect codes were related to 90882, which would have been more appropriately coded to T1016.

Table 4-15—BHO-Specific CPT-4/HCPCS Accuracy and Error Results

BHO	Accuracy Results			Invalid Procedures ^A
	Procedures From Validated DOS In Administrative Data	Validated in Behavioral Health Records	Percent	
ABC	455	283	62.2%	128
BHI	431	296	68.7%	120
CHP	385	354	91.9%	17
FBH	456	422	92.5%	10
NBH	415	392	94.5%	12
Colorado Overall	2,142	1,747	81.6%	285

^A The number of valid procedures and of invalid procedures may not add up to the total number of procedures from the validated date of service in the administrative data. Some of the procedures may be considered as omissions from the behavioral health records and, therefore, were not strictly being treated as invalid procedures.

Detailed findings from the clinical reasonableness review showed that ABC and BHI crosswalked different kinds of case management and medication monitoring/management services to 90882 (Environmental Intervention for Medical Management Purposes), suggesting that these services could be more appropriately coded to *T1016* (Case Management, 15 min.). The incorrect procedures identified during the record review appeared to be more related to the crosswalk not having a more definitive explanation of how 90882 should be used (e.g., specifically for medical management purposes) or not giving enough direction to the providers on code assignment, rather than providers' unfamiliarity with the crosswalk and miscoding the services.

Unit of Service

Documentation and reporting of accurate service units is essential for the BHOs and the Department to analyze service utilization patterns either for rate setting or general program planning purposes. Unit accuracy was calculated based on the procedures that were validated as supported by behavioral health records. Table 4-16 shows that overall, slightly more than half of the units (51.6 percent) reported with a valid procedure (902 out of 1,747 procedures) were supported in the behavioral health records. Among those 845 invalid units, about 1 out of 10 (i.e., 88, or 10.4 percent) did not have any information concerning the unit documented in the records. Because none of the *Outpatient 1* encounters had any procedures as valid, unit accuracy results for these encounters were absent. *Outpatient 2* encounters tended to have a much lower unit accuracy rate (19.2 percent) than professional encounters. However, a much higher proportion of invalid units (21.6 percent) were found undocumented in outpatient behavioral health records than in the professional behavioral health records (9 percent).

At the statewide level, the most common procedure code with invalid units was 90806 (24.5 percent of encounters with units not supported by behavioral health records). Other procedure codes also with high unit-error rates include *T1016* (16.6 percent) and 90862 (15.6 percent).

Table 4-16—Statewide Unit Accuracy and Undocumented Unit Results

Service Type	Unit Accuracy			Undocumented Units		
	Validated Procedures	Validated Units	Percent	Invalid Units	Undocumented in Behavioral Health Records	Percent
Outpatient 1	0	0	.	0	0	.
Outpatient 2	120	23	19.2%	97	21	21.6%
Professional	1627	879	54.0%	748	67	9.0%
Colorado Overall	1,747	902	51.6%	845	88	10.4%

Table 4-17 reports BHO-specific unit accuracy rates. A vast difference among BHOs was observed, with two BHOs having a rate of less than 6 percent (0.7 percent for BHI and 5.6 percent for NBH) and one BHO with a rate higher than 90 percent (95.5 percent). Interestingly, the patterns for lack of unit documentation were reversed: BHOs with low unit accuracy rates tended to have a high degree of documentation. For these BHOs, the finding suggests that errors associated with the unit of service were closely related to unclear documentation. Corroborating results from the inconsistent coding analysis with the unit accuracy rates may suggest that the noticeably lower rates for BHI and NBH may be related to the very high percentages of encounters of same date of service and

procedure submitted multiple times in the MMIS system. Therefore, when the units were rolled up and validated against the behavioral health records, the submitted units were largely considered as inaccurate. For these two BHOs, the unit accuracy rate strongly suggests an issue related to information system issues rather than provider documentation.

Table 4-17—BHO-Specific Unit Accuracy and Undocumented Units Results

BHO	Unit Accuracy			Undocumented Units		
	Validated Procedures	Validated Units	Percent	Invalid Units	Undocumented in Behavioral Health Records	Percent
ABC	283	208	73.5%	75	21	28.0%
BHI	296	2	0.7%	294	23	7.8%
CHP	354	267	75.4%	87	21	24.1%
FBH	422	403	95.5%	19	6	31.6%
NBH	392	22	5.6%	370	17	4.6%
Colorado Overall	1,747	902	51.6%	845	88	10.4%

Clinical Relevance of Specific Procedure Codes

Per the Department's request, a specific set of procedure codes within the covered procedure list were examined for unit reporting accuracy via behavioral health record review. Table 4-18 presents the accuracy findings for these selected procedures. Results show that, in general, the procedure accuracy rate for these procedures was moderately high. When taking only those procedures with a large sample size, the accuracy rates were at least 80 percent, meaning that 8 out of 10 encounters submitted with these procedures (mostly time-based codes for individual psychotherapy services) had sufficient documentation of the service duration in the behavioral health records to justify such service codes. On the other hand, the relatively low unit accuracy rates (mostly under 60 percent with one exception) may be related to the information system issue as well as procedure-unit issues identified from the inconsistent coding analysis.

Table 4-18—Procedure and Unit Accuracy of Selected Procedures

Procedure	Procedure Validation			Unit Validation	
	Total Number in Sample	Number of Valid Procedure	Percent	Number with Valid Unit	Percent
90804	90	79	87.8%	52	57.8%
90805	38	36	94.7%	29	76.3%
90806	426	346	81.2%	151	35.5%
90807	12	9	75.0%	3	25.0%
90808	13	13	100%	5	38.5%
90810	2	2	100%	1	50.0%
H2011	12	9	75.0%	7	58.3%
H2012	3	3	100%	3	100%

Note: Results associated with fewer than 30 cases in the sample should be interpreted with caution.

Date of Birth

Lastly, the Department also requested that HSAG validate the date of birth information submitted in the administrative encounter data file with the behavioral health records. Table 4-19 displays the statewide and BHO-specific accuracy results as well as the rate of invalid date of birth without any documentation in the behavioral health records. Overall, more than 96 percent of the dates of birth in the administrative encounters were accurate, with BHO rates ranging from 92.9 percent to 99.0 percent. Three BHOs' performance in this indicator was above the overall statewide results. The majority of the invalid entries were related to lack of documentation in the behavioral health records or records not being submitted for review, rather than a wrong date of birth.

Table 4-19—Date of Birth Accuracy and Record Undocumented Rates						
BHO	Date of Birth Accuracy			Undocumented Date of Birth		
	Date of Birth in Administrative Data	Valid in Behavioral Records	Percent	Invalid Date of Birth	Undocumented in Behavioral Health Records	Percent
ABC	411	385	93.7%	26	24	92.3%
BHI	406	402	99.0%	4	3	75.0%
CHP	392	379	96.7%	13	12	92.3%
FBH	411	406	98.8%	5	2	40.0%
NBH	411	382	92.9%	29	28	96.6%
Colorado Overall	2,031	1,954	96.2%	77	69	89.6%

Conclusions

This study provides an evaluation of the extent to which encounters submitted to Colorado's MMIS system were completely and accurately supported by behavioral health documentation. Although the core component of this study was the use of behavioral health records to validate data elements submitted in the MMIS system, HSAG also performed several supplementary analytic activities to support the findings. These activities included interviews with Department staff to collect feedback and concerns regarding the MMIS system, a crosswalk reasonableness review, and an administrative audit on unit coding patterns.

Information System Review/Interviews

The interviews conducted with Department staff members from the Rates, Information Systems, and Business Analysis sections identified that the MMIS system was still in its early stage of testing and implementation at the time of this review. Staff commented that despite having most of the system edits turned off to facilitate the acceptance of submitted encounters in the MMIS system, issues associated with encounter data completeness were prevalent. Staff indicated that, historically, different sections handled separate encounter submission environments (i.e., flat-file versus MMIS environment); and that insufficient communication, support, and coordination among the sections resulted in an ineffective collaborative environment. Consequently, issues identified by these sections appeared as challenges within each section. Furthermore, staff members identified that decisions made during the initial implementation of the MMIS system to support the processing of fee-for-service claims may not address or accommodate the unique qualities behavioral health encounter data. One major issue in using the MMIS system was related to the challenge of balancing the need for functional system edits to verify the completeness and accuracy of submitted encounters against the need to allow flexibility in accommodating the service packages designed by BHOs. Specific issues include:

- ◆ Absence of rendering provider ID
- ◆ Inconsistent pricing/automated pricing not functional
- ◆ Use of MMIS system-assigned TCNs rather than BHO-assigned TCNs
- ◆ Absence of system edits that facilitate encounter suspension and trigger further investigations
- ◆ System not up-to-date with rate setting program management principles
- ◆ Challenges in differentiating inpatient versus outpatient encounters, calculating inpatient days, and distinguishing physical health-related encounters from behavioral-health encounters

Additionally, during the study, issues related to the design of the current MMIS system had considerable implications to the results of the study:

- ◆ The absence of rendering provider ID limited the scope of the current study to only examine behavioral health record omissions.
- ◆ The use of MMIS system-assigned TCNs hindered the ability of BHOs to track sampled members and retrieve the behavioral health records. This situation led to a revision in the study methodology in which HSAG needed to release the sampled date of service to the BHOs to facilitate behavioral health record procurement. Since the date of service field was one of the critical encounter data elements validated in the EDV study, the release of this field potentially biased the findings since the independence of the behavioral health record review was compromised.

BHO Crosswalk Reasonableness Review

Overall, BHOs' crosswalks were generally characterized by a high degree of clinical reasonableness. However, several areas for improvement were noted for some sets of service codes including:

- ◆ Mapping local service codes to deleted or non-compliant HIPAA codes
- ◆ Bundling local service codes to a HIPAA-compliant code without explanation
- ◆ Mapping missed appointments to a HIPAA-compliant code

Additionally, the lack of details and guidelines for determining specific service units based on time or duration information, as well as unclear service descriptions, appeared to be prevalent issues among the BHOs' crosswalks. Most crosswalks did not have lengthy service descriptions in the crosswalks, leading contracted providers to rely on abbreviated service description text to identify how rendered services map to the appropriate CPT codes.

Inconsistent Coding Analysis

Overall, findings from the inconsistent coding analysis indicated that issues highlighted in the 2006 Mercer Audit Report⁵⁻¹ were not widespread. With the exception of encounters being repeatedly submitted to the MMIS system, the encounter data does not appear to have major issues associated with inconsistent coding. HSAG identified the following results based on its coding analysis of encounter coding practices:

- ◆ 0.8 percent of outpatient encounters and 0.4 percent of professional encounters contained duplicated detail lines (i.e., same date of service, procedure codes, and units).
- ◆ Fewer than 5 percent of encounters were submitted with multiple dates of services bundled together.

⁵⁻¹ The 2006 Mercer report cited a concern that similar behavioral health services could be submitted in multiple ways by different providers leading to inconsistency in the coding of services. For example, providers could submit an encounter for a behavioral health service with three units spread across three detail lines (one unit each) or one detail line listed with three units.

- ◆ Seven out of 10 outpatient and professional encounters appeared to be submitted repeatedly to the MMIS system.
- ◆ Fewer than 1 percent of outpatient and professional encounter detail lines were reported with questionable units for duration-inherent (time-based) procedures and larger-than-expected units for duration-dependent (unit-based) procedures.
- ◆ About 3.8 percent of professional encounter detail lines may contain questionable units for duration-independent procedures.

HSAG noted variations regarding the prevalence of these issues among BHOs. ABC was found to have a higher rate of encounters submitted with duplicated detail lines or bundled dates of services than the other four BHOs. In addition, BHI and NBH were found to have a much higher proportion of encounters submitted repeatedly to the MMIS system. Based on HSAG's review, the issue of the repeated submission of encounters may be an artifact of accepting both paid and denied encounters into the MMIS system. If the duplicate submissions do not represent adjudicated or reversed encounters, the following implications are possible.

Since this finding is evident only for some BHOs, the data issue may be related to how BHOs communicate to their contracted providers in terms of submitting claims/encounters. As a result, the repeated submission of an encounter increases the number of units associated with an encounter and impacts the overall unit accuracy rates. Based on HSAG's findings from the behavioral health record review, BHO performance on the unit accuracy (50 percent statewide) was much lower than diagnosis (87.9 percent) and procedure code (81.6 percent) accuracy. This finding suggests that providers rendering services on the same day, repeatedly to the same clients, are not supported by the behavioral health record. The impact of submitting duplicate encounters will impact the accuracy of reported rates by inflating client group utilization rates, as well as the ability to set accurate capitation rates.

Encounter Data Completeness and Accuracy

Omission

At the date of service level, 95 percent of sampled encounters had supporting documentation in the behavioral health records for either the first date of service or the discharge date of service. Behavioral health record omission rates for the discharge dates of services (15.1 percent) were generally higher than those for the first/admit dates of services (4.3 percent). In general, BHO variations in omission rates were larger for discharge dates of services (0 percent to 22.6 percent) than for first/admit dates of services (2.3 percent to 6.8 percent).

At the diagnosis and procedure code levels, HSAG reported both behavioral health record omission and encounter data omission rates. Encounter data omission rates were related to those encounters whose dates of services were supported by the behavioral health documentation. For diagnosis codes, the overall behavioral health omission rate was 6.4 percent (135 of the 2,095 diagnoses), with the majority of these omissions corresponding to encounters for which the dates of services were also omitted in the behavioral health record. Variation among the BHOs was larger than 5 percent (8.2 percent, ranging from 2.7 percent to 10.9 percent). In addition, among the encounters with validated dates of services, 87 diagnoses were identified in the behavioral health records but

not in the administrative data (encounter data omission rate: 4.7 percent). The difference among BHOs was 3.3 percentage points (ranging from 2.9 percent to 6.2 percent).

For procedure codes, about 1 out of 10 procedures (9.4 percent) in the administrative data were not supported by documentation in the behavioral health records. Wide variations among BHOs were observed for both the behavioral health record and encounter data omission rates. For behavioral health record omission rates, the variation was 11 percentage points, with BHO rates ranging from 6.8 percent to 17.5 percent. For encounter data omission rates, the overall rate was 5 percent, with BHO rates varying from 0 percent to 20.9 percent.

Accuracy

Overall, the ICD-9-CM accuracy rate was moderately high (87.9 percent), with more than 8 out of 10 diagnoses in the administrative data being supported by behavioral health record documentation. Professional encounters tended to have a higher accuracy rate (88.6 percent) than inpatient encounters (78 percent). About 60 percent of the invalid diagnoses were related to specificity errors. Across BHOs, a 21 percentage point difference was observed in the accuracy rate (from 73.3 percent to 94.1 percent). BHOs also varied in the type of errors identified for the diagnoses. Except for FBH, the majority of the invalid diagnoses were associated with incorrect codes; FBH diagnosis errors were largely associated with specificity errors.

With regard to procedure codes, approximately 8 out of 10 procedure codes (1,746 out of 1,986 procedures, or 81.6 percent) submitted for an encounter with a valid date of service were supported by documentation in the behavioral health records. Outpatient and professional encounters tended to have similar procedure code accuracy rates. Overall, about two-thirds of the 285 incorrect procedure codes were related to two procedures: 90887 and 90882. Three BHOs exhibited a high degree of accuracy (9 out of 10 procedure codes validated) while two BHOs had fewer than 7 out of 10 procedure codes validated. The incorrect procedures identified during the record review appeared to be related to the BHOs' crosswalk not providing definitive guidelines for code assignment rather than the providers' unfamiliarity with the crosswalk or miscoding the services.

For unit accuracy, slightly over half of the units reported with a valid procedure (902 out of 1,747 procedures) were also supported by documentation in the behavioral health records. One in 10 of the invalid units did not have any unit information documented in the records. At the statewide level, the three most common procedure codes with invalid units were 90806, T1016, and 90862. Considerable differences were observed among the BHOs, with two BHOs having a rate below 6 percent and one BHO with a rate as high as 95.5 percent. BHOs with low unit accuracy rates tended to have a high degree of documentation, suggesting that the error in unit reporting may be closely related to unclear documentation. In addition, corroborating results from the inconsistent coding analysis with the unit accuracy rates suggests that the noticeably lower rates for two BHOs might be related to a high percentage of potentially duplicated encounters—i.e., the same date of service and procedure submitted multiple times to the MMIS system.

In reviewing the accuracy of members' documented dates of birth, more than 96 percent of the dates of birth in the administrative encounters were accurate, with individual BHO rates ranging from 92.9 percent to 99.0 percent. The majority of the invalid entries were related to a lack of documentation in the behavioral health records, rather than a wrong date of birth.

Recommendations

Based on the findings presented in this report, HSAG recommends the following:

- ◆ The Department should take a leadership role in organizing encounter data work groups to discuss policies and procedures that will ensure high-quality data. Initial meeting topics, held internally, should focus on developing clearer data submission requirements and standards, monitoring measures, and system edits and report. The Department should also use these meetings to prioritize and address issues identified by staff members from different data user sections. Regular meetings should also be held with BHOs and information system staff members to address data quality issues and encounter data submission issues. Additionally, solutions related to the inflexibility of system edits can be explored through the use of informational and critical edits, allowing for behavioral health innovation.
- ◆ The Department should encourage the BHOs to work with their provider networks to ensure that services provided to their clients (including all visits and associated diagnoses/procedures) are fully documented in the behavioral health record and submitted to the Department. Since date of service omission rates appeared to be higher among inpatient and outpatient services, BHOs discuss and educate, as appropriate, institutional providers on how dates of services should be submitted in the encounter for each service episode. The Department should also work with BHOs to clearly identify and document different service types. Additionally, regular provider training and continuing education should be conducted to ensure all providers are aware of required/covered behavioral health services, and how to appropriately translate services into HIPAA compliant codes.
- ◆ Although both diagnosis and procedure code omission rates were generally below 10 percent, there was still room for improvement in submitting the complete list of diagnoses and procedure codes associated with a service episode. The Department should work with the BHOs to ensure State requirements regarding the submission of complete and accurate encounter data are understood and integrated into the BHOs' internal processing of encounters. In the case of diagnosis and procedure code accuracy (81.6 percent), the BHOs should work with providers to enforce and/or enhance current documentation standards to facilitate the accurate submission of encounter data. This activity can be achieved through provider network outreach and continuing education. For the documentation of diagnoses, the BHOs should make sure that contracted providers fully specify and document members' diagnoses to the nearest fifth digit, as appropriate.
- ◆ Since BHOs are still using internal crosswalks to translate services to appropriate HIPAA compliant codes, the BHOs should provide periodic training using the crosswalk materials to facilitate their appropriate use. BHOs should also regularly review their crosswalk documentation and specifications to ensure they are up-to-date and accurate. This activity should be conducted as part of an internal data quality committee. Further, the lack of sufficient documentation in members' behavioral health records to support the administrative data suggested possible deficiencies in the BHOs' use and application of internal crosswalks. As such, HSAG suggests that BHOs conduct a critical examination of the clinical relevance and reasonableness of the crosswalks. In addition, the BHOs should ensure that crosswalk documents are thoroughly written and include a full description of services, including specific

policies and procedures surrounding unit of service determination and the appropriate rounding of time. The BHOs should also encourage providers to retire the use of local service codes and, instead, work toward storing and submitting HIPAA-compliant CPT/HCPCS codes on claims or encounters.

- ◆ Slightly more than half of the units of service submitted on encounters with valid procedure codes were not supported in the behavioral health records. Corroborating results from the inconsistent coding analysis and behavioral health record review suggest that this may be related to the acceptance of repeated submission of encounters in the MMIS system. Due to the inability of the current system to ascertain whether the “duplicated” encounters refer to the same service transaction, the ability of this study to evaluate unit accuracy rates conclusively was affected. The Department, therefore, should evaluate how the current MMIS system handles the submission of adjusted encounters by BHOs and assesses the impact of the current design on the calculation of performance measures and rate-setting. In addition, the Department should ensure that either BOA or COGNOS decision support systems can accept the BHOs’ unique transaction control numbers. The Department should also work with BHOs to identify the root cause for this issue and explore strategies for improvement. If the issue is shown to be related to how BHOs’ providers submit claims/encounters, the Department should require BHOs to provide clear language within their provider contracts outlining the submission of claims and adjudicated claims. In addition, the Department should require BHOs to initiate internal processes to evaluate the submission of duplicated claims. This modification can be achieved by submitting the same TCN on submitted encounters to ensure the appropriate overlay of the original encounter in the MMIS system.
- ◆ The BHOs should encourage their contracted providers to report time and duration information in members’ behavioral health records. The clearer documentation of time will facilitate the identification of the appropriate time-based CPT/HCPCS codes by billing staff. Clearer documentation also supports good practices and service planning. The BHOs could identify examples of clear documentation and organize periodic audits to ensure that service providers are clearly documenting members’ services in support of the BHOs’ complete and accurate encounter submission to the Department.
- ◆ The Department should consider conducting an in-depth information systems review of the MMIS encounter data system and internal processes. The focus of this review would go beyond the staff interviews conducted in this study and should evaluate internal systems responsible for acquiring, processing, and storing encounter data submitted by the BHOs. As part of this review, the Department should investigate, in collaboration with the BHOs, whether system-based barriers impact the accurate and complete submission of encounter data. Detection of incomplete data fields, questionable data values, or abnormal fluctuations in encounter volume by service type at the initial submission stage may help the BHOs more quickly correct issues dealing with completeness and accuracy. The development of a robust set of data quality measures and methods will help to guide and evaluate BHOs’ ability to submit appropriate data to the Department.
- ◆ The Department should work collaboratively with all BHOs to develop encounter data quality standards. These standards can then be assessed annually to ensure that submitted encounter data is of sufficient quality for State reporting and rate setting. To complement the development standards, the Department should consider implementing strategies to motivate the BHOs to

meet established short-term and long-term benchmarks. These strategies can include financial incentives or penalties, or the development of corrective action plans through enhanced monitoring and reporting. Additionally, it is recommended that the Department develop guidelines for BHOs to perform ongoing reviews of encounter data quality in order to monitor and address the quality of data being collected and submitted to the Department's encounter data system. Ongoing reporting could include additional, targeted reviews of coding accuracy and other administrative, data-based analyses (i.e., age/gender coding discrepancies, field accuracy reviews, utilization measures, and encounter timeliness and volume).

Appendix A. Instructions for Using the Abstraction Tool

General Instructions

The tool resides in an electronic Access database. All required responses have edits in place to ensure that the tool is not closed unless required responses have been addressed.

The tool is designed to capture information contained in the health record for a designated member during a measurement period, which is January 1 to March 31, 2008. The tool has two tabbed sections, the first of which the abstractors must complete in order to finalize the tool. The second tab contains a free text area for abstractors to enter comments related to record review or abstraction for the case.

Tab 1: A date of service (either for professional services, outpatient services, or inpatient services) during the review period has been selected at random for each member, and that date of service is found in the demographic area on the top of the tool, under ‘date of service’. The type of service will be indicated under “Claim Type,” with “I” indicating an inpatient encounter, “O1” or “O2” for outpatient encounters, or “P” for professional encounters. The consumer’s date of birth, diagnosis and procedure codes with associated units reported to the plan for that date of service are then validated by the abstractor, which is based on documentation in the health record. The abstractor will indicate agreement or disagreement with codes as well as units by checking the appropriate area for “Yes” or “No” in the column addressing whether the code/unit is valid. If the answer is “No,” the abstractor will then supply a corrected code and/or unit if indicated. The abstractor will be able to indicate a reason for error for each code disagreement, when applicable, by clicking the appropriate reason circle found on the tool. The error reasons are as follows:

- ◆ Incorrect code with addition of appropriate code – Use this reason code for cases in which the code reflected in the code validation area is incorrect, and there is a correct code that could be reported. If reason code 1 is selected, the abstractor must then assign the corrected code.
- ◆ Incorrect code – no additional code needed – Use this reason code for cases in which the code reflected in the code validation area is incorrect, but there is no other code that could be used to replace it. This is most commonly seen in cases with multiple codes are reported in the encounter data for that date of service. *Remember, there must be at least one code assigned to each date of service validated!* If reason code 2 is selected, the abstractor will not be prompted to add any replacement code.
- ◆ Omission – Use this reason code when the encounter data does not include a procedure code for a service that is documented in the health record – for the purposes of this abstraction, any omission error would be characterized as a “blank” within the encounter data field. In the physical health world, this is more typically seen for forgotten injections, immunizations, or other minor procedures, so it may not apply much for behavioral health. If reason code 3 is selected, the abstractor must provide a corrected code, and must also validate units of service related to that procedure code (detailed in the step-by-step instructions below).

- ◆ Specificity (applies only to ICD-9 codes) – use this reason to identify a code reported which has the incorrect specificity (i.e., a 4th or 5th digit error – within the same disease category).

For additional information on validating units, see the step-by-step instructions in the following section.

If the date of service selected for validation is an **inpatient** stay, DOB, admit and discharge dates are required for validation; discharge diagnoses will be validated, but no procedures/units will be validated on any inpatient records.

If the date of service selected is an **outpatient facility** (O1 or O2 claim type) encounter, validate those items which are available for validation – and if procedure codes are missing altogether, be sure to add the appropriate procedure code for the service. For O1 and O2 claim types, please make notes in the comments area regarding any concerns you have with validation based on documentation provided. Also, please note that the volume of facility-based service validations will be few in the overall validation sample. If, at any time, abstractors have questions about what to validate for these types of services, contact the project manager for clarification.

Tab 2: There is also a free text comment field in the final tab of the tool, where abstractors can communicate issues that may impact how they filled out the tool.

Step-by-Step Instructions

Tab 1: Encounter Data to Health Record – Verify that the patient name, date of birth, and date of service on the electronic tool matches information in the health record. If the record has a matching date of birth, select “Yes,” if not, select “No”, and enter the correct DOB. Following this, abstractors will validate the date of service selected for review. The date of service on the tool must match the date in the record exactly. If the record has a matching date of service, select “Yes,” if not, select “No.” If answered “No,” a prompt will pop up, advising abstractors that this will complete the abstraction, and the abstractor will have to verify that this is correct. Selecting that button will complete and close the tool.

Review the behavioral health record, specifically initial and subsequent assessment visit types, to validate each ICD-9 code in the ICD-9 area of Tab 1. Diagnoses are not typically documented for individual behavioral health services, but are assigned based on more in-depth assessments, which are typically documented separately in the record. If the code reported is correct, select “Yes” button in column 3a next to the code being validated.

If the ICD-9 code is not supported by documentation in the behavioral health record, select the “No.” Indicate the type of coding error by selecting the appropriate reason number in the “Reason” section of the tool. Reason codes can be viewed by selecting the link titled “Reason Codes,” and a pop-up window will appear with reason code descriptions. If a code is reported but not supported by documentation, and NO OTHER code would be used to replace it, leave the corrected code field blank, and chose reason code 2, incorrect code, no additional code indicated. All responses must have either valid “Yes” or one of the reason codes indicated. If abstractors feel as though none of the reason codes apply, yet there is a coding error, document the rationale and any other information

that would be helpful in the “Comments” area of the tool, save and close. Send the project leader an e-mail to flag this for immediate follow up and resolution. Fill in the correct code (if applicable) in the field provided. The field is a drop-down box, which includes all valid codes for the review period.

Review the health record to validate each procedure code (CPT) in the procedure code area of Tab 1. If the code is correct, select “Yes” next to the code being validated.

If the procedure code is not supported by documentation in the behavioral health record, select “No” next to the code being validated. Indicate the type of coding error by selecting the appropriate reason number in the “Reason” section. Reason codes can be viewed by selecting the link titled “Reason Codes,” and a pop-up window will appear with reason code descriptions. If a code is reported but not supported by documentation, and NO OTHER code would be used to replace it, leave the corrected code field blank, and chose reason code 2, incorrect code, no additional code indicated. All responses must have either "valid" or one of the reason codes indicated. Fill in the correct code (if applicable) in the field provided.

For each procedure code in the previous section, abstractors will need to validate if reported units are correct. If “Yes” is selected as a response, the abstractor can then move on to the rest of the abstraction. If “No” is selected, the abstractor will need to determine if the documentation in the record identifies the correct number of units and indicate by selecting “Yes” or “No.” If “Yes” is selected, the abstractor will then enter the correct number of units. If “No” is selected, the default number of units for any procedure reported is “1”.

For omitted codes in either the ICD-9 or procedure code areas of the abstraction tool, select “No” in column next to the blank area of the form where the code should have appeared, and then enter the correct code.

Any State-specific codes (i.e., ZXXXXX) reported by the BHOs should be considered a coding error.

Abstractors should NOT indicate a coding error UNLESS errors can be verified based on documentation in the record.

If abstractors have questions or comments regarding a particular case, and would like input from the project manager, they should enter comments as appropriate in tab 2, explaining the issue, then “save and close”. The project manager can review the case and give feedback to the abstractor prior to completion of the abstraction.

Tab 2: A free text field for comments exists at the last tabbed area on the tool. Abstractors may add any comments about the record or abstraction, but notes are not required. Please avoid abbreviations, and only add comments regarding issues that directly impact the data being abstracted.

When abstractors have responded to all required fields, select the “complete and close” button on the tool.

Please document technical or other issues that slow down the abstraction process on the communication log, and submit this with the abstraction log at the end of each week. The abstraction log should be faxed to 602-745-6358 every Friday.

Scenarios for Identifying Coding Error

- ◆ A client is seen for a group therapy session, which is documented as lasting one hour. The encounter data reported for this visit is *90801*, which reflects a psychiatric diagnostic interview examination. There is only one unit associated with this code in the encounter data. The abstractor should indicate disagreement with the code (“No” in column 4a), should indicate reason code 1 (Incorrect code with addition of corrected code) in column 4b, and should enter code *90853* in column 4c. The units are correct as reported, so the response for column 5a should be “Yes.”
- ◆ A client is seen for a scheduled community based psychiatric treatment program, documented as lasting one hour, face to face with clinician. The encounter data reported for this visit is *H0036*, for community psychiatric supportive treatment face to face, per 15 minutes. The units associated with this code are 8. The coder would indicate agreement with the procedure code (“Yes” to Q 4a); and, for the units, the abstractor would click “No” for Q 5a, indicate “Yes, for Q 5b, and enter 4 for Q 5c, since only one hour (four 15-minute increments) was documented in the health record.

Appendix B. Frequency of Procedure Codes for Professional Encounters

The table below shows the frequency distribution of procedure codes identified in the professional encounters. The highlighted procedure codes represent procedures listed as a covered service in Exhibit E of the BHO Contract.

Table B-1—Frequency of Professional Encounter Procedure Codes	
Procedure Code	Total Number of Detail Lines
36415	1
80048	3
80053	1
80101	7
80196	1
81003	1
82003	5
82055	2
84703	3
85025	1
85027	3
87077	1
87086	2
87088	1
87186	1
87491	1
90772	1348
90801	8686
90804	12770
90805	2716
90806	63103
90807	302
90808	1288
90809	5
90810	440
90811	7
90812	1712
90813	48
90814	32
90816	2419

Table B-1—Frequency of Professional Encounter Procedure Codes	
Procedure Code	Total Number of Detail Lines
90817	4
90818	144
90821	87
90846	1453
90847	19277
90849	147
90853	34376
90857	6
90862	28814
90882	55675
90885	10
90887	3975
90889	12
90899	982
96101	68
96103	2
96118	5
96150	1
96152	3
96153	5
96154	1
96155	1
97535	256
97537	138
99058	35
99075	4
99080	39
99203	6
99205	38
99211	77
99213	30
99214	2
99221	20
99222	1
99223	13
99231	106
99232	25
99236	4

Table B-1—Frequency of Professional Encounter Procedure Codes	
Procedure Code	Total Number of Detail Lines
99238	10
99239	2
99254	1
99281	3
99283	4
99284	4
99285	3
99308	6
99366	2
99510	1094
	108
271	1
90015	1
90844	3
90906	3
96100	35
99999	8
A0000	38
A0382	8
A0394	1
A0422	1
A0425	4
A0429	4
A0999	14
G0176	2212
G0177	1266
G0378	3
H0002	1440
H0004	194
H0018	3130
H0019	4011
H0023	189
H0025	493
H0031	100
H0033	8066
H0034	13221
H0036	9
H0037	4641

Table B-1—Frequency of Professional Encounter Procedure Codes	
Procedure Code	Total Number of Detail Lines
H0038	3339
H0039	54
H0043	2188
H0044	73
H0045	341
H0046	1424
H2000	189
H2001	442
H2004	18
H2011	2592
H2012	1887
H2013	3134
H2014	3831
H2015	1077
H2017	1599
H2019	216
H2021	633
H2022	28
H2023	340
H2024	236
H2025	939
H2026	301
H2027	1503
H2030	3767
H2031	11133
H2032	1509
J2680	95
J2794	234
S0220	13
S9452	1
S9453	4
S9470	71
T1005	175
T1013	28
T1015	5
T1016	62963
T1017	4214

Access Behavioral Health

Behavioral Health Record Omission Rate—Date-of-Service

Table C-1—Behavioral Health Record Omission Rates by Service Type for ABC

Service Type	Admit/First Date of Service			Discharge/Last Date of Service		
	Date of Service in Administrative Data	Not Present in BH Records	Percent	Date of Service in Administrative Data	Not Present in BH Records	Percent
Inpatient	0	0	.	30	6	20.0%
Outpatient 1	0	0	.	1	1	100.0%
Outpatient 2	78	7	9.0%	0	.	.
Professional	302	19	6.3%	0	.	.
ABC Overall	380	26	6.8%	31	7	22.6%

Note: Inpatient episodes were defined by an encounter in the Business Object Applications (BOA) with a “B” value in the claim_code_type field. Outpatient episodes were defined as having a “C” value in the claim_code_type field and the last date of service being different from the first date of service. These outpatient institutional episodes were defined as “Outpatient 1” encounters in the study. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Diagnosis Code Omission Rates

Table C-2—Behavioral Health Record ICD-9-CM Diagnosis Omission Rates by Service Type for ABC

Service Type	Diagnosis in Administrative Data	Not Present in BH Records	Percent
Inpatient	46	12	26.1%
Outpatient 1	1	1	100.0%
Outpatient 2	81	8	9.9%
Professional	311	27	8.7%
ABC Overall	439	48	10.9%

Note: Inpatient episodes were defined by an encounter in the Business Object Applications (BOA) with a “B” value in the claim_code_type field. Outpatient episodes were defined as having a “C” value in the claim_code_type field and the last date of service being different from the first date of service. These outpatient institutional episodes were defined as “Outpatient 1” encounters in the study. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Table C-3—Encounter Data ICD-9-CM Diagnosis Omission Rates by Service Type for ABC

Service Type	Diagnosis in BH Records	Not Present in Administrative Data	Percent
Inpatient	24	3	12.5%
Outpatient 1	0	0	.
Outpatient 2	84	16	19.0%
Professional	277	4	1.4%
ABC Overall	385	23	6.0%

Note: Inpatient episodes were defined by an encounter in the Business Object Applications (BOA) with a “B” value in the claim_code_type field. Outpatient episodes were defined as having a “C” value in the claim_code_type field and the last date of service being different from the first date of service. These outpatient institutional episodes were defined as “Outpatient 1” encounters in the study. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Procedure Code Omission Rates

Table C-4—Behavioral Health Record CPT-4/HCPSC Procedure Code Omission Rates by Service Type for ABC

Service Type	Procedure in Administrative Data	Not Present in BH Records	Percent
Outpatient 1	8	8	100.0%
Outpatient 2	115	26	22.6%
Professional	375	53	14.1%
ABC Overall	498	87	17.5%

Note: Inpatient episodes were defined by an encounter in the Business Object Applications (BOA) with a “B” value in the claim_code_type field. Outpatient episodes were defined as having a “C” value in the claim_code_type field and the last date of service being different from the first date of service. These outpatient institutional episodes were defined as “Outpatient 1” encounters in the study. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Table C-5—Encounter Data CPT-4/HCPSC Procedure Code Omission Rates by Service Type for ABC

Service Type	Diagnosis in Record	Not Present in Administrative Data	Percent
Outpatient 1	0	0	.
Outpatient 2	78	1	1.3%
Professional	280	74	26.4%
ABC Overall	358	75	20.9%

Note: Inpatient episodes were defined by an encounter in the Business Object Applications (BOA) with a “B” value in the claim_code_type field. Outpatient episodes were defined as having a “C” value in the claim_code_type field and the last date of service being different from the first date of service. These outpatient institutional episodes were defined as “Outpatient 1” encounters in the study. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Diagnosis and Procedure Code Accuracy Rates

Table C-6—ICD-9-CM Diagnosis and CPT-4/HCPCS Procedure Code Accuracy by Service Type for ABC

Service Type	ICD-9-CM			CPT-4/HCPCS		
	Codes from Valid DOS in Administrative Data	Validated in BH Records	Percent	Codes from Valid DOS in Administrative Data	Validated in BH Records	Percent
Inpatient	39	21	53.8%	.	.	.
Outpatient 1	0	0	.	0	0	.
Outpatient 2	74	68	91.9%	101	77	76.2%
Professional	291	273	93.8%	354	206	58.2%
ABC Overall	404	362	89.6%	455	283	62.2%

Note: Inpatient episodes were defined by an encounter in the Business Object Applications (BOA) with a “B” value in the claim_code_type field. Outpatient episodes were defined as having a “C” value in the claim_code_type field and the last date of service being different from the first date of service. These outpatient institutional episodes were defined as “Outpatient 1” encounters in the study. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Invalid Diagnosis and Procedure Code Frequency Distribution

Table C-7—Frequency Distribution of Invalid ICD-9-CM Diagnosis Codes by Service Type for ABC

Service Type	Invalid Diagnoses	Incorrect Code		Specificity Error	
		Number	Percent	Number	Percent
Inpatient	13	10	76.9%	3	23.1%
Outpatient 1	0	0	.	0	.
Outpatient 2	5	1	20.0%	4	80.0%
Professional	11	8	72.7%	3	27.3%
ABC Overall	29	19	65.5%	10	34.5%

Note: Inpatient episodes were defined by an encounter in the Business Object Applications (BOA) with a “B” value in the claim_code_type field. Outpatient episodes were defined as having a “C” value in the claim_code_type field and the last date of service being different from the first date of service. These outpatient institutional episodes were defined as “Outpatient 1” encounters in the study. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Table C-8—Frequency Distribution of Invalid CPT-4/HCPCS Procedure Codes by Service Type for ABC

Service Type	Invalid Procedures	Number	Percent
Outpatient 1	0	0	.
Outpatient 2	12	12	100.0%
Professional	116	116	100.0%
ABC Overall	128	128	100.0%

Note: Outpatient episodes were defined as having a “C” value in the claim_code_type field and the last date of service being different from the first date of service. These outpatient institutional episodes were defined as “Outpatient 1” encounters in the study. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Unit of Service Accuracy Rate

Table C-9—Unit Accuracy Rates and Percent of Undocumented Unit by Service Type for ABC						
Service Type	Unit Accuracy			Undocumented Unit		
	Validated Procedures	Validated Units	Percent	Invalid Units	Undocumented in BH Records	Percent
Outpatient 1	0	0	.	0	0	.
Outpatient 2	77	14	18.2%	63	16	25.4%
Professional	206	194	94.2%	12	5	41.7%
ABC Overall	283	208	73.5%	75	21	28.0%

Note: Outpatient episodes were defined as having a “C” value in the claim_code_type field and the last date of service being different from the first date of service. These outpatient institutional episodes were defined as “Outpatient 1” encounters in the study. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Behavioral HealthCare, Inc.

Behavioral Health Record Omission Rate—Date-of-Service

Table C-10—Behavioral Health Record Omission Rates by Service Type for BHI

Service Type	Admit/First Date of Service			Discharge/Last Date of Service		
	Date of Service in Administrative Data	Not Present in BH Records	Percent	Date of Service in Administrative Data	Not Present in BH Records	Percent
Inpatient	0	0	.	29	5	17.2%
Outpatient 1	0	0	.	1	0	0.0%
Outpatient 2	6	0	0.0%	0	.	.
Professional	370	11	3.0%	0	.	.
BHI Overall	376	11	2.9%	30	5	16.7%

Note: Inpatient episodes were defined by an encounter in the Business Object Applications (BOA) with a “B” value in the claim_code_type field. Outpatient episodes were defined as having a “C” value in the claim_code_type field and the last date of service being different from the first date of service. These outpatient institutional episodes were defined as “Outpatient 1” encounters in the study. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Diagnosis Code Omission Rates

Table C-11—Behavioral Health Record ICD-9-CM Diagnosis Omission Rates by Service Type for BHI

Service Type	Diagnosis in Administrative Data	Not Present in BH Records	Percent
Inpatient	29	5	17.2%
Outpatient 1	1	0	0.0%
Outpatient 2	6	0	0.0%
Professional	370	13	3.5%
BHI Overall	406	18	4.4%

Note: Inpatient episodes were defined by an encounter in the Business Object Applications (BOA) with a “B” value in the claim_code_type field. Outpatient episodes were defined as having a “C” value in the claim_code_type field and the last date of service being different from the first date of service. These outpatient institutional episodes were defined as “Outpatient 1” encounters in the study. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Table C-12—Encounter Data ICD-9-CM Diagnosis Omission Rates by Service Type for BHI

Service Type	Diagnosis in BH Records	Not Present in Administrative Data	Percent
Inpatient	28	5	17.9%
Outpatient 1	1	0	0.0%
Outpatient 2	6	0	0.0%
Professional	343	11	3.2%
BHI Overall	378	16	4.2%

Note: Inpatient episodes were defined by an encounter in the Business Object Applications (BOA) with a “B” value in the claim_code_type field. Outpatient episodes were defined as having a “C” value in the claim_code_type field and the last date of service being different from the first date of service. These outpatient institutional episodes were defined as “Outpatient 1” encounters in the study. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Procedure Code Omission Rates

Table C-13—Behavioral Health Record CPT-4/HCPSC Procedure Code Omission Rates by Service Type for BHI

Service Type	Procedure in Administrative Data	Not Present in BH Records	Percent
Outpatient 2	10	0	0.0%
Professional	435	29	6.7%
BHI Overall	445	29	6.5%

Note: Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Table C-14—Encounter Data CPT-4/HCPSC Procedure Code Omission Rates by Service Type for BHI

Service Type	Diagnosis in Record	Not Present in Administrative Data	Percent
Outpatient 2	10	0	0.0%
Professional	289	3	1.0%
BHI Overall	299	3	1.0%

Note: Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Diagnosis and Procedure Code Accuracy Rates

Table C-15—ICD-9-CM Diagnosis and CPT-4/HCPCS Procedure Code Accuracy by Service Type for BHI

Service Type	ICD-9-CM			CPT-4		
	Codes from Valid DOS in Administrative Data	Validated in BH Records	Percent	Codes from Valid DOS in Administrative Data	Validated in BH Records	Percent
Inpatient	24	23	95.8%	.	.	.
Outpatient 1	1	1	100.0%	.	.	.
Outpatient 2	6	6	100.0%	10	10	100.0%
Professional	359	332	92.5%	421	286	67.9%
BHI Overall	390	362	92.8%	431	296	68.7%

Note: Inpatient episodes were defined by an encounter in the Business Object Applications (BOA) with a “B” value in the claim_code_type field. Outpatient episodes were defined as having a “C” value in the claim_code_type field and the last date of service being different from the first date of service. These outpatient institutional episodes were defined as “Outpatient 1” encounters in the study. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Invalid Diagnosis and Procedure Code Frequency Distribution

Table C-16—Frequency Distribution of Invalid ICD-9-CM Diagnosis Codes by Service Type for BHI

Service Type	Invalid Diagnoses	Incorrect Code		Specificity Error	
		Number	Percent	Number	Percent
Inpatient	1	0	0.0%	1	100.0%
Outpatient 1	0	0	.	0	.
Outpatient 2	0	0	.	0	.
Professional	25	19	76.0%	6	24.0%
BHI Overall	26	19	73.1%	7	26.9%

Note: Inpatient episodes were defined by an encounter in the Business Object Applications (BOA) with a “B” value in the claim_code_type field. Outpatient episodes were defined as having a “C” value in the claim_code_type field and the last date of service being different from the first date of service. These outpatient institutional episodes were defined as “Outpatient 1” encounters in the study. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Table C-17—Frequency Distribution of Invalid CPT-4/HCPCS Procedure Codes by Service Type for BHI

Service Type	Invalid Procedures	Incorrect Code	
		Number	Percent
Outpatient 2	0	0	.
Professional	120	120	100.0%
BHI Overall	120	120	100.0%

Note: Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Unit of Service Accuracy Rate

Table C-18—Unit Accuracy Rates and Percent of Undocumented Unit by Service Type for BHI						
Service Type	Unit Accuracy			Undocumented Unit		
	Validated Procedures	Validated Units	Percent	Invalid Units	Undocumented in BH Records	Percent
Outpatient 2	10	0	0.0%	10	5	50.0%
Professional	286	2	0.7%	284	18	6.3%
BHI Overall	296	2	0.7%	294	23	7.8%

Note: Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Colorado Health Partnerships, LLC

Behavioral Health Record Omission Rate—Date-of-Service

Table C-19—Behavioral Health Record Omission Rates by Service Type for CHP

Service Type	Admit/First Date of Service			Discharge/Last Date of Service		
	Date of Service in Administrative Data	Not Present in BH Records	Percent	Date of Service in Administrative Data	Not Present in BH Records	Percent
Inpatient	0	0	.	30	5	16.7%
Outpatient 1	0	0	.	2	0	0.0%
Outpatient 2	7	1	14.3%	0	.	.
Professional	353	12	3.4%	0	.	.
CHP Overall	360	13	3.6%	32	5	15.6%

Note: Inpatient episodes were defined by an encounter in the Business Object Applications (BOA) with a “B” value in the claim_code_type field. Outpatient episodes were defined as having a “C” value in the claim_code_type field and the last date of service being different from the first date of service. These outpatient institutional episodes were defined as “Outpatient 1” encounters in the study. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Diagnosis Code Omission Rates

Table C-20—Behavioral Health Record ICD-9-CM Diagnosis Omission Rates by Service Type for CHP

Service Type	Diagnosis in Administrative Data	Not Present in BH Records	Percent
Inpatient	55	12	21.8%
Outpatient 1	2	0	0.0%
Outpatient 2	7	1	14.3%
Professional	359	18	5.0%
CHP Overall	423	31	7.3%

Note: Inpatient episodes were defined by an encounter in the Business Object Applications (BOA) with a “B” value in the claim_code_type field. Outpatient episodes were defined as having a “C” value in the claim_code_type field and the last date of service being different from the first date of service. These outpatient institutional episodes were defined as “Outpatient 1” encounters in the study. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Table C-21—Encounter Data ICD-9-CM Diagnosis Omission Rates by Service Type for CHP

Service Type	Diagnosis in BH Records	Not Present in Administrative Data	Percent
Inpatient	41	5	12.2%
Outpatient 1	4	2	50.0%
Outpatient 2	8	4	50.0%
Professional	332	13	3.9%
CHP Overall	385	24	6.2%

Note: Inpatient episodes were defined by an encounter in the Business Object Applications (BOA) with a “B” value in the claim_code_type field. Outpatient episodes were defined as having a “C” value in the claim_code_type field and the last date of service being different from the first date of service. These outpatient institutional episodes were defined as “Outpatient 1” encounters in the study. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Procedure Code Omission Rates

Table C-22—Behavioral Health Record CPT-4/HCPSCS Procedure Code Omission Rates by Service Type for CHP

Service Type	Procedure in Administrative Data	Not Present in BH Records	Percent
Outpatient 1	0	0	.
Outpatient 2	0	0	.
Professional	398	27	6.8%
CHP Overall	398	27	6.8%

Note: Outpatient episodes were defined as having a “C” value in the claim_code_type field and the last date of service being different from the first date of service. These outpatient institutional episodes were defined as “Outpatient 1” encounters in the study. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Table C-23—Encounter Data CPT-4/HCPSCS Procedure Code Omission Rates by Service Type for CHP

Service Type	Diagnosis in Record	Not Present in Administrative Data	Percent
Outpatient 1	1	1	100.0%
Outpatient 2	5	5	100.0%
Professional	356	2	0.6%
CHP Overall	362	8	2.2%

Note: Outpatient episodes were defined as having a “C” value in the claim_code_type field and the last date of service being different from the first date of service. These outpatient institutional episodes were defined as “Outpatient 1” encounters in the study. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Diagnosis and Procedure Code Accuracy Rates

Table C-24—ICD-9-CM Diagnosis and CPT-4/HCPCS Procedure Code Accuracy by Service Type for CHP

Service Type	ICD-9-CM			CPT-4/HCPCS		
	Codes from Valid DOS in Administrative Data	Validated in BH Records	Percent	Codes from Valid DOS in Administrative Data	Validated in BH Records	Percent
Inpatient	45	36	80.0%	.	.	.
Outpatient 1	2	2	100.0%	0	0	.
Outpatient 2	6	4	66.7%	0	0	.
Professional	347	319	91.9%	385	354	91.9%
CHP Overall	400	361	90.3%	385	354	91.9%

Note: Inpatient episodes were defined by an encounter in the Business Object Applications (BOA) with a “B” value in the claim_code_type field. Outpatient episodes were defined as having a “C” value in the claim_code_type field and the last date of service being different from the first date of service. These outpatient institutional episodes were defined as “Outpatient 1” encounters in the study. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Invalid Diagnosis and Procedure Code Frequency Distribution

Table C-25—Frequency Distribution of Invalid ICD-9-CM Diagnosis Codes by Service Type for CHP

Service Type	Invalid Diagnoses	Incorrect Code		Specificity Error	
		Number	Percent	Number	Percent
Inpatient	7	5	71.4%	2	28.6%
Outpatient 1	0	0	.	0	.
Outpatient 2	2	2	100.0%	0	0.0%
Professional	22	12	54.5%	10	45.5%
CHP Overall	31	19	61.3%	12	38.7%

Note: Inpatient episodes were defined by an encounter in the Business Object Applications (BOA) with a “B” value in the claim_code_type field. Outpatient episodes were defined as having a “C” value in the claim_code_type field and the last date of service being different from the first date of service. These outpatient institutional episodes were defined as “Outpatient 1” encounters in the study. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Table C-26—Frequency Distribution of Invalid CPT-4/HCPCS Procedure Codes by Service Type for CHP

Service Type	Invalid Procedures	Incorrect Code	
		Number	Percent
Outpatient 1	0	0	.
Outpatient 2	0	0	.
Professional	17	17	100.0%
CHP Overall	17	17	100.0%

Note: Outpatient episodes were defined as having a “C” value in the claim_code_type field and the last date of service being different from the first date of service. These outpatient institutional episodes were defined as “Outpatient 1” encounters in the study. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Unit of Service Accuracy Rate

Table C-27—Unit Accuracy Rates and Percent of Undocumented Unit by Service Type for CHP						
Service Type	Unit Accuracy			Undocumented Unit		
	Validated Procedures	Validated Units	Percent	Invalid Units	Undocumented in BH Records	Percent
Outpatient 1	0	0	.	0	0	.
Outpatient 2	0	0	.	0	0	.
Professional	354	267	75.4%	87	21	24.1%
CHP Overall	354	267	75.4%	87	21	24.1%

Note: Outpatient episodes were defined as having a “C” value in the claim_code_type field and the last date of service being different from the first date of service. These outpatient institutional episodes were defined as “Outpatient 1” encounters in the study. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Foothills Behavioral Health, LLC

Behavioral Health Record Omission Rate—Date-of-Service

Table C-28—Behavioral Health Record Omission Rates by Service Type for FBH

Service Type	Admit/First Date of Service			Discharge/Last Date of Service		
	Date of Service in Administrative Data	Not Present in BH Records	Percent	Date of Service in Administrative Data	Not Present in BH Records	Percent
Inpatient	0	0	.	16	0	0.0%
Outpatient 2	4	0	0.0%	0	.	.
Professional	391	9	2.3%	0	.	.
FBH Overall	395	9	2.3%	16	0	0.0%

Note: Inpatient episodes were defined by an encounter in the Business Object Applications (BOA) with a “B” value in the claim_code_type field. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Diagnosis Code Omission Rates

Table C-29—Behavioral Health Record ICD-9-CM Diagnosis Omission Rates by Service Type for FBH

Service Type	Diagnosis in Administrative Data	Not Present in BH Records	Percent
Inpatient	16	0	0.0%
Outpatient 2	4	0	0.0%
Professional	394	11	2.8%
FBH Overall	414	11	2.7%

Note: Inpatient episodes were defined by an encounter in the Business Object Applications (BOA) with a “B” value in the claim_code_type field. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Table C-30—Encounter Data ICD-9-CM Diagnosis Omission Rates by Service Type for FBH

Service Type	Diagnosis in BH Records	Not Present in Administrative Data	Percent
Inpatient	17	2	11.8%
Outpatient 2	4	0	0.0%
Professional	285	7	2.5%
FBH Overall	306	9	2.9%

Note: Inpatient episodes were defined by an encounter in the Business Object Applications (BOA) with a “B” value in the claim_code_type field. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Procedure Code Omission Rates

Table C-31—Behavioral Health Record CPT-4/HCPCS Procedure Code Omission Rates by Service Type for FBH

Service Type	Procedure in Administrative Data	Not Present in BH Records	Percent
Outpatient 2	10	0	0.0%
Professional	456	34	7.5%
FBH Overall	466	34	7.3%

Note: Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Table C-32—Encounter Data CPT-4/HCPCS Procedure Code Omission Rates by Service Type for FBH

Service Type	Diagnosis in Record	Not Present in Administrative Data	Percent
Outpatient 2	9	0	0.0%
Professional	419	6	1.4%
FBH Overall	428	6	1.4%

Note: Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Diagnosis and Procedure Code Accuracy Rates

Table C-33—ICD-9-CM Diagnosis and CPT-4/HCPSC Procedure Code Accuracy by Service Type for FBH

Service Type	ICD-9-CM			CPT-4/HCPSC		
	Codes from Valid DOS in Administrative Data	Validated in BH Records	Percent	Codes from Valid DOS in Administrative Data	Validated in BH Records	Percent
Inpatient	16	15	93.8%	.	.	.
Outpatient 2	4	4	100.0%	10	9	90.0%
Professional	385	278	72.2%	446	413	92.6%
FBH Overall	405	297	73.3%	456	422	92.5%

Note: Inpatient episodes were defined by an encounter in the Business Object Applications (BOA) with a “B” value in the claim_code_type field. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Invalid Diagnosis and Procedure Code Frequency Distribution

Table C-34—Frequency Distribution of Invalid ICD-9-CM Diagnosis Codes by Service Type for FBH

Service Type	Invalid Diagnoses	Incorrect Code		Specificity Error	
		Number	Percent	Number	Percent
Inpatient	1	0	0.0%	1	100.0%
Outpatient 2	0	0	.	0	.
Professional	105	13	12.4%	92	87.6%
FBH Overall	106	13	12.3%	93	87.7%

Note: Inpatient episodes were defined by an encounter in the Business Object Applications (BOA) with a “B” value in the claim_code_type field. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Table C-35—Frequency Distribution of Invalid CPT-4/HCPSC Procedure Codes by Service Type for FBH

Service Type	Invalid Procedures	Incorrect Code	
		Number	Percent
Outpatient 2	1	1	100.0%
Professional	9	9	100.0%
FBH Overall	10	10	100.0%

Note: Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Unit of Service Accuracy Rate

Table C-36—Unit Accuracy Rates and Percent of Undocumented Unit by Service Type for FBH						
Service Type	Unit Accuracy			Undocumented Unit		
	Validated Procedures	Validated Units	Percent	Invalid Units	Undocumented in BH Records	Percent
Outpatient 2	9	9	100.0%	0	0	.
Professional	413	394	95.4%	19	6	31.6%
FBH Overall	422	403	95.5%	19	6	31.6%

Note: Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Northeast Behavioral Health, LLC

Behavioral Health Record Omission Rate—Date-of-Service

Table C-37—Behavioral Health Record Omission Rates by Service Type for NBH

Service Type	Admit/First Date of Service			Discharge/Last Date of Service		
	Date of Service in Administrative Data	Not Present in BH Records	Percent	Date of Service in Administrative Data	Not Present in BH Records	Percent
Inpatient	0	0	.	30	4	13.3%
Outpatient 2	3	0	0.0%	0	.	.
Professional	378	22	5.8%	0	.	.
NBH Overall	381	22	5.8%	30	4	13.3%

Note: Inpatient episodes were defined by an encounter in the Business Object Applications (BOA) with a “B” value in the claim_code_type field. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Diagnosis Code Omission Rates

Table C-38—Behavioral Health Record ICD-9-CM Diagnosis Omission Rates by Service Type for NBH

Service Type	Diagnosis in Administrative Data	Not Present in BH Records	Percent
Inpatient	30	4	13.3%
Outpatient 2	3	0	0.0%
Professional	380	23	6.1%
NBH Overall	413	27	6.5%

Note: Inpatient episodes were defined by an encounter in the Business Object Applications (BOA) with a “B” value in the claim_code_type field. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Table C-39—Encounter Data ICD-9-CM Diagnosis Omission Rates by Service Type for NBH

Service Type	Diagnosis in BH Records	Not Present in Administrative Data	Percent
Inpatient	32	10	31.3%
Outpatient 2	3	0	0.0%
Professional	343	4	1.2%
NBH Overall	378	14	3.7%

Note: Inpatient episodes were defined by an encounter in the Business Object Applications (BOA) with a “B” value in the claim_code_type field. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Procedure Code Omission Rates

Table C-40—Behavioral Health Record CPT-4/HCPCS Procedure Code Omission Rates by Service Type for NBH

Service Type	Procedure in Administrative Data	Not Present in BH Records	Percent
Outpatient 2	24	0	0.0%
Professional	414	34	8.2%
NBH Overall	438	34	7.8%

Note: Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Table C-41—Encounter Data CPT-4/HCPCS Procedure Code Omission Rates by Service Type for NBH

Service Type	Diagnosis in Record	Not Present in Administrative Data	Percent
Outpatient 2	24	0	0.0%
Professional	368	0	0.0%
NBH Overall	392	0	0.0%

Note: Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Diagnosis and Procedure Code Accuracy Rates

Service Type	ICD-9-CM			CPT-4/HCPCS		
	Codes from Valid DOS in Administrative Data	Validated in BH Records	Percent	Codes from Valid DOS in Administrative Data	Validated in BH Records	Percent
Inpatient	26	22	84.6%	.	.	.
Outpatient 2	3	3	100.0%	24	24	100.0%
Professional	358	339	94.7%	391	368	94.1%
NBH Overall	387	364	94.1%	415	392	94.5%

Note: Inpatient episodes were defined by an encounter in the Business Object Applications (BOA) with a “B” value in the claim_code_type field. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Invalid Diagnosis and Procedure Code Frequency Distribution

Service Type	Invalid Diagnoses	Incorrect Code		Specificity Error	
		Number	Percent	Number	Percent
Inpatient	4	2	50.0%	2	50.0%
Outpatient 2	0	0	.	0	.
Professional	18	13	72.2%	5	27.8%
NBH Overall	22	15	68.2%	7	31.8%

Note: Inpatient episodes were defined by an encounter in the Business Object Applications (BOA) with a “B” value in the claim_code_type field. Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Service Type	Invalid Procedures	Incorrect Code	
		Number	Percent
Outpatient 2	0	0	.
Professional	12	12	100.0%
NBH Overall	12	12	100.0%

Note: Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.

Unit of Service Accuracy Rate

Table C-45—Unit Accuracy Rates and Percent of Undocumented Unit by Service Type for NBH						
Service Type	Unit Accuracy			Undocumented Unit		
	Validated Procedures	Validated Units	Percent	Invalid Units	Undocumented in BH Records	Percent
Outpatient 2	24	0	0.0%	24	0	0.0%
Professional	368	22	6.0%	346	17	4.9%
NBH Overall	392	22	5.6%	370	17	4.6%

Note: Outpatient episodes with a “C” value in the claim_code_type field and the same first and last dates of services were defined as “Outpatient 2” encounters in the study.