

**Accountable Behavioral Health Alliance
Non-Clinical Performance Improvement Project
Oregon Change Index
2006**

Topic: The Oregon Change Index (OCI) Outcome Measurement Project

Performance Improvement Project: This is the ABHA non-clinical performance improvement project for the External Quality Review process

Study Period: The OCI project began in 2000 and is ongoing.

Activity 1. Study Topic

1.1

The Topic is Based on Relevant Information

ABHA is the Oregon Health Plan (OHP) Managed Care Organization (MHO) representing Benton, Crook, Deschutes, Jefferson and Lincoln Counties. The mission of ABHA includes the effective and efficient management of behavioral health benefits for Oregon Health Plan Members. A core value of this mission is an outcome driven quality improvement program. An outcome driven mental health system, sometimes referred to as “outcomes informed care” is well documented as an effective care delivery model.¹⁻⁷

Outcomes informed care begins with the premise that in order to improve outcomes, it is first necessary to measure outcomes for all clients as treatment is delivered. Feedback is used to inform clinicians of the status of improvement for each client as the treatment unfolds. In addition, the information gleaned from systematic measurement of outcomes throughout the entire organization is utilized to drive changes in processes of care that may lead to better outcomes.

A number of well-controlled clinical trials have been published in recent years demonstrating the positive effect of providing feedback to clinicians.⁸⁻¹⁷ In addition, several studies have been published demonstrating the impact of these methods when utilized in real world clinical settings.^{5,6,18,19} In light of the growing evidence for the benefits of routine measurement of clinical outcomes and the use of feedback, the American Psychological Association Report of the 2005 Presidential Task Force on Evidence-Based Practice expands the use of the term “Evidence Based Practices” to include practices associated with outcomes informed care.²⁰

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Oregon Senate Bill (SB)267, otherwise known as the Evidence-Based Practice (EBP) initiative, was implemented in 2005.²¹ This bill effects all publicly funded mental health organizations in the state by mandating the use of Evidence-Based Practices. The Oregon Office of Mental Health and Addiction Services operationalized the definition of EBP to include Outcome Measurement requirements.²²

It should be noted that outcomes informed care differs from the usual use of the term Evidence Based Practices in that the methods associated with this approach are not specific to any diagnosis, treatment population or treatment method. The term meta-method is used to convey the fact that the methods utilized in outcomes informed care are intended to improve outcomes for all treatment populations, regardless of diagnosis or specific treatment methods employed.

Sophisticated outcomes informed care requires two complimentary components,: 1) a reliable and valid measure of outcome and 2) a clinical information system capable of collecting, scoring and organizing raw data. The clinical information system most apply various statistical procedures and clinical algorithms to provide meaningful information and feedback to clinicians and other decisions makers with within the service delivery system.

In 2000, ABHA implemented outcomes informed care via a contract with PacifiCare Behavioral Health (PBH). PBH utilized the Outcome Questionnaire –30 (OQ-30, also known as the Life Status Questionnaire). The OQ-30 is a shortened version of Outcome Questionnaire 45 (OQ-45)²³, which was and is nationally recognized as a valid and reliable measure of client self reported outcome widely utilized in psychotherapy research studies. PBH utilized its proprietary ALERT outcomes management system to provide a means for completed OQ-30 forms to be faxed to a single fax server for data capture via optical mark and character recognition software. The ALERT system provided feedback to clinicians via letters mailed to the clinics. Attachment 1 provides an example of the OQ-30.

The ALERT system had been used extensively with commercially insured populations, but had not been used previously with a primarily Medicaid funded population. Using this system, outcome data was collected on almost 1000 ABHA clients. The results revealed that after adjusting for differences in diagnosis and severity of symptoms (as measured by the outcome questionnaires) the outcomes for ABHA compared very favorable with the outcomes measured in the commercially insured populations.

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However, by the summer of 2001, it was apparent that ABHA clinicians and members were reluctant to use this tool, which required approximately five minutes to complete. The result was poor compliance with ABHA protocols for use of the OQ-30. Consequently, ABHA could not determine if system level rates of change were statistically reliably. It was therefore impossible to propose changes to the delivery system using this data. ABHA did not have an adequate level of trust in the data to use it for this purpose.

Given that the goal was (and is) to become an outcome-driven organization, it was essential that to either make the OQ-30 work or change to a new outcome measurement tool that would gain greater acceptance by ABHA clinicians. The ABHA Quality Management Committee decided to make a concerted effort for six months to bring OQ-30 submission rates to a level that would allow interpretation of results as being statistically valid. It was agreed that if this effort failed, ABHA would find a new Outcome Measurement tool. That effort failed. It was estimated at the time that outcome data was collected on fewer than 35% of clients.

1.2

Topic Determined through Systematic Process

Despite the difficulties encountered with the PBH ALERT system, the growing body of research evidence that provided the scientific foundation for outcomes informed care encouraged the ABHA clinical leadership to continue to pursue implementation of an outcomes management system.

Scott Miller, PhD had provided training on outcomes informed care to ABHA clinicians during the first field trial period (ALERT system). At that time he had introduced them to a four item outcome measure called the Outcome Rating Scale (ORS) which correlated well with the OQ-45 and OQ-30. ²⁴ Attachment 2 provides an example of the ORS.

Many clinicians expressed the opinion that a briefer outcome measure would be easier to use and result in better compliance with data collection. Therefore, the ABHA Quality Management Committee made the decision to initiate a performance improvement project to develop the Oregon Change Index – Outcomes Management System. The focus of this project was to develop the combination of outcomes measures and clinical information system capability necessary to enable outcomes informed care throughout ABHA. The product of this effort is referred to as the Oregon Change Index-Outcomes Management System, or OCI-OMS.

The decision to launch the OCI-OMS project flowed naturally from lessons learned from ABHA's first hand experience with outcomes informed care. A continuous review of

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emerging scientific evidence gave further impetus to the project. However, implementation of such a project-required progress on multiple fronts simultaneously – development of the measures, efficient data collection, and development of an effective clinical information system.

The specific study questions and performance indicators presented in this report were chosen to provide a metric for the evaluation of the “output” of a systematic process designed to achieve the broad aims of the of the outcomes management project. These indicators cover four interdependent domains of evidence used to evaluate the “performance” of the OCI-OMS. These are:

1. Validity and reliability of the outcome measure
2. Ease of use, consistency of data collection
3. Measurement of change
4. Evaluation of system improvements by gauging effects on the first three indicators.

Proposed Solution

ABHA retained consultants associated with the Center for Clinical Informatics (CCI) to provide technical assistance and data analytic services for the project. Jeb Brown, PhD, Director of CCI, served as project coordinator. CCI was selected for this project because its experience in developing clinical information systems for behavioral health organization, including the ALERT system at PacifiCare Behavioral Health and the Signal System for Resources for Living. The Signal System was particularly relevant, since it utilized the four item ORS from which the OCI was derived.^{6,7}

The next steps were to:

1. Define the characteristics and specifications of an outcomes measure that would be widely accepted by clinicians and clients
2. Search nationally for a tool that was already tested and developed that had the characteristics and specifications identified by ABHA
3. Test the new tool
4. Make modifications to the tool, if necessary
5. Implement use of the new tool throughout ABHA

Concurrently, the steps to construct the clinical information system included:

1. Develop an application to facilitate data entry.
2. Develop an application to organize the data and score the measure, apply appropriate statistical procedures and clinical algorithms, and organize information needed by various decision makers.

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3. Develop feedback reports for clinicians and supervisors, formatting the information so that it is readily understandable and useful to the clinician.

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Despite the fact that the project may well have a direct impact on treatment outcomes, we are classifying it as a Non-Clinical Performance Improvement Project. This is because the project is not intended to implement or evaluate any particular treatment method or other clinical process.

Rather, the project is focused on providing the information infrastructure to enable clinicians to become more effective in their work. With all skilled activities, performance feedback is critical to hone the skill. The OCI-OMS is designed to provide this performance feedback information in the form of client self reported improvement on the outcome measure. The continuous feedback on the progress of each patient encourages therapists to fine tune treatment methods to meet the needs of individual patients.

Continuing Improvements

The development of the Oregon Change Index-Outcomes Management System was a process of continuous innovation and testing in an effort to improve results on the performance indicators. In order to organize the data to look at changes over time results are organized into multiple time intervals.

The earliest interval, January 2000 through June 2002, comprised the first field trial period during which the PBH ALERT system, with its 30 item measures, was utilized by ABHA.

A search for alternative outcome measures led ABHA to conclude that the ORS provided a sound foundation for a measure tailored to the needs of ABHA. The wording of some items was modified based on feedback from users. Also, the analog scale used by the ORS (a continuous line which required a ruler to score) proved to be cumbersome from a data entry point of view. As a result, the continuous line analog scale used in the ORS was converted to a 10 point Likert Scale, with items scored from 1 to 10. The Oregon Change Index is the result of this effort..

The second interval, which covers December of 2002 and the first three quarters of 2003, constitutes the second field trial period in which the OCI Version 1.0 was tested. The fourth quarter of 2003 represents a transition period from the OCI Version 1 to the OCI Version 2.0. By January 1 of 2004 all ABHA sites were utilizing the OCI 2.0. Attachments 3 and 4 provide the OCI-1 and OCI-2.

The period from January 1, 2004 forward constitutes the implementation and evaluation phase of the OCI-OCM project.. This report will provide results for the performance indicators specified in this study for this implementation and evaluation period.

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The results from 2004 onward are broken down by quarters. The use of three month reporting intervals provides a large enough sample to smooth out trend lines and a minimize the effects of random variation due to measurement error from one period to another.

The data analysis and results section will present the data on the various performance criteria by quarter. The report will note where significant changes in data collection processes and modifications to the information system generated feedback appear to be associated with significant changes on the performance indicators.

Ease of use and consistency of data collection is measured by simply counting the number of OCIs received. An estimate of the total outpatient services provided by each county serves as the denominator to determine the percentage of sessions with OCI data. The percentage of cases with multiple assessments is calculated by dividing the number of cases with multiple assessments on the OCI by the number of cases with at least one completed OCI.

Measure of change in outcomes over time is more complex due to the possibility of changes in case mix over time. Since one of the rationales for use of routine measurement and feedback is the possibility that this information may result in improved client outcomes, tracking changes in outcomes from one time period to another becomes an important function of the system. The sections on data analysis plan, data analysis, and results will provide necessary detail on the case mix adjustment model which permits comparison of results from one site or time period to another.

Findings from initial field trials

The results from the initial trail of the PBH ALERT system are summarized in the document *Accountable Behavioral Healthcare Alliance ALERTSM Outcomes Management Project Final Report*.²⁵ Two findings from this report are relevant to the current project: the number of outcome measures collected and the magnitude of improvement recorded.

During the 18 months of the ALERT system was employed, OQ-30 (adults) and YOQ-30 (youth) data was collected for 4,217 cases, of which 1036 (25%) were children and adolescents. Out of all cases, 975 (23%) had at least two assessments with this outcome measure during the treatment episode. There were no differences in adults and children/adolescents in the percentage of cases with more than one assessment.

These numbers translate to quarterly averages of approximately 700 clients per quarter, with only 162 per quarter with pre and post outcome data. This is too few to draw meaningful conclusions about outcomes within the ABHA system of care.

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Having said this, the improvement measured during this trial period provides some basis for benchmarking later improvement as measured by the OCI. The final report on the ALERT system noted that the change measured within the ABHA system resulted in an effect size of .50 for adults and children combined, which compared favorably to change measured within PBH's commercially insured population. All other things being equal, the OCI should be expected to produce a similar measure of change once change scores on the test have been standardized through use of the effect size statistic. This will be discussed in greater detail in the data analysis and results section.

The second field trial, involving the OCI-1 lasted 10 months and resulted in collection of 6,484 OCIs for 1,328 individuals. Of these, 757 (57%) had multiple assessments permitting calculation of pre-post change. This translates to quarterly averages of 1950 OCIs collected from 400 clients, of which 228 had pre-post change scores.

The transition to the OCI appears to have resulted in fewer total clients per quarter being measured (400 compared to 700 during the ALERT trial), but because a much higher percentage had multiple assessments, more clients actually had pre-post scores than previously: 228 per quarter with the OCVI compared to 162 with the OQ measures. The drop in the number of OCIs completed per quarter may relate to ABHA losing approximately 25% of its members when OHP "Standard" members lost their mental health benefits for a period of time due to state level budget cuts.

Surprisingly, the reliability as measured by the coefficient alpha calculated for the 4 item OCI was virtually identical to the coefficient alpha of the OQ-30 ($r=.93$). This is surprising because longer questionnaires will generally result in higher reliability. The high coefficient alpha was due to the high correlations between the 4 items. Correlations between single items and total OCI score ranged from .76 to .88. The high correlation between items raises the possibility that the items were too similar.

It is beyond the scope of this report to discuss the underlying assumptions of classical measurement theory or the more recent methodologies for item analysis stemming from item response theory. Suffice it to say that while it is a useful thing to have a scale that is factorially "pure", that is to say, items are loading on a common factor, there also needs to be enough variability in item response so that the measure is adequately assessing the domain at the extremes as well as the central portion of the distribution. In short, a reliability of less than .93 on a four-item measure would not necessarily imply a less accurate measurement, particularly across the full spectrum of severity.

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In order to evaluate if the OCI provided a measure of change in treatment, the raw score change from the OCI was standardized as an effect size using the same methodology utilized by the PBH ALERT system with the OQ-30 outcomes. This standardization revealed an effect size of .35, compared to .50 reported for the OQ-30. However, since the multiple OCIs had been collected for a much higher percentage of the clients in treatment, it is difficult to determine if the mix of cases in terms of diagnosis and test scores at intake was comparable between the two samples. A methodology for benchmarking ABHA outcomes using the OCI to results for other systems of care and other measures will be addressed in detail in the data analysis and results section.

The information gained from these two field trials provided encouragement that the OCI could provide the foundation for an outcomes management information system to support outcomes informed care. The OCI field trial also revealed areas of continued concern. These were the relatively low rate of OCI usage overall and the relatively low effect size when compared to previous results from OQ-30. The design of implementation and evaluation phase of the project included key performance indicators targeting improvement in these areas.

Description of the sample

Outcomes informed care depends upon the practice of measuring outcomes continuously on all patients. This detailed information, when fed back to the clinicians so that it informed the treatment process, is the means by which outcomes informed care impacts client outcomes. Therefore, the goal is always to collect outcome data on as close to 100% of all clients as possible.

This was true throughout both field trials as well as the implementation and evaluation phase. However, as results from the field trials revealed, compliance with the data collection protocol was far from perfect.

During the second quarter of 2004, ABHA utilization data was used to estimate the total number of service encounters annually at which OCI data should be collected. Some sites opted not to collect data for services such as group therapy, school based consultations and assessment, day treatment services, medication visits, etc. However, OCIs were expected for all sessions of clients receiving individual psychotherapy services.

After consultation with each county, it was determined that the OCI could be administered at an average of 4250 service encounters quarterly

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Based on this estimate, the field trial had resulted in OCIs for only about 40% of eligible sessions. One of the performance indicators for the project was to achieve an OCI completion rate at better than 75% of all sessions, a goal that was achieved in the first quarter of 2005. In fact the number of OCI completed exceeded the expected number of sessions. The high rate of OCI completion continued throughout 2005. From the first quarter of 2005 forward it is reasonable to assume that the results are highly representative of what would have been observed if OCIs were collected at 100% of all encounters for clients.

As noted previously, the OCI-1 field trial resulted in 6,484 OCIs for over 1900 individuals. The implementation phase through September of 2005 resulted in 22,000 OCIs for over 4400 separate episodes of care.

The following table provides information on the break down of the sample from the OCI-1 field trial and the OCI-2 implementation phase by age group. This table also provides information on OCIs scores and change measured.

Table 1: OCI scores from field trial and implementation phases

		Total cases	Total with pre-post scores	% with pre-post scores	First OCI	Last OCI	Change Score
OCI-1	Youth	454	281	62%	23.5	26	2.5
	Adults	1511	808	53%	18.3	20.7	2.4
	Combined	1965	1089	55%	19	21.5	2.5
OCI-2	Youth	1687	1183	70%	21.2	24.6	3.4
	Adults	2739	1623	59%	18.3	20.8	2.5
	Combined	4426	2806	63%	19.5	22.4	2.9

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Activity 2. Review of the Study Question

2.1

Definition of the Study Question

This study answers the question of how well the project performed in each of the following areas:

1. Reliability and validity of outcome measure as measured using the coefficient alpha and evidence of correlation to other similar measures.
 - Target performance: reliability of .85 or higher.
2. Ease of use and consistency of data collection, as measured by number of completed outcome questionnaires
 - Target performance: Outcome measure completed for at least 75% of service contacts; Multiple questionnaires completed for at least 50% of clients.
3. Client improvement, as measured by pre-post change on the outcome questionnaire on at least 50% of all clients.
 - Target: Effect size comparable to benchmark effect sizes from clinical trials and databases of outcomes for patients receiving “treatment as usual” (TAU) in a wide variety of outpatient settings.
4. Changes in performance on the above indicators as a result of refinements of the process for data entry and enhancements to the clinical information system.

Activity 3. Select Study Indicators

3.1

Eligible Population

As noted in the study sample, the target population during the implementation and evaluation phase (2004 onwards) were all enrollees through the ABHA system of care, with the exclusions cited previously. The Y-OCI implemented during this period provided a measurement suitable for younger children, so the target population included all adults and youth served during the implementation period.

Service Timeframe

The implementation and evaluation period is the service time frame for this study. The implementation period starts January 1, 2004 and continues till present. However, for purposes of this report, statistics on OCIs submitted and outcomes of care are provided only through the 3rd quarter of 2005. The reason is that at the time of preparation of this report, a number of OCI forms from the third quarter had not yet been entered into the system. Since complete results for the quarter were not available, this final quarter from 2005 was excluded from the reported results.

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Definition of the Denominator

During the implementation period, there were an estimated 4,250 client encounters per quarter at which OCI could have been collected. The goal was to collect OCIs for as high a percentage of these sessions as possible, with a practical target set at a minimum of 75% of the sessions.

Definition of the Numerator

The OCI completion rate is calculated using the total OCIs collected during the quarter (the numerator) divided by the estimated number of sessions per quarter.

Calculation of other indicators

The study also used indicators that are more complex to calculate than simple ratios requiring a numerator and denominator. These indicators are related to the measurement of change, and include reliability and validity of the instrument, calculation of pre-post change scores, and calculation of residualized changes scores after removing variance due to case mix variables. The study indicators were chosen due their practical significance and the availability of published data to serve as external benchmarks. This section will describe the indicators in greater detail with references to research literature that serves to provide an external benchmark.

Reliability and validity of outcome measures

The OQ family of outcome questionnaires (OQ-45, OQ-30, YOQ-64 YOQ-30) are widely used in psychotherapy research and large scale outcome management projects collecting naturalistic data for TAU in the community.^{3-5,7,18-19} These measures have a reported a coefficient alpha of .93 or higher.

A number of factor analyses have confirmed that most of the variance on these measures is explained by a single common factor, generally referred as global distress. The OQ family of measures correlate well with other client self report questionnaires such as the Beck Depression Inventory or the SCL-90. All of these measures have a common loading on the global distress factor.²⁶⁻²⁹

The fact that most of the variance in test scores could be explained by a single common factor suggested an outcomes measure with fewer items might still exhibit a fairly high level of reliability, as evaluated by using Cronbach's coefficient alpha, a measure of internal consistency and inter item correlations. A measure with a high coefficient alpha will also tend to exhibit test-retest reliability. However, for a measure that is intended to be sensitive to change over time, that high a level of test retest reliability might in fact be indicative of a measure that tends to remain static with repeat administrations.

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As a rule, questionnaires with very few items will tend to exhibit less reliability. However, adding additional items sharing a common factor fairly quickly results in diminishing gains in reliability for each additional item. In fact, Miller et al. report that the 4 items Outcome Rating Scale (ORS) exhibited a reliability of .93 and concurrent validity coefficient of correlation of .60 to the OQ-45 administered simultaneously to the ORS.

Given this evidence, it appears reasonable to set a target reliability of .85 for Oregon Change Index. The ORS served as the model for the new measure, with some modification to the wording of items based on feedback from users. With regard to evaluation of validity, a decision was made to not conduct a separate study of concurrent validity for the OCI that would have required simultaneous administrations of multiple outcome measures. This was deemed to be needlessly burdensome to clients and clinicians in light of prior evidence of the existence in a common factor shared by client self-report outcome measures. The high level of face validity for the items combined with a high level of reliability as measured by the coefficient alpha would provide sufficient confidence that the OCI is a both valid and reliable measure of reduction in global distress associated with the treatment services.

Client improvement, as measured by pre-post change on the outcome questionnaire

The OCI was designed as a measure of change that would produce results similar to those obtained with longer measures such as the OQ-30 or OQ-45. ABHA's prior experience with the OQ-35 via the PBH ALERT system provided one set of external benchmarks with regard to how much change is likely to be observed given the characteristic of the outcome measure. More recently, Tak Minami at the University of Utah and his colleagues have developed a methodology for benchmarking effect sizes from TAU in real world settings against those obtained from clinical trials.³⁰⁻³² Using this methodology to analyze results from the PBH ALERT, he found that clients diagnosed with depression receiving TAU in the community achieved a comparable effect size to a benchmark derived from a meta-analysis of controlled psychotherapy trials for depression.

While setting a target that the OCI should measure change in the ABHA population comparable to what is reported from clinical trials may seem like a unreasonably high threshold, past experience with the OQ-30 and preliminary testing of the OCI revealed that this target was in fact realistic.

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3.2

Measurement of Enrollee Outcomes

Table 1 above provides information on pre-post change scores from both the OCI-1 field trial and the OCI-2 implementation phase. Of course, any attempt to meaningfully compare outcomes in diverse client populations requires a method for adjusting for differences in case mix. Published studies using the PBH ALERT data describe a methodology and results for case mix adjustment and thus provide a basis for comparison for this study. These studies report use of multivariate analysis of variance to develop case mix models that explained over 30% of the variance in scores at the end of treatment. ^{6,33}

This project employed similar statistical methods to develop a case mix model for use with the ABHA population. A target of 30% of the variance in final scores was set as a benchmark for an adequate case mix model.

The OCI-OMS solved the problem of case mix adjustment through use of the “Benchmark Score”. Technically speaking, the Benchmark Score is what is known as a “residualized change score”. This is the amount that the change for each patient differs from change for other patients in the database after adjusting for differences in case mix using a general linear regression model with multiple predictors.

The section on data analysis and results will provide greater detail on the statistical procedures utilized to test and validate the case mix model. The data analysis section will further explicate the use of the Benchmark Score and how this key measure is used to provide performance feedback on treatment outcomes. Use of the Benchmark Score also permits evaluation of outcomes over time which controlling for the effects in changes in case mix.

Activity 4. Review the Identified Study Population

4.1

Define the Study Population

The study population was defined as all clients receiving individual psychotherapy services. In practice of course, the study sample is limited to those clients for which data is collected. Consistency of data collection is critical to the success of project.

The field trials revealed that consistent use of the outcome measures was by no means assured. The shift to the briefer OCI resulted in an improved completion rate, but still did not solve the problem of missing data entirely.

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During the implementation phase, the OCI completion rate was monitored carefully. In June of 2004, the outcomes management system was programmed to provide quarterly feedback to the counties on the OCI completion rate.

For all of ABHA, the ratio of completed OCIs to estimated number of sessions under 50% during the first two quarters of 2004. However, with feedback and monitoring, the OCI completion rate increased dramatically so that by first 6 months of 2005 the OCI completion rate actually exceeded the expected number of sessions during the quarter, resulting in a completion rate of over 100%. . Despite a slight fall off in the number of OCI completed in the third quarter of 2005 , the completion rate remained above 85% of sessions.

The results demonstrated that a high completion rate of over 75% is possible with the OCI given that adequate monitoring and feedback mechanisms are in place to encourage compliance.

4.2

Data Collection Methodology to Capture all Eligible Enrollees

OCI forms are mailed to a central location where data entry is performed by a single individual. Data entry is performed using an Access Database application developed for this purpose. This application provides some protection against data entry errors. It also records the date each OCI record was entered into the system. This made it possible to monitor the time between completion of the OCI and data entry.

From 2004 through June of 2005, data entry was performed by a student hired by ABHA. Data was forwarded to CCI on a monthly basis for entry into the OCI-OMS, which then generated the various reports.

In July of 2005, CCI assumed responsibility for data entry. A student majoring in social work then performed data entry and the OCI-OMS database began to be updated on a weekly basis.

The “brains” of the clinical information system is programmed in SAS and data is retained in SAS datasets. SAS software is widely used throughout government and business when flexibility and rapid development of applications to organize data and conduct complex statistical analyses is a priority. ³⁴

SAS is easily connected to ODBC data sources such as Access and other Microsoft Office applications. This provides the capability for SAS to output reports for clinicians and/or supervisors to pre-formatted Excel or Word templates. Reports are then distributed

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via email or hardcopy, depending on the audience and intended purpose. PBH likewise employed SAS and Microsoft products in the ALERT system.

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The OCI-OMS provided quarterly feedback on a county by county basis from the first quarter of 2004 onward on the number of OCIs completed, the percentage with multiple assessments, and a calculation of change. Staff at each county were assigned responsibility for assuring consistent use of the OCI. CCI provided support in monitoring the number of OCIs completed and consulted with each site regarding establishing procedures for collecting the OCIs and mailing them to central location for data entry.

An excessive lag time between completion of the OCI and data entry into the system remained a concern. Throughout the first three quarters of 2004 the mean number of days to data entry ranged between 80 days and well over 100, finally dropping to 75 days in the final quarter of that year. During the first two quarters of 2005 the lag time was reduced to under 60 days.

Beginning in the third quarter of 2005, CCI assumed responsibility for data entry and communications regarding any data entry problems. As a result, the time from OCI completion to data entry fell to under 30 days in the third quarter. The section on data analysis and results provides a break down on OCI completion rates and lag time for data entry by county and quarter.

The OCI completion report was also the first OCI-OMS report to be generated almost entirely automatically, with SAS writing data directly to the Excel based template for the report. The report was distributed via email as an Excel file. While this report made little use of additional functionality within Excel, this change led to subsequent Excel based reports that made liberal use of macros and control buttons to allow user to sort and view the data in a variety of ways. These reports will be presented in greater detail in the section on data analysis and study results.

The lag time from the completion of the OCI until the data was entered into the system remained unacceptable high throughout 2004 and early 2005. The long lag time resulted in diminished utility of the data, particularly for use in providing feedback on patient outcomes. By the time the data was entered and available to be reported, the client may well have completed treatment.

At this time CCI assumed responsibility for coordination of data entry and was able to reduce the lag time to under 25 days. This downward trend continues, with a goal to reduce data entry lag time to under 10 days for most sites. This can be achieved if all sites collect and mail all completed OCIs on a weekly basis.

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Activity 5. Review of Sampling Methodologies

5.1

Method For Determining Sample Size

Outcomes informed care depends on administering the outcomes questionnaires to all clients in treatment. For this reason, sampling methodologies are not needed. Rather, monitoring compliance with OCI usage is critical to avoid failing to capture data on some subgroup of clients served by providers that fail to utilize the OCIs.

5.2

Sampling Methodology as Valid and Protects Against Bias

Collecting data on 100% of clients assures against any bias. Collection rates of less than 100% introduce the possibility of bias. Of course, this bias is not the result of the sampling methodology per se, but a failure to consistently collect the specified data.

Since data collection on 100% of all sessions is a practical impossibility, a target completion rate of 75% is established as the minimal threshold for confidence that the data is reasonably free of bias. This completion rate was achieved during 2005.

5.3

Sample Size Is Sufficient to Allow For Statistical Significance

If OCIs are completed on 100% of sessions, one could argue that no test of statistical significance is needed since the sample would comprise 100% of the population under investigation. Of course, this idealized condition does not exist in practice. For this reason, the significance of differences in test scores is tested using analysis of variance.

When the OCI completion rate exceeds 75%, the application of analysis of variance to test differences in test scores results is a very conservative estimate of the statistical significance of the differences.

The sample sizes generated on a quarter-to-quarter basis are adequate to detect relatively large difference in outcomes that might exist from site to site. The sample sizes generated throughout ABHA on an annual basis are more than adequate to detect any meaningful changes on outcomes from one year to the next, as will be demonstrated in the section of data analysis and results.

Activity 6. Review of Data Collection Procedures

6.1

Study Design Specifies Data to be Collected

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Information on instructions for completing the OCI-2 was disseminated to all counties. The OCI-2 forms contained all data needed for the project. Attachments 4 and 5 display the forms and instruction for completion for the OCI-2 and Youth-OCI respectively.

The OCI forms include a field for study codes. Study codes are defined by the user and are site specific. Attachment 6 provides the instructions for use of study codes. The analysis of study codes is beyond the scope of this report, which is focused on the development of the OCI-OMS infrastructure. However, going forward the study code field provides us with the capability to evaluate treatment outcomes for special populations, treatment methods, etc.

The OCI also includes two goal attainment items. Treatment goals are tailored to the individual, and progress towards these goals are rated on the goal attainment items. Goals may change during a treatment episode, and so the rating on the goal attainment items may not refer to the same goal from one session to the next. For this reason, these items are not treated as part of the core OCI dataset, though they remain useful to clinicians and clients.

6.2

Data Sources are Identified

Completed OCIs are entered into an Access table. From there, the data is read by SAS into the OCI-OMS, where it is retained in SAS datasets. Two primary data sets were used for purposes of data analysis in the preparation of this report: the *OCISCORES* and the *OCIREPEAT* datasets. *OCISCORES* contained all completed OCIs, including the date of completion and the of data entry.

The *OCIREPEAT* dataset contains the same data organized into repeated measures, with one record per episodes of care. Client improvement is measured by change between the first and last OCI of any treatment episode. Treatment episodes are defined as a series of OCI scores for a single patient with no more than 180 days between any two administrations of the OCI. If more than 180 days pass between administrations, the next administration is treated as the start of a new episode of care. Episodes of care may be of any length, from as few as two OCIs a few days apart to any number of OCIs administered from January 2004 forward, so long as no more than 180 days passed between any two OCIs.

Both the *OCISORES* and *OCIREPEAT* data sets are available in their native SAS format or can be exported to Excel for further inspection and analysis as needed.

6.3

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Description of methodology of Collecting Valid and Reliable Data

Previous sections have described the basic of the data collection methodology. Clinicians are encouraged to use the OCI at every session. All data needed for this project are contained on a simple one-page form.

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OCI forms are forwarded via regular mail to a central location for data entry. Forms are visually inspected and forms with critical missing data such as dates of service, client or clinician ID are returned to the sending agency for completion. Data entry was performed by undergraduate college students.

6.4

For Manual Data Collection: The Data Collection Instruments Provides for Accurate Data

Data from OCI forms are manually entered into an Access database application developed for this purpose. The data entry application contains all of the fields from the OCI forms, with pull down menus and/or error checks for the permitted values in each field. In order to facilitate data entry and minimize error, the application copies data from the prior session permitting the data entry person to alter only those values which had changed. This minimized errors in entry of patient and therapist Ids, which were multiple digit alphanumeric variables.

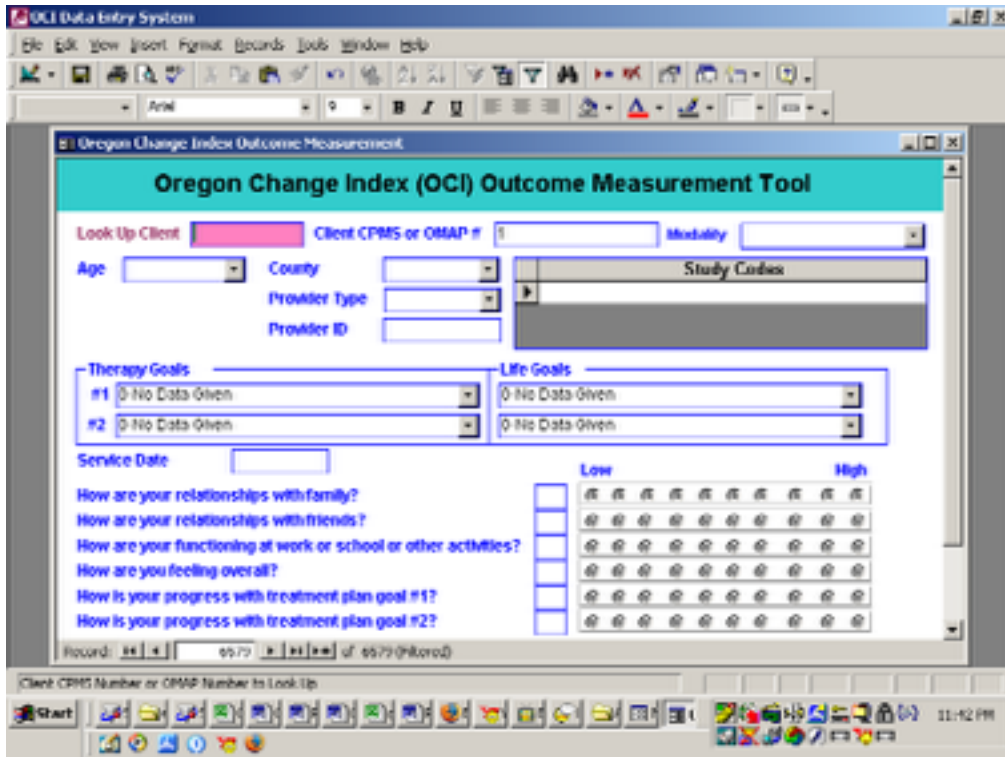
The Access application includes a utility that exports newly enter data to an Excel file, which was forwarded to CCI where the data was transferred to the SAS datasets and reports were generated.

From July of 2005 forward, data entry was by a student associated with CCI. SAS was programmed to read data directly from the Access database, eliminating a need to create an Excel file with new data. The SAS code also contains additional logic to check for data entry error and to correct known past errors.

The following screen shot is from the Access data entry application. Examples of SAS code are available upon request.

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Figure 1: OCI Date Entry System



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6.5

The Study Design Data Analysis Plan

All data analysis was performed by CCI using SAS to analyze data directly from the OCI-OMS system.

Analysis of completion rates requires little statistical manipulation of the data, beyond calculating the number of OCIs completed and dividing this by the estimated number of sessions delivered.

Analysis of the other indicators of reliability, validity and measurement of change are more complex. This section will address describe the rational for the statistical procedures employed.

Reliability and validity

Reliability of the OCI was calculated by use of Crombach's coefficient alpha, as implemented within SAS. Only the 4 core OCI items are used to calculate the reliability. While the goal attainment items were found to also correlate well with the other OCI items, they were excluded from the analysis of reliability for reasons stated previously.,

Tests of validity in the form of correlations to other outcome measures administered concurrently with the OCI were not conducted. This was judged to be unnecessary and needless burdensome on clients and clinicians. The ORS, from which the OCI was derived, had been shown to correlate with the OQ-45, which itself correlates with other client self report questionnaires inquiring about symptoms and problems for which individual are most likely to seek mental health services. These studies provide evidence of construct validity for the OCI. The existence of a global distress factor present in all outcome measures provides ample reason to believe that the OCI is tapping into the same construct as these other measures. Lastly, the OCI as well as other widely used measures of outcomes all have high face validity. That is to say, the items are obviously relevant to the reasons for which the average client seeks treatment.

Client improvement, as measured by pre-post change on the outcome questionnaire

Client improvement is measured by change between the first and last OCI of any treatment episode. As noted previously, treatment episodes are defined as a series of OCI scores for a single patient with no more than 180 days between any two administrations of the OCI. If more than 180 days pass between administrations, the next administration is treated as the start of a new episode of care. Episodes of care may be of any length, from as few as two OCIs a few days apart to any number of OCIs administered from January 2004 forward, so long as no more than 180 days passed between any two OCIs.

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The inclusion of all episodes no matter how brief is referred to as “the intent to treatment method of assessing change”, since all clients seeking treatment are included in the analysis, regardless of whether they “completed” treatment by some predefined criteria. This method places a premium on the clinician’s ability to keep the client engaged in treatment until a positive outcome is achieved. It also recognizes that many clients respond quickly and do not necessarily need a longer length of treatment. The intent to treat method of evaluating outcomes gives the clinician maximum flexibility to fit the frequency and duration of treatment to the individual client.

Measurement of raw score change yields little information without some form of a benchmark to interpret the magnitude of change observed. Clients reporting high levels of distress (low OCI scores) will typically average many points more improvement than clients entering treatment reporting relatively mild levels of distress of the OCI. Likewise, the amount of change measured for children varies slightly than change for adults.

Application of statistical procedures designed to equate measurements of change across differing types of clients is referred to as case mix adjustment. A case mix adjustment variable is something that can be collected at the first session that has statistical significance in predicting the eventually change on the outcome measure. Generally the intake score proves to be the strongest predictor of change, though other variables such as age, sex and diagnosis are also predictive. The predictive strength of the intake scores is large part to the fact of test retest reliability and the inevitable correlations between OCIs administered at different points in time.

Use of multiple regression techniques can identify and control for differences in change scores as a function of intake score and other case mix variables. The PBH ALERT system case mix model accounted for 35% of the variance in final scores from the ABHA population during the first field trail period.²⁵ More recently, a published report using PBH ALERT data from a geographically diverse sample revealed that the intake score accounted for 41% of the variance in the final scores for treatment that lasted more than 90 days.⁶ Adding age, sex and diagnosis to the model only accounted for an additional 1% of variance. The estimated were obtained using a general lineal model multivariate regression, as implemented in SAS.

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The OCI-OMS uses the same case mix adjustment methodology utilized by the PBH ALERT system. Since the OCI dataset does not include information on sex or diagnosis, only the intake score and age group (adults or youth) was included in the model. However, the results from the PBH study indicate that adding sex or diagnosis to the case mix model would not account for significantly more variance.

As expected, the intake score was the strongest predictor, explaining 35% of the variance in the last score of an episode. Adding age group to the model explained only 1% more variance, bring the total percent of variance explained by the case mix model to 36%. This compares favorably to results reported in the published literature and provides assurance that the case mix adjustment model employed in this project is appropriate and adequate. The percentage of variance in outcomes explained by the case mix model is comparable to that achieved by the PBH ALERT system, despite the fact that the ALERT system utilizes much longer outcome measures and has diagnosis and sex available as predictor variables.

A residualized score is a difference between the predicted change (using the multivariate regression analysis) and the actual measured change. The OCI-OMS calculates this residual score dynamically each time any reports of client outcomes are generated. The SAS code uses all clients in the ABHA database in the calculation, so that the outcome for each client is compared to the outcomes for all similar clients with comparable intake scores.

These residualized scores are reported as the Benchmark Score, which lets the clinician know how each client's changes compares to the average change for other similar clients. A Benchmark Score of greater than 0 indicates greater than average change, while a negative value indicates that the change is less than expected.

The issue of change as a function of intake severity underlines the need for a methodology of classifying OCI scores into severity ranges. The most frequent method used in psychotherapy outcome research is to calculate a clinical cutoff score, as described by Jacobsen and Truax.³⁵ The clinical cutoff scores defines the boundary between a clinical and non clinical range. Scores above the clinical cutoff or more representative of a community sample not seeking treatment, while on or scores below this cutoff are more characteristic of individual seeking mental health services.

Miller et al ²⁴ report a clinical cutoff score of 25. The OCI-OMS is somewhat more conservative, using 27 as the clinical cutoff score. With this clinical cutoff score, 75% of the ABHA sample enters treatment with scores in the clinical range, while 25% are already in the "Normal" range at the start of treatment.

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It is typical of large outpatient samples to find a substantial percentage of clients in the “normal” range at the start of treatment. It is also typical that clients in this range tend to not show improvement on the outcome measure. ³⁻⁷

The Aggregate Outcomes Report is generated by the OCI-OMS to provide managers information on outcomes at the county level. This report incorporates information about case mix in two ways. First, it separates clients by age group and severity range at the beginning of treatment. Clients with OCI scores above the clinical cutoff of 27 are classified as “Normal Range”. Those with scores below 13 are classified as severe range (also about 25% of the sample). The remaining 50% are classified as “Mild-moderate” severity.

For each age group and severity level, the report gives information on the actual measured change and the expected change, based on the calculations from the case mix model using all clients in the ABHA database. The Benchmark Score, representing the extent that the actual changes differs from expected, is presented for each severity range and well as aggregated by age group and finally all cases combined.

6.6

For Manual Data Collection: The Study Design Rationale for Data Abstraction and Staff Qualifications

As noted previously, undergraduate students manually entered raw data from the OCI paper forms into an Access database. Of course, some data entry errors are inevitable.

The constant use of feedback on outcomes for individual clients provides an opportunity for data monitoring and correction. Field staff bring known errors to the attention of the data entry specialist at CCI. A SAS program is maintained to correct known errors SAS datasets and to correct similar future errors before raw data is read into the permanent SAS datasets. This code is maintained by the CCI data entry specialist.

All analyses of the results are performed by PHD level researchers associated with CCI.

Activity 7. Assessment of Improvement Strategies

7.1

Quality Improvement Interventions

The section will describe how improvement strategies were assessed as the project progressed.

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The first criteria, reliability of the new measure, was assessed first in field trials during 2003 and again on the final version of the OCI for data collected from 2004 forward. As noted previously, Crombach's coefficient alpha was utilized as the measure of reliability throughout the study. The section on data analysis and results will provide detail on the results of these analyses.

Ease of use and consistency of data collection are measured by the ratio of completed OCIs to total sessions delivered. Over the course of the project various strategies were employed to increase the use of the OCI and improve timeliness of data entry. The data analysis and results section will present results on these performance measures broken down by quarter. Significant modifications to data entry procedures or reporting capabilities are also noted on this time line so that the relationship between the outcomes management system improvements and performance indicators can be readily visualized. For purposes of this report, the 4th quarter of 2005 is excluded from this indicator because data collected during that quarter has not all been entered into the system at the time of this writing.

Outcomes are likewise assessed on a quarter by quarter basis, based on the quarter in which the last date of an the episode of care fell. Fourth quarter 2005 results are not reported because many of these cases are still in treatment. Cases are assigned to the third quarter of 2005 if no OCIs have been received after September 30 of that year. The Benchmark Score permits comparison of outcomes from quarter to quarter. Changes in reporting and feedback methods are also noted on this timeline in the data analysis and results section.

This study also employs an alternative form of benchmarking outcomes that makes use of a target outcome derived from a sample external to the one under investigation. A recent series of papers by Minami et al ³⁰⁻³² describes a methodology to benchmark outcomes from multiple trails of specific psychotherapies for depression. The primary statistic employed is effect size, which is calculated in the course of conducting a meta analysis of combining results from multiple studies. Effect size is typically calculated by dividing the raw score change on the test by the standard deviation of the scores at intake.

Minami et all found that different types of outcome measures produce different effect size. For example, measures that rely on clinician assessment, such as the Hamilton Rating Scale for Depression, will generally produce larger effect sizes than a client self report measure of global distress such as the OQ-45. For this reason, they established different benchmarks depending on the type of measure employed. Using their methodology, a global self-report measures such as the OCI would be expected to yield an effect size of .83 in a clinical trial for psychotherapy for depression. ³⁰⁻³²

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In their most recent study, Minami et al ³² evaluated a large sample of adults receiving “treatment as usual” (TAU) from private practice clinicians in the community, comparing these results against the benchmark from depression studies. This study is particularly relevant because the data consisted of OQ-30 data from the PBH ALERT database.

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The methodology for calculating effect size in this large naturalistic sample was modified slightly in order to make results more comparable to those from clinical trial. The PBH ALERT sample had over 25% of cases in the normal range at intake. Normally, cases with such mild symptoms would be excluded from a clinical trial for depression. Therefore, only cases with intake scores within the clinical range (as determined by the clinical cutoff score) were included in the analysis. The effect size was calculated based on the change scores and standard deviation at intake for this restricted sample, which would have more comparable to the sample from clinical trials.

The results of this study revealed that the effect size for TAU was comparable to the benchmark of .83 obtained from clinical trials. This result was obtained despite the fact that clients receiving treatment as usual averaged fewer sessions over a shorter period of time than the sample from clinical trials.

While this study is the first of its kind attempting to directly compare outcomes for a large managed care organization to a benchmark from clinical trials, the methodology described is very straightforward and based on statistical methods that have long been employed in conducting comparative studies of different types of psychotherapies. For this reason, the approach to benchmarking described by Minami and colleagues was deemed appropriate for evaluating outcomes from the OCI-OMS database.

Activity 8. Review of Data Analysis and Study Results

8.1

Analysis of Findings Adhered to a Plan that Utilized Appropriate Statistical Methodology

Reliability and validity

Reliability of the OCI was calculated by use of Crombach's coefficient alpha, as implemented within SAS. The second field trial, involving version 1 of the OCI and lasting 10 months, resulted in collection of 6,484 OCIs. The coefficient alpha for the four 4 items reached .93 for this sample. Including the two goal attainment items increased the coefficient alpha to .94.

Inclusion of the two goal attainment items in the total score introduces some uncertainty, since the goal may have changed from one session to another. For this reason, only the four core items were used for calculating the OCI scores from 2004 forward.

Feedback from the field trial also suggested the need for a version of the OCI suitable for younger children, which would be completed by a parent or other adult familiar with the

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child. Items asking about work or overall functioning were alter to inquire about functioning at school or play activities.

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Using a sample of all OCIs collected in 2004 and 2005 (n=14,306), the coefficient alpha is calculated to be .89, with single item correlations to the total score ranging from .70 to .79. Given the brevity of the measure, a coefficient alpha of .89 is still quite a strong evidence of reliability. The coefficient alpha for the Y-OCI (n=6284) is .87, also an adequately robust level of reliability. Single item correlation to the total score ranged from .62 to .79. The coefficient alpha values in excess of .85 using a four item measures have to be seen a strong evidence that the items are loading on a common factor.

As noted previously, tests of validity in the form of correlations to other outcome measures administered concurrently with the OCI were not conducted. This was judged to be unnecessary and needlessly burdensome on clients and clinicians. The ORS, from which the OCI was derived, had been shown to correlate with the OQ-45, which itself correlates with other client self report questionnaires inquiring about symptoms and problems for which individual are most likely to seek mental health services. These studies provide evidence of construct validity for the OCI. The existence of a global distress factor present in all outcome measures provides ample reason to believe that the OCI is tapping into the same construct as these other measures. Lastly, the OCI as well as other widely used measures of outcomes, all have high face validity. That is to say, the items are obviously relevant to the reasons for which the average client seeks treatment.

Ease of use and consistency of data collection

The final version of the OCI and Y-OCI that were put into use in the first quarter of 2004. While sites were free to print the forms as they chose, many decided to print OCIs on forms that also served as the invoice and documentation for services that were sent to the state for encountering services. The forms were printed in such a way that OCI responses were blacked out on the copy used for billing purposes, but visible on the copy used for data entry. This of course greatly facilitated data collections.

As noted in the previous section on field trial results, switching from the OQ-30 to the OCI-1 resulted in an increase in the number of patients with pre-post outcome measures. However, use of the OCI was far from 100%. The success of the implementation phase required a higher rate of OCI usage.

During the first two quarters of 2004, the lag time between OCI completion and data entry averaged over 90 days, making it difficult to monitor accurately the percentage of sessions for which OCIs were available. During this time, each county received reports of the number of OCIs completed and information on OCI scores in their county and in comparison to ABHA as a whole. The reports were prepared in Word and intended to be printed and used in hard copy form. Attachment 7 provides an example of this report prepared in early 2004.

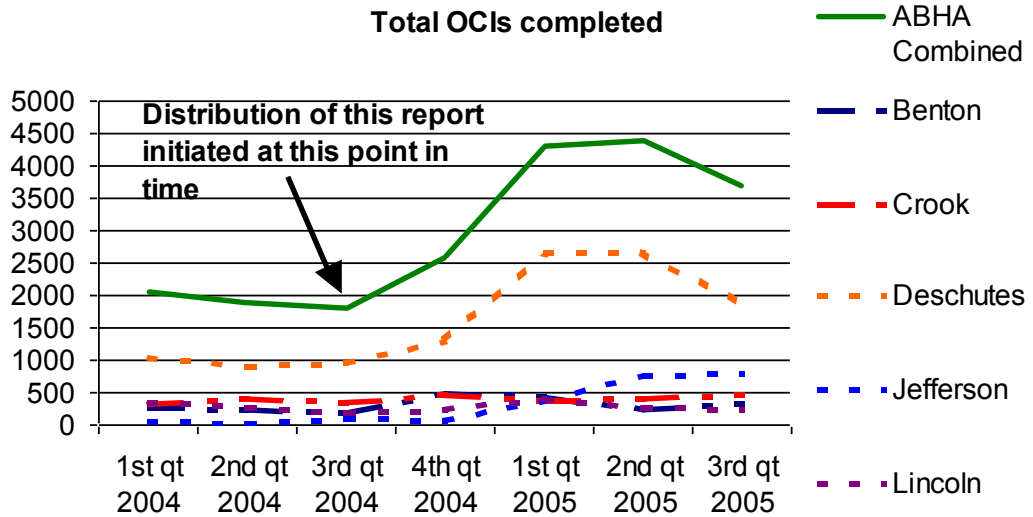
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By the summer of 2004 enough data was available to permit feedback on the OCI completion rate for version 2.0. Beginning in the third quarter of 2004, county Mental Health Directors and designated support staff at each clinic began to receive quarterly reports on the number of OCIs completed at their site. The report presented the information graphically, with one graph displaying the total number of OCIs collected by quarter and the second displaying the estimated percentage of visits with completed OCIs. The expected number of sessions delivered in each county was obtained from records of annual utilization, with the expected number of session quarterly equaling 25% of the annual number.

Figure 1 displays the rate of OCI collection from the first quarter of 2004 through the 3rd quarter of 2004. Note that at the point the feedback was initiated using these graph, the rate of OCI completion increased significantly. The average number of OCIs completed in 2004 is more than twice as many as completed during the first six months of 2004.

Figure 2: OCI completion rate report



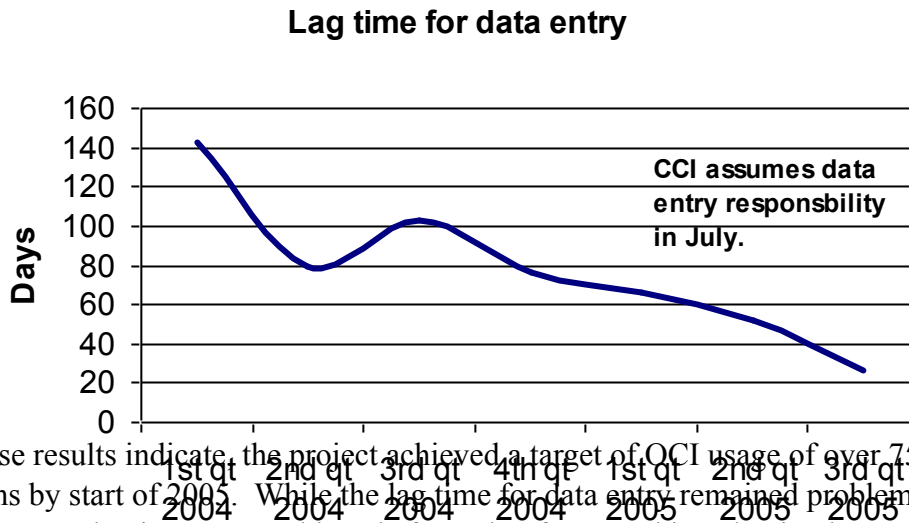
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The lag time from the completion of the OCI until the data was entered into the system remained unacceptably high throughout 2004 and early 2005. The long lag time resulted in diminished utility of the data, particularly for use in providing feedback on patient outcomes. By the time the data was entered and available to be reported, the client may well have completed treatment.

The following graph displays the average lag time by quarter. Despite a downward trend the data entry lag time still remained at 50 days by the end of the second quarter of 2005.

At this time CCI assumed responsibility for coordination of data entry, and was able to reduce the lag time to less than 25 days. This downward trend continues, with a goal to reduce data entry lag time to under 10 days for most sites. This can be achieved if all sites collect and mail all completed OCIs on a weekly basis.

Figure 3: Chart of lag time between OCI completion and data entry



As these results indicate, the project achieved a target of OCI usage of over 75% of all sessions by start of 2005. While the lag time for data entry remained problematic, significant reductions were achieved after July of 2005. This reduction has made it possible for the system to begin to provide meaningful feedback on client progress while they were still in treatment!

Client improvement, as measured by pre-post change on the outcome questionnaire

The Aggregate Outcomes Report is the primary means by which global outcomes are reported to counties. Since this report makes use of the case mix adjustment model, and reports a Benchmark Score, results from this study are presented in this format.

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The following screen shot of the Aggregate Outcomes Report that was generated at the end of 2005 and distributed in early January of 2006. It includes all clients with a final OCI assessment between January 1 and September 30 of 2005. This report clearly demonstrates the relationship between severity and change, and permits the user to quickly assess performance at each severity level. Of course, cases in the severe range are of greatest concern. Fortunately, these also show the greatest change and are most likely to benefit from longer periods of treatment compared to clients with relatively mild symptoms.

Figure 4: Aggregate Outcomes Report

Report period: Clients with final sessions between January 1 and September 30, 2005

Sample: All counties combined; OCIs collected for over 80% of sessions; 63% of clients have multiple assessments

<i>Outcomes for All Cases</i>	<i>Change scores</i>		
Total number of cases: 2192	Current Report	ABHA Norms	Benchmark Score
Number of cases with > one data point: 1388	3.21	3.00	0.21
% of cases with > one data point: 63%			

Patients with intake scores in the top quartile report a level of symptoms more characteristic of the general population than of individuals seeking mental health services. These patients typically report a high level of satisfaction with brief psychotherapy. However, on average they do not report improvement on the outcome measures. The scores actually tend to increase with time.

Patients with intake scores in the middle two quartiles tend to improve with treatment. Many of these patients do well with psychotherapy alone. While the length of treatment varies, must respond within three to nine weeks.

Patients in the bottom quartile do best with a combination of psychotherapy and medications and may not realize full benefit until 12 or more weeks of treatment.

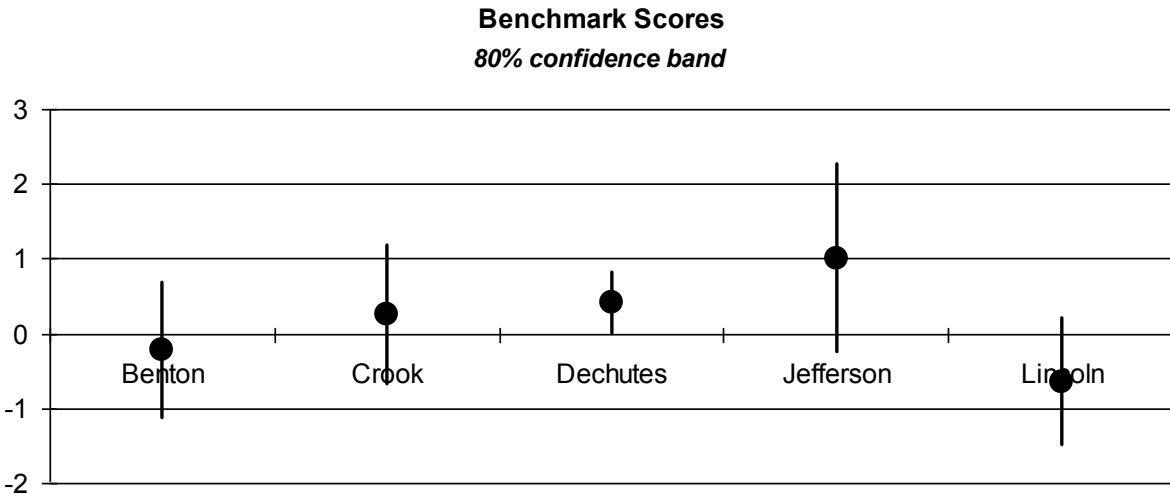
<i>Severity at intake</i>	Total Cases	% of report sample	# cases with > 1 data point	% cases with > 1 data point	Change Scores		Benchmark Score
					Your Patients	ABHA Norms	
Adults							
Normal range	304	14%	166	55%	-2.4	-3.3	0.9
Mild to moderate distress	584	27%	344	59%	2.4	2.0	0.4
Severe distress	367	17%	207	56%	7.5	7.5	0.0
Combined adult	1255	57%	717	57%	2.8	2.4	0.4
Children & Adolescents							
Normal range	234	11%	149	64%	-1.7	-0.9	-0.9
Mild to moderate distress	580	26%	426	73%	3.9	4.0	-0.1
Severe distress	123	6%	96	78%	11.1	9.2	1.9
Combined Child/Adolescent	937	43%	671	72%	3.7	3.7	0.0
Combined	2192	100%	1388	63%	3.2	3.0	0.2

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The above report is for all counties combined. Similar information is provided to each county for sample only. Note that the Mean Benchmark Score for the combined sample is a .2, indicating greater than average change. When calculating the Benchmark Score, clients ending treatment in 2004 are also used in the case mix model to increase power due to large sample sizes. In order words, the positive Benchmark Score indicates a upward trend in outcomes when compared to the previous year. This trend will be examined a greater detail in the next few pages.

The Aggregate Outcomes Report was implemented in its present form, including the presence of the Benchmark Score, during first quarter of 2005. Reports are sent to Mental Health Directors at each county for distribution to other clinical staff as deemed appropriate. The reports include information comparing results from each county, using the Benchmark Score. The following graph, displaying Benchmark Scores and confidence intervals, was included in the Aggregate Outcomes Report distributed in early January.

Figure 5: Aggregate Outcomes Report: Graph comparing of outcomes across counties



Explanation: The Benchmark Scores shows how each county's outcomes compare to the ABHA norms. The average Benchmark Scores for all ABHA clients in the database is always 0. An 80% confidence band is drawn around the Benchmark Score. This is calculated based on the sample size for each county, and indicates that there is an 80% probability that the results lie within this range. If the lower end of the confidence interval is greater than 0, then the county can be said to have outcomes that are above average at the 90% confidence level. Likewise, if the upper end of the confidence band is below 0, the the outcomes are below average at the 90% confidence level.

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County level managers are receiving the Aggregate Outcomes Report on a quarterly basis in 2005. In an effort to help clinicians and supervisors use the outcome data with current cases, the Excel Active Case Report was implemented in its current form during the third quarter of 2005. Prior to this various paper based reports had been prepared for clinicians summarizing OCI data on their cases (see Attachment 7).

The Excel based Active Case Report permitted the user to quickly view which clients were at highest risk for a poor outcome. The report could also be easily sorted by clinician or most recent date. This report was intended to help clinicians and supervisors to recognize cases at risk for poor outcomes in an effort to keep these clients engaged in treatment, modifying the treatment plan as needed. Those with the lowest Benchmark Scores are highlighted in red, indicating a very poor outcome if treatment were to terminate at this point. The method of identifying these at risk cases is consistent with that used in a number of studies on the use of feedback. PacifiCare Behavioral Health also uses this same statistical method in their ALERT system.

The Active Case Reports were emailed to clinical supervisors on a weekly basis beginning in the third quarter of 2005. This report was further enhanced based on user feedback to include the capability to graph individual cases, with the graphing feature introduced during the fourth quarter of 2005.

Below is a screen shot of a recent Active Case Report. Note that the mean Benchmark Score for this sample is 1.8, indicating that on average these clients have averaged also 2 more change than expected. However, those clients with current the worse outcomes are sorted to the top of the list in order to assure the attention of the clinician and supervisor.

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Figure 6: Active Case Report

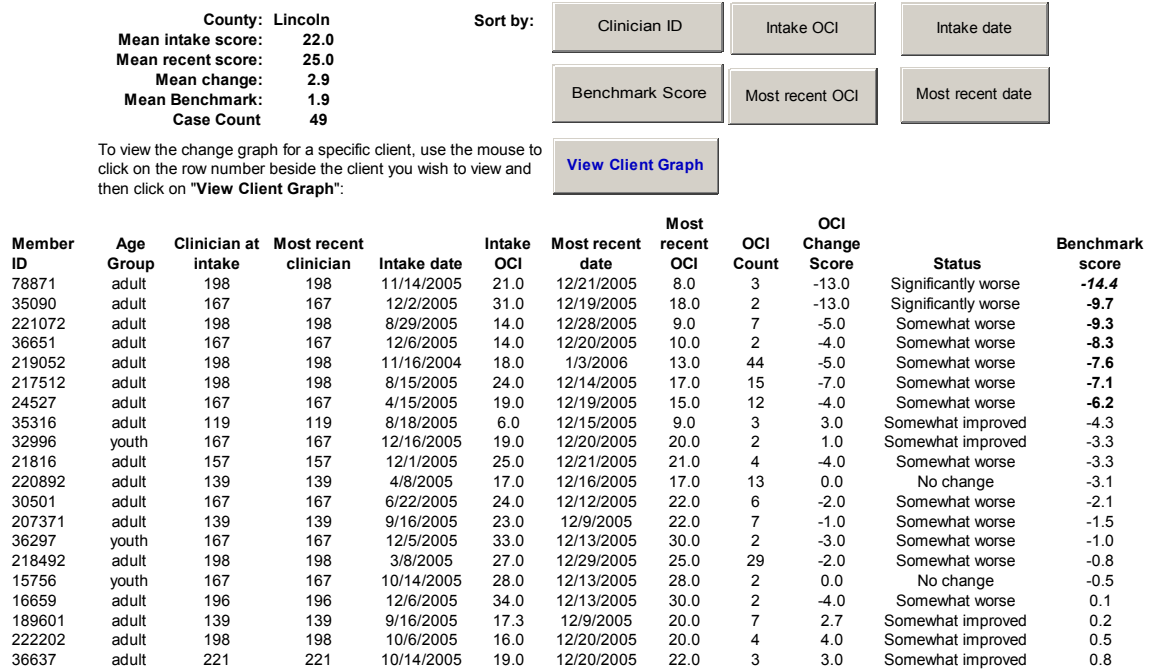
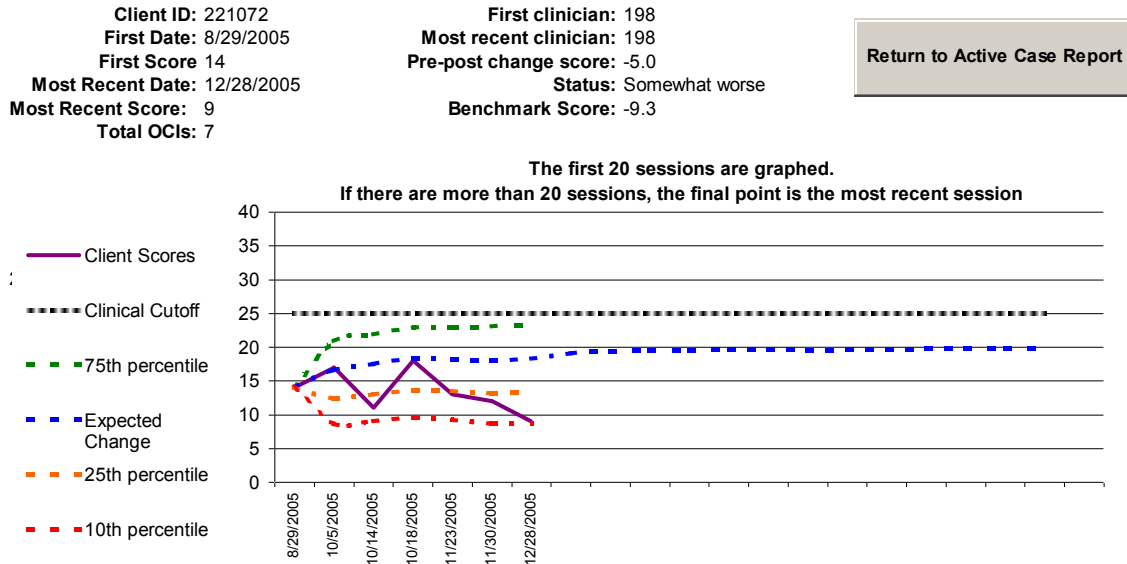


Figure 7 presents a graph from the Active Case Report displays an individual client's scores in relationship to scores of other clients. Note that the graph displays both the clinical cutoff score and an expected trajectory of change. This client's scores have trended downwards until the scores have fallen into the red range, which is the bottom 10% of the range of expected scores at this point in treatment. Fortunately, the odds of improvement for this client are high if the client remains engaged in treatment.

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Figure 7: Active Care Report Individual Client Graph



Weekly distribution of the Active Case Report to individual clinicians began in January of 2006, so it is too early to judge the impact. However, introduction of the Aggregate Outcome Reports at the county level and subsequent Active Case Reports at supervision level during 2005 appears to have coincided with an upward trend in outcomes.

In order to evaluate the outcomes and examine trends over time, the data was analyzed using the same method as for calculating effect size as Minami et al used in their study benchmarking the outcomes of treatment for depression for PBH patients treated for depression. The effect size was calculated using only clients with OCI scores below the clinical cutoff of 27, which constitutes 75% of the sample.

Table 2 presents the calculation of effect size of the entire period of the study, using the same method utilized by Minami et al. Effect size was calculated by using the standard deviation at intake of all cases the clinical range.

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Table 2: Pre-post change for clients with OCI scores in clinical range at intake

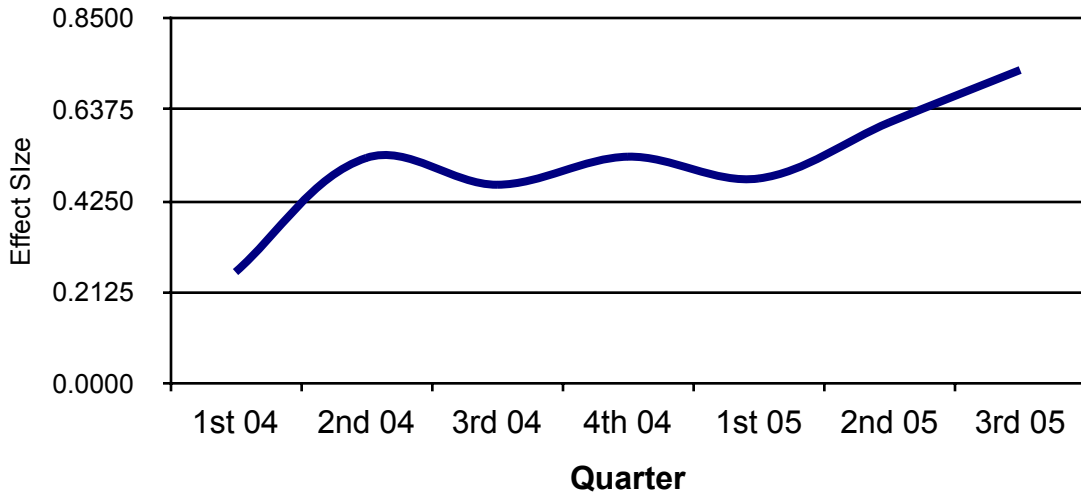
	Sample size with pre-post scores	First OCI	Standard Deviation for First OCI	Last OCI	Change Score	Effect Size
Youth	874	17.9	5.9	23.1	5.2	0.88
Adults	1267	14.8	7	18.7	3.9	0.56
Combined	2141	16	6.8	20.5	4.5	0.66

Figure 8 displays the trend in effect sizes from quarter to quarter for cases with OCI scores in the clinical range at intake. While the mean effect size during this period was .66, the graph reveals a positive upward trend during 2005. During the third quarter of 2005, the effect size reached .74, approaching the target benchmark effect size of .83.

An effect size difference of less than .2 is generally considered too small to be of clinical significance. Based on a criterion of being within .2 effect size of the target, the ABHA effect size from July 2005 forward can be regarded as equivalent to those reported from the recent analysis of PBH ALERT data and within .2 effect size of the benchmark set from results of clinical trials.

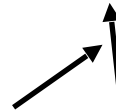
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**Figure 8: Effect size trend for clients in a clinical range at the start of treatment
 ABHA Outcomes by Quarter
 Clients with scores in clinical range at intake**



Aggregate Outcomes Report
 intitiated at this point in time.

Active Case Report intitiated
 at this point in time.



Benchmark from clinical trials: .83



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These results confirm that the OCI functions well as a measure of change that is capable of recording effect sizes similar to those observed with much longer measures. Even more importantly, the OCI produced effect sizes with the ABHA clients that are similar to those produced by the OQ-30, which are similar to other large populations receiving outpatient psychotherapy services. This supports the conclusion that the OCI is functioning as a brief alternative to the OQ-30.

The results of these analyses demonstrate the OCI-MOS project succeeded in its primary aims of developing a brief outcome questionnaire with adequate reliability and validity that is used to collect outcome data for over 75% of all sessions.

The case mix model based on use of a general linear model with age group and intake scores, are predictor variables which explain 36% of the variance in final scores, a result that compares to well to similar analyses reported in the peer reviewed literature.

As expected, the OCI performed similarly to the OQ-30, showing positive change for clients with scores in the clinical range. The effect size obtained using the OCI with the ABHA sample was comparable to effect sizes reported from clinical trials and from analyses of large datasets of managed care enrollees receiving TAU in the community.

The following section analyses the significance of trends over time and discusses the possible impact of the system enhancement on the performance criteria.

Activity 9. Assessment of Improvement as Real

9.1

The performance indicator for ease and consistency of use, the ratio of completed OCIs to total sessions, improved dramatically once consistent monitoring and feedback were in place in mid 2004. However, other factors likewise contributed to the increased completion rate, including administrative directives at various sites emphasizing the importance of consistent data collection.

The improved rate of OCI use should be viewed as the result of efforts on multiple fronts, including clinical leadership at various agencies. The OCI-OMS clearly contributed to the ability to collect data and monitor consistency of OCI use, but the improved performance in this indicator cannot be contributed solely, or even largely to system enhancement per se. Rather, the improvement reflected the ability of the entire organization to make use of the information generated by the system.

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The impact of OCI-OMS provided feedback via the Aggregate Outcomes Report and Active Case Reports on the outcomes of care cannot be determined at this point. However, a body of research supports the premise that feedback on trajectory of change can result in significant gains in outcomes for the most at risk cases.⁸⁻¹⁷ Likewise, the published report on the implementation of the SIGNAL system at Resources for Living reported similar gains in effect size for clients of this large provider of employee assistance counseling.⁷

Patients ending treatment in 2005 have averaged significantly greater improvement than those ending in 2004 as evaluated using a two-tailed t-test of significance. Table 3 presents the results for this analyses.

Table 3: Two-tailed t-test of significance comparing OCI outcomes in 2004 to 2005

	2004 (n=806)	2005 (n=1953)	Difference	Two-tailed t-test
First OCI	19.2	19.6	0.4	p>.25
Last OCI	21.7	22.8	1.1	p<.01
Change Score	2.5	3.2	0.7	p<.05
Benchmark (Residual) Score	-0.53	0.21	0.74	p<.05

It is too early to determine if the accelerated upward trend observed with the introduction of the Active Change Reports in 2005 will be sustained, or to determine to what extent the feedback provided through the report contributed to improved outcomes.

It appears plausible that the growing focus on outcomes throughout the organization led clinicians to use the measures more consistently. Consistency of use may have led to better measurement of change. It is also possible that use of the OCIs encouraged clinicians to pay closer attention to clients' responses to treatment, and to make adjustments as needed. Consistent use of the OCI could lead to this result regardless of the system provided feedback.

Activity 10. Documentation of Improvement

The OCI-OMS project has resulted in a outcomes management system capable of measuring outcomes throughout ABHA's system of care. The high rate of OCI completion observed during the first three quarters of 2005 demonstrates the feasibility of the OCI for pervasive use in outpatient settings. However, the system remains

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dependent on paper and pencil outcome measures and manual data entry. The processes to collect and forward the data to a central point for data entry require constant monitoring and are prone to disruption due to turnover of support staff or other personnel changes at the various ABHA sites.

Proponents of outcomes informed care stress not only the importance of measuring outcomes for all clients, but that the process of measuring and paying attention to outcomes can in itself contribute to improved outcomes. While this is a plausible assertion supported by empirical evidence, it is premature to conclude that the improvement in outcomes observed over the two year period covered in this report is a direct result of implementation of outcomes informed care. Many variables may have contributed to the improved effect size, including consistent use of the OCI.

Importantly however, the project has succeeded in demonstrating the utility of the OCI as an outcome measure. The size sample sizes used to calculate Benchmark Scores within the OCI-OMS new exceeds 3,000 clients. This assures that the Benchmark Score is highly likely to reflect a realistic expectation for change within the ABHA system. The Benchmark Score generated by the system provides powerful tool with which to evaluate alternative treatment methods and processes over time and across different sites.

Innovations in treatment methods throughout the ABHA system can be continuously evaluated against what has come before by use of the Benchmark Score, thereby allowing sites to retain only those practices that result in better outcomes. Likewise, the impact of various evidence-based practices can be evaluated directly, validating that the treatments produce the results claimed by advocates of various brand name treatments. Furthermore, the system provides clients some protections against “innovations” which may provide to be less beneficial than current TAU, which after all, appears to be quite effective.

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Attachment 1

Life Status Questionnaire

Instructions: Looking back over the **last week**, including today, help us understand how you have been feeling. Read each item carefully and mark the box under the category which best describes your current situation. For this questionnaire, work is defined as employment, school, housework, volunteer work, and so forth.

ID# _____ Session # ___ Date ___/___/___	<u>Never</u>	<u>Rarel</u> <u>y</u>	<u>Sometim</u> <u>es</u>	<u>Frequent</u> <u>ly</u>	<u>Almost</u> <u>Always</u>
1. I have trouble falling asleep or staying asleep.....	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
2. I feel no interest in things.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
3. I feel stressed at work, school or other daily activities.....	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
4. I blame myself for things.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
5. I am satisfied with my life.....	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0
6. I feel irritated.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
7. I have thoughts of ending my life.....	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
8. I feel weak.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
9. I find my work/school or other daily activities satisfying.....	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0
10. I feel fearful.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
11. I use alcohol or a drug to get going in the morning.....	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
12. I feel worthless.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
13. I am concerned about family troubles.....	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
14. I feel lonely.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
15. I have frequent arguments.....	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
16. I have difficulty concentrating.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
17. I feel hopeless about the future.....	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
18. I am a happy person.	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0
19. Disturbing thoughts come into my mind that I cannot get rid of....	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

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20. People criticize my drinking (or drug use). (If not applicable, mark "never".)	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
21. I have an upset stomach.....	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
22. I am not working/studying as well as I used to.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
23. I have trouble getting along with friends and close acquaintances.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
24. I have trouble at work/school or other daily activities because of drinking or drug use. (If not applicable, mark "never".).....	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
25. I feel that something bad is going to happen.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
26. I feel nervous.....	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
27. I feel that I am not doing well at work/school or in other daily activities.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
28. I feel something is wrong with my mind.....	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
29. I feel blue.	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
30. I am satisfied with my relationships with others.....	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0

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**Attachment 2
Outcome Rating Scale (ORS)**

Name: _____ **Age (Yrs):** _____ **Sex: M/F**

ID# _____ **Session #** _____ **Date:** _____

Looking back over last week, including today, help us understand how you have been feeling by rating how well you have been doing in the following areas of your life, where marks to the left represent low levels and marks to the right indicate high levels.

Overall:

(General sense of well-being)

|-----|

Individually:

(Personal well-being)

|-----|

Interpersonally:

(Family, close relationships)

|-----|

Socially:

(Work, school, friendships)

|-----|

Progress Notes: _____

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Attachment 3
Non-Clinical Performance Improvement Project
Oregon Change Index (OCI) Outcome Measurement Tool 1.0
2006

Client CPMS or OMAP # _____ Modality Individual Group Couple Family

Age under 18 18 or over County _____ Provider Type Agency Panel Provider

Provider Soc Security Number: X X X- ____ - ____

* **Outcome Tracking Instructions:** Looking back over *the last week*, (including today), help us understand *how you have been doing* by answering the seven¹ questions below. Place marks in the circles to the left to represent low levels, and to the right to indicate high levels. Either pen or pencil is OK.

Treatment Plan Goal #1: _____

Treatment Plan Goal # 2: _____

Service Date: _____	Low	High
How are you feeling about yourself?	O O O O O O O O O O	
How are your relationships with family and friends?	O O O O O O O O O O	
How are you functioning at work or school or other activities?	O O O O O O O O O O	
How are you feeling overall?	O O O O O O O O O O	
How is your progress with treatment plan goal #1?	O O O O O O O O O O	
How is your progress with treatment plan goal #2?	O O O O O O O O O O	
How are you feeling about your relationship with your therapist/case manager?	O O O O O O O O O O	

* The first four questions of the Oregon Change Index, ABHA ©2002 are derived from the ORS, developed by Scott D. Miller and Barry L. Duncan ©2000 and are used with their permission.

Attachment 4

Oregon Change Index (OCI)* Outcome Measurement Tool 2.0

Client CPMS or OMAP # _____	Modality <input type="checkbox"/> Individual <input type="checkbox"/> Group <input type="checkbox"/>
Couple <input type="checkbox"/> Family	
Age <input type="checkbox"/> under 18 <input type="checkbox"/> 18 or over	County _____
Provider	Provider Type <input type="checkbox"/> Agency <input type="checkbox"/> Panel
Provider ID Number: _____	Study Codes: _____

Outcome Tracking Instructions: Looking back *over the last week*, (including today), help us understand *how you have been doing* by answering the seven² questions below. Place marks in the circles to the left to represent low levels, and to the right to indicate high levels. Either pen or pencil is OK.

Treatment Plan Goal #1: SUBMIT FINAL PROOF TO SETH BERNSTEIN PRIOR TO PRINTING
Treatment Plan Goal # 2:

<i>Service Date:</i> _____	Low High
How are your relationships with family?	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
How are your relationships with friends?	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
How are you functioning at work or school or other activities?	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
How are you feeling overall?	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
How is your progress with treatment plan goal #1?	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
How is your progress with treatment plan goal #2?	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>

*The first four questions of the Oregon Change Index, ABHA ©2002 are derived from the ORS, developed by Scott D. Miller and Barry L. Duncan ©2000 and are used with their permission.

Is the therapy being helpful to you?	<hr/> <hr/> <hr/>
--------------------------------------	-------------------

Service Date: _____	Low High
How are your relationships with family?	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
How are your relationships with friends?	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
How are you functioning at work or school or other activities?	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
How are you feeling overall?	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
How is your progress with treatment plan goal #1?	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
How is your progress with treatment plan goal #2?	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
Is the therapy being helpful to you?	<hr/> <hr/> <hr/>

Attachment 4 - continued

Provider Instructions For The Oregon Change Index 2.0 (OCI)

1. The clinician completes top section of the form with all clients. You are being asked to provide a provider ID number so that ABHA can send you aggregate outcome information about *your* practice. It is imperative that you always use the **same** provider ID. Be sure to enter “study codes” if you are interested in investigating the outcomes you are getting with specific treatment approaches or clinical populations. To start your own, email sethbernstein@abhabho.org
 - a. If a client has multiple providers, the case manager will be considered the client’s “provider”.
2. The clinician fills in the area on the form marked “service date” as well as the area which identifies the #1 and #2 treatment goals **agreed to** during the treatment planning process. If this is not clear, the clinician should once again discuss this with the client.

Example

Treatment Plan Goal #1: Learn how to control anger in order to stay out of jail

Treatment Plan Goal # 2: Learn how to listen to improve relationship with wife

If a goal changes during treatment, change it on the OCI. However, this must reflect a true change in the treatment plan, not just a shift of emphasis or short-term objective.

3. The client is handed the OCI and asked to read the instructions and the seven questions that he/she is to answer.
 - a. Children must be 10 or older **and** able to understand the questions. For those who are not, administer the **Y-OCI**
 - i. Ideally, the **Y-OCI** is completed by the child’s parent, legal guardian, or foster parent. If such a person is not available to fill out the OCI at the time of treatment, the OCI should be completed by the child’s counselor.
 - b. If an elderly member is unable to understand and/or answer the questions, either a family member, guardian, or the clinician should fill out the OCI on the client’s behalf.
 - c. Couples and families fill out **one** OCI, together
 - d. Group members each fill out their own OCI. It is easiest if the whole group collectively develops two goals that everyone uses. Individuals can personalize goals to make them more meaningful, but not change the basic goal. When there is a co-facilitator, the primary therapist is the one to identify on the OCI
4. The clinician responds to any questions or concerns the client may have about the OCI.
5. The client answers the questions and hands the OCI back to the clinician, **every session**. The OCI is to be administered at the **first** face to face meeting with a counselor.
 - a. At the first session, the client does not answer the two treatment goal questions unless treatment goals are formulated.
 - b. If the client declines to answer the questions, he/she puts an X through the questions and initials this mark. Clients **DO** have the option to refuse to participate.
 - c. The OCI does **not** need to be used for curriculum-based groups that have their own outcome measurement tool.
 - d. The OCI is intended for use with the SPMI population, as long as such clients are receiving services other than, or in addition to, medication management.
6. The clinician reviews the client’s responses and discusses any items that are noteworthy. Of particular importance:
 - a. Taking every opportunity to take remark upon your clients’ successes.
 - b. Look for discrepancies between your perception of progress and your clients’. This may point to new and important areas of discussion.
 - c. Welcome negative feedback regarding the therapeutic alliance. This affords an opportunity to repair it and/or address issues that will be critical to the success of your work.
7. All providers keep one copy of OCI as part of the member’s clinical record.
 - a. **Panel providers**, tear off one copy of the OCI and send with your bill to ABHA.
 - b. **Agency providers**, follow county protocol for turning in OCIs. The agency will batch completed OCIs to ABHA monthly.

Attachment 5

Youth Oregon Change Index (OCI) Outcome Measurement Tool

Client CPMS or OMAP # _____	Modality <input type="checkbox"/> Individual <input type="checkbox"/> Group <input type="checkbox"/> Couple <input type="checkbox"/> Family
County _____	Provider Type <input type="checkbox"/> Agency <input type="checkbox"/> Panel Provider
Provider ID Number: _____	Study Codes: _____

Outcome Tracking Instructions: Looking back *over the last week*, (including today), help us understand *how your child has been doing* by answering the seven³ questions below. Place marks in the circles to the left to represent low levels, and to the right to indicate high levels. Either pen or pencil is OK. Please note: except for the last question, this is not an evaluation of how *you* are feeling about your child. It is an assessment of your *child's* feelings and functioning.

Treatment Plan Goal #1: SUBMIT FINAL PROOF TO SETH BERNSTEIN PRIOR TO PRINTING
Treatment Plan Goal # 2:

<i>Service Date:</i> _____	<div style="text-align: center;"> Low High </div>
How are your child's relationships with family?	○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○
How are your child's relationships with friends?	○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○
How is your child functioning at school?	○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○
How is your child functioning at play?	○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○
How is your child's progress with treatment plan goal #1?	○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○
How is your child's progress with treatment plan goal #2?	○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○

³ The first four questions of the Oregon Change Index, ABHA ©2002 are derived from the ORS, developed by Scott D. Miller and Barry L. Duncan ©2000 and are used with their permission.

Is the therapy being helpful to your child?

Attachment 6

How To Use OCI Study Codes

The OCI 2.0 has a distinctive new feature. Clinicians can now investigate how well they are doing with specific treatment approaches or with specific clinical populations. The attached sheet lists the codes that are currently available for your use. If you want to create a new code, send an email to sethbernstein@abhabho.org", or call (541) 753-8665.

Using Existing Codes

Example 1. Your OCI scores in general are below average, but you suspect that it is the outcomes you are getting with your SPMI clients that are “dragging down” your scores. You test out this hypothesis by coding all the OCIs of your SPMI clients with a 501 (“SPMI client”) study code. All your non-SPMI clients you code 502 (“Non-SPMI Client”). When you next receive an outcomes report from ABHA, in addition to the usual reports you receive, you will receive the same set of report just for your 501 clients and another set of reports just for your 502 clients.

Example 2. You generally do well working with kids, but you observe that kids who are brought into therapy by a parent or guardian seem to do better than kids who are just dropped off or have no parent or guardian involvement. You would like to tell parents that you know this for a fact, as a way of motivating them to participate in the treatment, but you do not have any data to support your subjective observation. To turn your hunch into a proven point, you decide to perform an experiment. You code the OCIs of all kids who are brought to treatment by their parent or guardian as 505 and those who don’t as 506. When you next receive an outcomes report from ABHA, in addition to the usual reports you receive, you will receive the same set of report just for your 505 clients and another set of reports just for your 506 clients.

Example 3. In addition to your interest in comparing 505 vs. 506 kids, you also want to test your observation that the kids of parents who attend your parent education class do much better in treatment than kid’s whose parents do not. So, in addition to coding kids either 505 and 506, you also use code 509 to identify kids whose parents took a didactic parent education course. So as to not confound your experiment, you only use code 509 for kid’s whose parents also codes 505 – these are the kids who are brought to treatment by a parent or guardian. When you next receive an outcomes report from ABHA, in addition to the usual reports you receive, you will receive a 505 only , a 505 with 509 report, and a 506 report.

Developing New Codes

Example 1. You have treated depression with both cognitive-behavioral and psychodynamic approaches, but you don’t know which one really works better for you. You send an email to sethbernstein@abhabho.org or call (541) 753-8665 requesting two codes – one for each approach to treating depression. He sets up the codes, tells you the code numbers, and you start using the codes as described above. These codes are made available to other clinicians, who can use them also to conduct studies within their practices.

Example 2. Same as example 1, but it is a county, not an individual clinician that wants to test the effectiveness of the two different approaches. All agency clinicians code their cases

accordingly. Reports are generated which aggregate outcomes of all clinicians within that county who use the two new codes.

OCI Study Codes As Of November 4, 2003

Code #	Description	Study Type	Study Purpose/Hypothesis	Start Date	Anticipated Users
501	SPMI client	Ind	Long term, chronic clients will show little progress	11/4/03	
502	Non- SPMI Client	Ind	This group will show more progress	11/4/03	
503	Borderline clients (in DBT)	Ind	Most change coming from this skill based treatment.	11/4/03	
504	Non Borderline clients	Ind	Less change coming from treatment which is not skill based; not as focused	11/4/03	
505	Child brought by a parent to treatment	Ind	Parent who brings child to tx is involved; more progress will be achieved.	11/4/03	
506	Child NOT brought by a parent to treatment	Ind	Parent who does NOT bring child to tx is less involved; less progress will be achieved.	11/4/03	
507	Child who is oppositional-defiant	Ind	Clin believes positive scores come from these clients	11/4/03	
508	Child with PTSD	Ind	Clin believes low scores come from these clients	11/4/03	
509	Didactic group	Ind	Clin wants to know how well he does with this approach	11/4/03	
510	DBT Modules 1-4	Ind	Clin wants to know effectiveness of different DBT modules	11/4/03	
511	MH diagnosis primary	Ind	Clin wants to know if there is differential effectiveness	11/4/03	

512	A & D diagnosis primary				
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Attachment 7
Oregon Change Index County Report

County ID	Reporting Period	Total # Cases	% of Cases with Change Scores for County	% of Cases with Change Scores for ABHA
1	12/01/02 to 04/11/04	436	60%	57%

County Cases Intake Scores Compared to Scores for all ABHA Cases

Intake Scores By Question and Overall								
	Self rating	Relationship rating	Work rating	Overall rating	Goal 1	Goal 2	Clinician rating	Total OCI
County Clients	4.95	5.24	4.79	4.90	5.13	4.20	7.40	29.22
ABHA Clients	4.86	5.28	4.73	4.76	4.99	4.06	7.23	28.68

County Cases Outcomes Compared to Outcomes for all ABHA Cases

Change Scores By Question and Overall								
	Self rating	Relationship rating	Work rating	Overall rating	Goal 1	Goal 2	Clinician rating	Total OCI
County Clients	0.75	0.57	0.84	0.77	0.82	0.78	0.09	4.54
ABHA Clients	0.64	0.26	0.61	0.69	0.72	0.73	0.23	3.65

County Outcomes By Type Of Goal (Change Scores for Goal Items)

A1	A2	A3	A4	A5	A6	A7
1.50	0.55		1.77			
B1	B2	B3	B4	B5	B6	B7
1.24	0.33	-1.70	2.41	-1.75	3.50	

ABHA Outcomes By Type Of Goal (Change Scores for Goal Items)

A1	A2	A3	A4	A5	A6	A7
1.24	0.27		1.79			
B1	B2	B3	B4	B5	B6	B7
0.56	0.32	-1.72	3.38	-1.75	3.50	

G	A1. Symptom Reduction	B1. Relationship/socialization
O	A2. Alcohol & Drug	B2. Vocational improvement
A	A3.	B3. Legal
L	A4. Skill development	B4. Housing/Independent living
S	A5.	B5. Medical
	A6	B6. Safety/Lethality/Crisis
	A7	B7.