

A Collaborative Outcomes Research Network

Brief history and key findings

This document provides a brief description of a collaborative outcomes research network. This collaboration of behavioral health care providers, behavioral healthcare researchers, and funders of behavioral healthcare services spans 20 years and continues to contribute to the data driven knowledge base for identifying evidenced based practices in mental health care.

Origins, history and key participants

The makeup of the collaboration evolves over time, as new providers, researchers and funders join the collaboration. The exact nature of the collaboration has been more or less informal, depending on the needs of the funder(s). In this sense, the term collaboration is used descriptively.

Many of the key researchers have been formally associated with the Center for Clinical Informatics, a consulting firm focusing on development of clinical information systems for behavioral healthcare. Others have less formal relationships through participation in various projects managed by the CCI staff.

The collaboration has resulted in multiple publications in peer review journals. The lines of research spawned by the collaboration are now being summarized in book length reviews of the literature on what really makes a difference in treatment outcomes. Subsequent sections of this document will summarize this research, including updated summaries of as yet unpublished findings from the ongoing collaboration.

The collaboration was first funded in 1994 by Human Affairs International, and then owned by Aetna Health Plan. Health care reform, with a focus on outcomes and quality, was believed to be imminent, and Aetna decided to make a strategic investment in a clinical information system that would use patient and clinician generated outcome data to manage both cost and outcome of care.

The planned system would integrate patient and clinician generated outcome data with claims and pharmacy data to provide a decision support platform to efficiently and effectively manage outcome care.

By the time it was clear that health care reform was dead, Aetna had invested several million dollars in a proof of concept... a clinical information system capable of reducing cost and improving outcomes.

The research team was headed by Jeb Brown, PhD, then Director of Clinical Services for Aetna Health plans. Other key members were Michael Lambert, PhD, and Gary Burlingame, PhD, both psychologists at Brigham Young University, along with Susan Ettner, PhD, a health care economist at Harvard. Michael Lambert took a sabbatical from BYU to work on the project.

The HAI outcomes initiative utilized the OQ-45 and YOQ outcome questionnaires for adults and children respectively. Both then new research instruments, whose development had been partially funded by HAI.

The initiative sought providers willing to participate in collaboration to measure and improve outcomes. In exchange for having patients complete outcome questionnaires, providers received prior authorization to provide whatever out-patient care they felt was appropriate. Providers also completed standardized clinical assessments and provided other information such as diagnosis. Several hundred clinicians participated, resulting in data for several thousand patients before the program was discontinued after Magellan Health Plan acquired Human Affairs International. This early outcomes initiative and its findings are summarized in a chapter in the first edition of the *Heart and Soul of Change: What really makes a difference in psychotherapy outcomes? And why does managed care want to know?* (Brown, Driese and Nace; 1999)

Using data from the HAI project, Brown and Lambert began to explore the possibility of developing algorithms to identify cases at risk for treatment failure. The data made it clear that about 15% of patients had symptoms that worsened significantly early in therapy, and that most of these patients tended to drop out, usually before the fifth session. This data was first presented at the 1996 Annual Meeting of the International Society of Psychotherapy Research. (Brown & Lambert, 1996).

Magellan elected not to continue funding the collaboration after the acquisition. PacifiCare Behavioral Health saw the HAI approach as proof of concept, and asked the key participants in the collaboration to join in an effort to develop behavioral health care managed tools for the 21st century. The Center for Clinical Informatics was formally incorporated in 1998, and retained to provide the leadership and project management for the team of researchers, data analysts, programmers, and other IT professionals involved in this effort.

The PacifiCare Behavioral Health (PBH) project resulted in the development of the ALERT system. The system provided a platform for managing services, and resulted in a series of publications in peer reviewed journals that demonstrated convincingly the feasibility of improving outcomes while effectively managing costs. The primary collaborators involved in the development of the ALERT system published an article describing the development of the system and results of analyses that contributed to the development of the associated algorithms: [Pushing the Quality Envelope: A New Outcomes Management System](#) (Brown, Burlingame, Lambert, et al; 2001).

The algorithms first developed by Brown and Lambert at HAI became the basis for identifying at risk cases seen by the PBH network of providers. During this period Lambert also initiated a series of clinical trials to empirically validate the algorithms and decision support tools. This

research spawned subsequent researcher by others, including Scott Miller, PhD. Summaries of the research are now found in book length treatments.

Resources of Living (RFL) also became a key supporter of the collaboration. With the help of the Center for Clinical Informatics developed an outcomes management system using the Outcomes Rating Scale and the Session Rating Scale developed Scott Miller and associates. The work with RFL provided compelling evidence that including alliance measure along with outcome measures resulted in even greater gains in treatment outcomes.

The practice of routine use of patient self-report questionnaires measuring both the level of distress and strength of the therapeutic alliance to provide feedback to clinicians over the course of a treatment episodes has been called by a variety of terms over the past 15 years, including patient focused treatment, outcomes management, and outcomes informed care. In 2013, Miller took the lead in securing recognition from SAMSHA of measurement and feedback as an evidence based practice, using the term feedback informed treatment (FIT). For this reason, this is the term employed in this document.

When PBH was merged with United Health Care in 2005, the ALERT system was continued as the clinical information system utilized by United Health Care (OPTUM). OPTUM continued to provide support for the collaboration after the acquisition, including sharing of data and co-authorship of publications based on their data.

During the period of financial support from PBH & OPTUM (1998 through 2007) additional researchers joined the collaboration. In particular, Bruce Wampold, PhD, Chair of the Department of Counseling Psychology at the University of Wisconsin - Madison, and his graduate student, Takuya Minami, PhD (now chair of the department of Counseling and School Psychology at the University of Massachusetts – Boston) became involved in investigating the variance in outcome due to the provider, and pioneering methodology for provider profiling based on outcomes.

This work was made possible by the development of next generation clinical information system and data warehouse that combined all sources of data available to the health plan. In addition to outcome data, the system incorporated credentialing data for providers, service claims data, and pharmacy claims data. Merging data from these normally isolated sources (so called data silos) into a single system permitted the researchers to use powerful analytic techniques to explore sources of variance in patient outcomes and cost, and thereby identify pathways to both improve outcomes and reduce cost. Their contributions to the collaboration include a large number of peer reviewed publications, and have contributed to the rapidly expanding interest in so called clinician effects in treatment outcomes, not only in behavioral healthcare, but in other areas of medicine also.

In 2007 OPTUM determined that future development on the ALERT system no longer required retaining the Center for Clinical Informatics to coordinate research and development. At this time, key members of the collaboration sought support from other payers, and began work on

what has come to be known as the ACORN system. ACORN, an acronym for a collaborative outcomes resource network, became the name by which the various tools and application became known.

The ACORN collaboration quickly found financial support for continued research and development from Regence BlueCross/BlueShield, Kaiser Permanente, ValueOptions, and APS HealthCare. At that time, Warren Lambert, PhD, at Vanderbilt University associated with the Center for Clinical Informatics to provide his expertise in psychometrics and test development.

Warren Lambert pioneered the use of what became known affectionately as the “item torture test”. This approach to questionnaire development capitalized on the availability of computer power, use of various sophisticated statistical approaches to items analysis employing both classical test theory and the emerging field of item response theory to develop sophisticated, and next generation questionnaires. The normative data used to develop questionnaires, which came from field trials of the various items, was retained at an item level. This permitted the research team to understand the psychometric properties of each individual item, and to add items to the item pool as needed.

When such detailed psychometric information is available for each item, it comes possible to flexibly construct questionnaires based on differing sets of items with a very high degree of confidence in the psychometric properties of the entire questionnaire. The so called ACORN questionnaires are developed in this manner, as are the suite of behavioral health questionnaires developed as part of the NIH supported Patient Reported Outcome Measure Information System ([PROMIS](#)).

In 2009 a number of key contributors to the ACORN collaboration gathered in Salt Lake City, UT to share information and find common ground for collaboration in the furtherance of feedback informed treatment and provider profiling methodology. This included a number of representatives from payers and funders, including Regence BlueCross/BlueShield, OPTUM, ValueOptions, APS HealthCare, and Kaiser Permanente. CCI affiliated researchers included Takuya Minami and Warren Lambert. The resulting white paper, [Outcomes Measurement 2.0: Emerging technologies for managing treatment outcomes in behavioral healthcare](#), was co-authored by all of the attendees. This paper summarized the status of research knowledge up to that time and described a next generation approach of measurement and management of behavioral health care outcomes that took full advantage of 21st century computing power and advances in statistical methodology enabled by ready access to large data sets and ample computing power. (Lambert, Minami, Hamilton, McCulloch et al, 2009).

The past five years (2009 through 2014) has seen continue expansion of the ACORN collaboration. Payers, who joined during this period, include [MHNet](#), [LifeSynch/Humana](#), [Magellan](#), [Centene](#), and [HealthShare](#). New researcher collaborators also include several associated with the [Anna Freud Center](#) at the University of London.

The ACORN collaboration resulted in the development of a state of the art clinical information system, known as the ACORN Decision Support Toolkit. This is a web based application permitting users to access and administer a wide variety of questionnaires, as well as view reports and graphs designed to inform clinical decision making, evaluate provider outcomes, understand costs, and report metrics for a valued bases approach to health care management and contracting.

In addition to features for monitoring outcome and cost, functionality for case management and utilization management were added. For example, MHNet used the ACORN platform for processing all outpatient treatment reports submitted by providers requesting authorization for care. Sophisticated algorithms applied decision rules for authorization. Cases requiring closer attention by care managers were flagged for further review, while those not needing further review received automatic authorization for additional sessions.

Research and development work over the past two years based on analysis of claims data from multiple payers has resulted in new, state of the art tools for understanding the cost of care and identifying providers who are outliers in terms of cost and quality. Arguably, these tools for understanding cost data are the best in the industry, as evidenced by the interest in growing number of payers in taking advantage of the capabilities of the ACORN clinical information system.

Other functionality built into the ACORN system of interest to health plans and providers include tools for utilization and care management activities, administration of questionnaires via mobile phones and other internet enabled devices, patient follow-up, and integration with electronic medical records.

The ACORN clinical information system is the only system currently available that fulfills the vision first articulated by the collaborators involved in the initial research and development work on the HAI clinical information system.

The following sections summarize published and as yet unpublished research reports generated by the participants in the 20 year collaboration. Information is also provided about subsequent research, following the line of investigation initiated and pursued by the various collaborators mentioned in this document.

Feedback Informed Treatment

Some of the earliest work on what has come to be known as feedback informed treatment was published by Ken Howard, PhD and Jeffrey Lyons, at Northwestern University. This work is summarized in their book [The Measurement & Management of Clinical Outcomes in Mental Health \(1995\)](#).

Brown and Lambert built upon this work to develop algorithms that were incorporated into the HAI clinical information system, the PBH/OPTUM alert system, and also formed the foundation for more complex algorithms incorporated into the ALERT system.

Lambert and his associates also initiated a program of research consisting of clinical trials to investigate the impact of routine measurement and feedback generated by algorithms on the outcome of care. These were initiated in an outpatient clinic serving the Brigham Young University students and the surrounding community. Subsequently, similar studies have been performed at clinics all over the world. This subsequent work has largely confirmed the findings from the earliest clinical trials performed by Lambert and colleagues.

These studies make up a simple research design that is easy to implement in clinics. All patients are administered an outcome questionnaire at each session. In some cases, alliance questionnaires are also included. Patients are then randomly assigned to a feedback or no feedback condition.

In the no feedback condition, clinicians do not have access to information from the questionnaires, and thus provide so called treatment as usual. This means that they conduct therapy as they normally would, when not using any questionnaires. In the feedback condition, the only difference is that the clinician has access to information from the questionnaires and associated decision support messages generated by the algorithms that make use of the patient generated data. Otherwise, clinicians conduct treatment as they normally would, only their clinical decisions are informed by the questionnaires.

Clinical trials of this nature have consistently demonstrated significantly better outcomes in the feedback condition. A review of this research published in the 2nd edition of the [Heart and Soul of Change](#) (Duncan, Miller, Wampold & Hubble; 2009) summarized the findings as follows:

“The combination of measuring progress (i.e. monitoring) and providing feedback consistently yields clinically significant change... Rates of deterioration are cut in half, as is drop out. Include feedback about the client’s formal assessment of the relationship and the client is less likely to deteriorate, more likely to stay longer, and twice as likely to achieve a clinically significant change.”

- Duncan, Miller, Wampold & Hubble (2009); From [Introduction](#) in *Heart & Soul of Change*; page 39

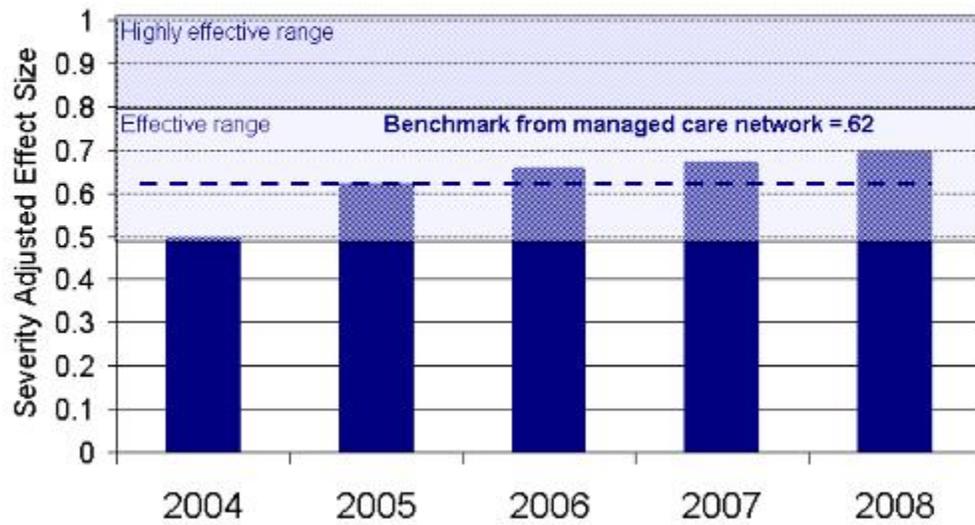
The number of published studies using clinical trials to investigate the impact of feedback informed treatment are large and growing. Space does not permit a thorough discussion of this literature. Fortunately, two recent books provide summaries of the literature on feedback informed treatment. These are [Prevention of Treatment Failure](#) (Lambert, 2011) and [Incorporating Progress Monitoring and Outcome Assessment into Counseling and Psychotherapy: A Primer](#) (Meier, 2014). Here is a link to another recent article providing a review of the literature in this area: [Progress Monitoring in Mental Health and Addiction Treatment: A Means of Improving Care](#) (Goodman, McKay, & DePhilippis; 2013).

The ACORN collaboration likewise provides another source of validation for these methods. While agencies and psychotherapy practices utilizing the ACORN Decision Support Toolkit have not conducted randomized clinical trials, the ACORN system is able to monitor two important clinician behaviors thought to be associated with improved treatment outcomes. These are the routine use of questionnaires, and the frequency with which clinicians seek and receive feedback. Both have been found to strongly predict improved outcomes for individual clinicians. While these results have not yet been submitted for publication in a peer reviewed journal, the results of the analyses are available online via the ACORN wiki at <http://psychoutcomes.org/DecisionSupportToolkit/ToolkitUsageAndOutcomes>

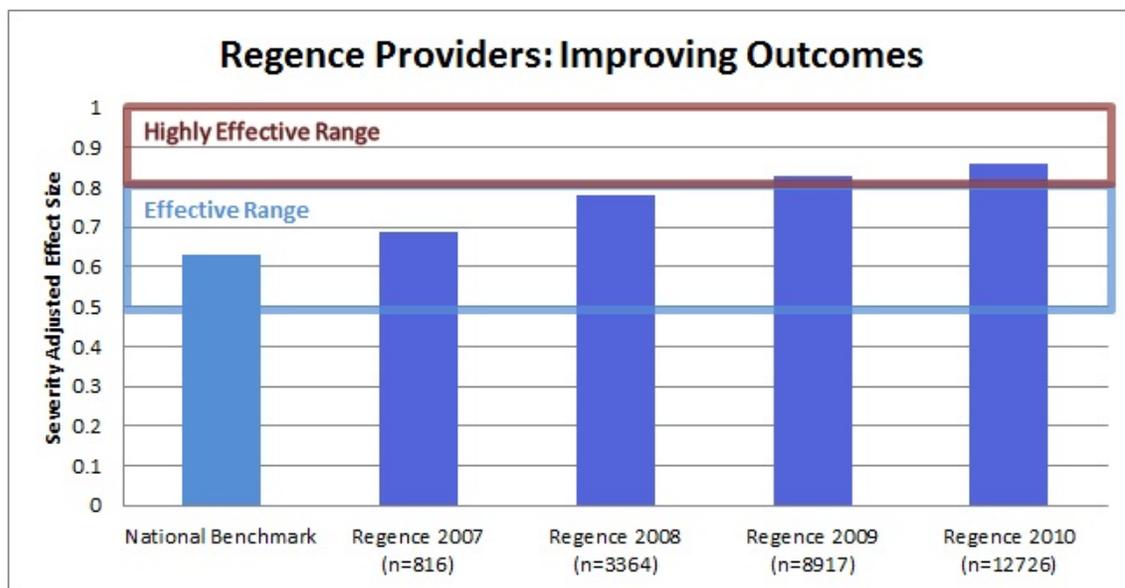
The ACORN collaboration has also repeatedly found that outcomes tend to trend upwards across the entire network of participating providers. While this finding has not been published in peer review journals, the results of these analyses are available on the ACORN wiki. Here are links to two such analyses... the first for a Medicaid population and the second for a population of commercially insured patients.

<http://psychoutcomes.org/ABHA/ABHAOutcomesTrends>

ABHA Outcomes by Year
Clients with scores in the clinical range at intake



<https://psychoutcomes.org/RegenceProviders/WebHome>



Identifying sources of variance in treatment outcomes

Bruce Wampold's classic book, *The Great Psychotherapy Debate* (2001) reviewed three decades of research on psychotherapy outcomes and argued compellingly that differences between treatments or method of therapy accounted for very little of the variance in outcomes. Rather, the largest source of variance was the individual clinician. Wampold argued for the use of routine outcomes measurement to identify effective therapists, arguing that what was needed was not more so called empirically validated treatments, but empirically validated therapists.

Since the publication of that first edition, research in this area has exploded, including articles published by members of the collaboration, using data from the PBH/OPTUM ALERT system. This line of research is revolutionizing the understanding of what really makes a difference in treatment outcomes by using hierarchical linear modeling (HLM) to correctly analyze the sources of variance in outcomes, permitting the researcher to calculate the percentage of variance due to the clinicians compared to percentage of variance due to the treatment method.

Use of HLM has revolutionized research on treatment outcomes. The [2nd Edition of The Great Psychotherapy Debate](#), due out in early 2015, updates the book to include the research reports that have appeared in more than a decade since the first edition. The mounting evidence that who conducts the therapy is more important to the outcome of therapy than the specific method of therapy per se is hardly surprising, as over 30 years of meta-analytic studies of research psychotherapy outcomes has largely confirmed that there is little difference in outcomes between the many various bonafide approaches to psychotherapy.

[Bergin and Garfield's Handbook of Psychotherapy and Behavior Change, 6th Edition](#) (Michael Lambert, Ed.; 2013) is the standard reference for up to date reviews of the research on outcomes for psychotherapy. Evidence that factors common to all psychotherapies account for most if not all of the benefit observed is summarized in Chapters 1 (Introduction and Historical Overview) and 6 (The Efficacy and Effectiveness of Psychotherapy) both by Michael Lambert. Chapter 8 (Therapist Effects: Findings and Methods) by Baldwin & Imel summarizes research on variance due to the therapists.

An article published by Wampold & Brown (2005), [Estimating Variability in Outcomes Attributable to Therapists](#), was one of the first reports that compared variance due to medications to variance due to the psychotherapists in outpatient mental health. Research into so called therapists/doctor effects in pharmacotherapy has likewise expanded greatly in the past decade, confirming these early reports. For example, [Psychiatrist effects in the psychopharmacological treatment of depression](#) (McKay, Imel & Wampold (2006) investigated the variance due to the psychiatrist compared to anti-depressant versus placebo in a clinical trial. The variance due to the psychiatrist was nearly three times larger than the variance due to the medication when the outcome was evaluated using a patient self-report measure of depression (Beck Depression Inventory).

Benchmarking outcomes and provider profiling based on outcomes

Implementation of clinical information systems such as ALERT and ACORN make it possible to identify providers with strong evidence of effectiveness. Two articles published by members of this collaboration describe how information on outcomes has been used to identify highly effective providers and improve patient outcomes by increasing referrals to these providers.

[Implementing a feedback system in a managed care environment: What are the patients teaching us?](#) (Brown & Jones, 2005)

[Identifying highly effective psychotherapists in a managed care environment](#) (Brown, Jones, Lambert & Minami, 2005)

Accurate profiling of providers based on outcomes requires the ability to benchmark outcomes and to adjust results based on differences in case mix. To this end, Minami and collaborators published a series of articles describing a methodology for benchmarking outcomes against clinical trials as well as against results for other providers participating in various feedback informed treatment initiatives, supported by PBH, OPTUM and payers supporting the ACORN collaboration.

The methodology needed to be independent of the specific questionnaires employed, which necessitates the use of standardized metrics for reporting improvement, such as effect size. Following are links to the series of peer reviewed articles detailing the methodology employed by both OPTUM's ALERT system and the ACORN system.

[Benchmarks for psychotherapy efficacy in adult major depression](#) (Minami, Kircher, Wampold et al, 2007)

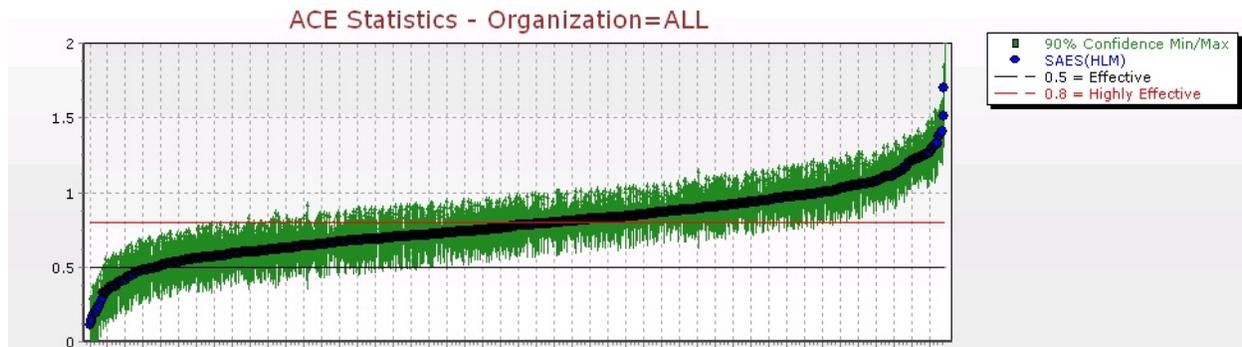
[Using clinical trials to benchmark effects produced in clinical practice](#) (Minami et al, 2008)

[Benchmarking the effectiveness of psychotherapy treatment for adult depression in a managed care environment](#) (Minami et al, 2008). This study found that outcomes for providers in the community were comparable to results from clinical trials of various studies of the effectiveness of psychotherapy for depression.

[Benchmarking therapists: Furthering the benchmarking method in its application to clinical practice](#). (Minami, Brown, McCulloch & Bolstrum, 2012. This paper described the methodology for case mix adjustment and use of HLM to estimate effect size while controlling for differences in case mix.

The methodology described in the above article is utilized by both Optum ALERT system and the ACORN system to evaluate outcomes for individual providers and identify providers who qualify for the ACE status. The ACORN system automatically generates ACORN Certificates of Effectiveness (ACE Certificates) while OPTUM identifies providers meeting the Achievements in Clinical Excellence (ACE) criteria on their web site. For more information of on the Optum ACE program see: https://www.providerexpress.com/html/ace_clin.html

Following is a graph from the ACORN system, which displays effect sizes (and confidence intervals) by clinician. Note the wide variation in clinician effect sizes. Clinicians in the upper 20% for effect size averaged over twice as much improvement per case as those in the bottom 20%.



Evaluating and managing costs

While much of the published research related to the collaboration is focused on evaluating and improving the outcomes of care, there is also been continuous work to understand drivers of the cost of care. Little of this work has been published, in large part because of the proprietary nature of cost data. However, some of the findings from these analyses are summarized in chapter 9 of the [Heart and Soul of Change, 2nd edition: Outcomes Management, Reimbursement, and the Future of Psychotherapy](#) (Brown & Minami, 2010).

Over the past 15 years, a number of payers have asked the researchers associated with the collaboration to evaluate cost data and develop models for benchmarking costs after adjusting for differences in case mix. These include PBH, OPTUM, Regence BlueCross/BlueShield, MHNNet, and Health Share. Within the past year Centene and Magellan have also shared claims data for purposes of profiling providers.

Currently, the ACORN system houses behavioral health claims data for approximately four million episodes of treatment across all levels of care. This includes data for Medicaid and public sector populations, as well as for those with commercial insurance. Large sample sizes such as these permit extremely sophisticated multivariate modeling of sources of variance in the cost of care.

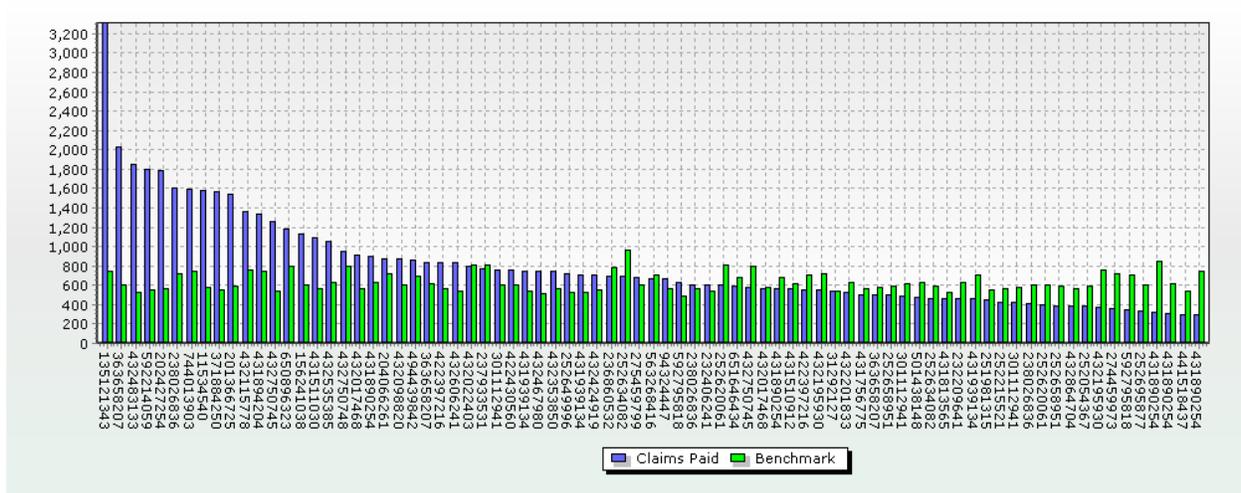
The methodology of evaluating cost is similar as that used for outcome data. The expected cost (benchmark cost) is calculated for each episode of care using multivariate predictive statistics. This is compared to the actual cost for that episode. Providers are then profiled based on how their actual cost compares to expected cost.

Depending on the payer, the predictive model used to calculate expected cost may contain a number of predictive variables, including patient age, diagnosis, level of care, provider type, geographic region, population density (urban, small to medium towns, rural), and prior treatment history.

In addition to calculating cost per case, the ACORN system also calculates readmission rates and post discharge outpatient follow-up rates for all inpatient episodes of care. Network

management personnel have access to all of this information directly through the ACORN system, and are able to quickly query results using various filters provided in the system.

Following is a sample graph from the ACORN system cost analysis report. The results are graphed for each provider using two bars. The blue bars represent actual cost per case, while the green bars represented the predicted or benchmark cost per case. The wide variability of costs demonstrated by this sample graph is typical when evaluating costs based on paid claims data.



Several payers have investigated the relationship between treatment outcomes and cost. For example, PBH and OPTUM health asked the researchers associated with the collaboration to look at costs for providers participating in their outcome initiatives. One of the more striking findings was the comparison between well organized group practices and solo providers. Group practices averaged about 25% greater effect size when compared to solo providers, while the average cost per episode of care was approximately 25% less. Among solo providers, there was a weak but statically significant correlation between effect size and cost, with higher cost per case associated with smaller effect sizes.

Regence BlueCross/BlueShield found that providers using the ACORN system to measure outcomes average 30% lower cost per case compared to those who did not use the system.

MHNet conducted a pilot project among high volume providers in Utah. In this case they tracked both outcomes and cost per case over a two year period. Effect size increased significantly, consistent with the upward trend previously cited for other payers. The cost per case for the practices using ACORN to measure outcomes was significantly lower than for those practices that did not use ACORN. While the effect sizes did increase from one year to the next, no change in the average cost per case was detected. As was the case with the Regence network, it was unlikely that the cost per episode of care would decrease, as the practices using ACORN already had cost significantly below the average cost per episode for other providers in the same network. However, the effect size per case increased significantly, while cost per case

remained below average. This is powerful evidence of the ability of feedback informed treatment to increase the value of the services.

In all instances cited here, increasing the percentage of patients referred to providers consistently utilizing the outcome questionnaires would have had the effect of improving outcomes while lowering the average cost of care. This strategy was actively pursued to good effect by both PBH and OPTUM.

Both Centene and Magellan plan to use the ACORN platform to help reduce costs in the coming year. This will be achieved by identifying providers who are outliers in terms of cost per episode and developing strategies to intervene. This may include asking these high cost providers to implement feedback informed treatment.

ACORN Questionnaires

The ACORN collaboration has resulted in a suite of questionnaires using the methodology described in the [white paper on Measurement 2.0](#). Notably, this methodology focuses on understanding the properties of individual items, rather than solely on total scores from questionnaires. Also, the method eschews the reliance on copyrighted questionnaires which cannot be modified as more data accumulates.

The original suite of ACORN questionnaires was developed in collaboration with Vanderbilt University, and in particular, [Warren Lambert, PhD](#).

As a part of this effort, various item formats were tested. A five point Likert scale with frequency anchors was found to produce questionnaires with highly desirable psychometric properties.

In order to facilitate brevity and ease use, items were written in a common format using partial sentences. Instructions read: Looking back at the past two weeks, how often did you....

This was followed by specific items such as:

Feel unhappy or sad?

Feel lonely?

Feel anxious or worried?

This is the same method and item structure used by NIH in development of the PROMIS questionnaires for behavioral health. These PROMIS items have also been incorporated into a scale included in DSM-5.

One critical difference in the ACORN measures compared to other commonly used measures is the inclusion of alliance items. Use of alliance items has been shown to result in significantly better outcomes.

Following is an example of an ACORN adult outcome measure: [Brief Adult Outcome Questionnaire- Version 11](#). Compare this to a questionnaire from DSM-5: [Level One Cross Cutting Symptom Questionnaire - Adult](#)

ACORN questionnaires are designed to be brief while retaining high levels of reliability and validity. All of the ACORN measures have reliability in the range of .9 or higher, and all will correlate highly with other widely used measures of outcomes in behavioral health, such as the Beck Depression Inventory, the PHQ9, the OQ-45, the Outcome Rating Scale and the BASIS-24. For more information on the ACORN questionnaires, including an online manual, see: <http://psychoutcomes.org/Questionnaires>

The ACORN system was designed to accommodate any questionnaire, not simply those developed as part of the ACORN collaboration. In fact, the system contains a very large normative sample for commonly used measures such as the PHQ9, GAD7, OQ-45, Outcome Rating Scale, and the BASIS-24. All measures are reported and graphed in the same manner.

As of 12/15/14 ACORN system houses data for 598,637 separate episodes of care, representing 1,667,481 completed outcome questionnaires. Effect sizes for all measures are calculated using the methodology previously referenced. All have been found to produce similar effect sizes. This means that results from these and other ACORN measures can be compared directly.

Provider engagement

The biggest barrier to implementing systems to manage both outcomes and cost of care is provider engagement. The high level of distrust of managed care organizations found with many providers makes it challenging to convince providers to measure outcomes and make the information available to the health plan. It is common for providers to express fears that the outcome data will be used against their interests, such as further reducing payment or reducing referrals.

Two decades of experience engaging providers in the practice of feedback informed treatment has provided useful lessons. The most obvious is that simply sharing the research is not sufficient. While the evidence for improved outcomes is very strong, the average provider already believes that their outcomes are very good, without the need to measure. This tendency to overestimate patient improvement is illustrated by this recent study published by Michael Lambert and colleagues: [An investigation of self-assessment bias in mental health providers](#). (Wallfish, McCallister, O'Donnell & Lambert; 2013).

The study found that the average provider estimated that their outcomes were superior to 80% of their peers, and that 85% of their patients were significantly improved. Under these circumstances, what could a provider gain from actually measuring their outcomes? They run a very good chance of discovering that their outcomes are average, or worse, below average. This

may explain why it has proven extremely difficult to engage providers in individual private practice.

Well organized group practices have proven to be much easier to engage, particularly those with strong clinical leadership combined with an understanding of business. In these cases though, much depends on the business interests of the practice. If the payer encouraging feedback informed treatment represents a relatively large percentage of the practices total revenue, engagement is relatively easy. However, if the payer is 10% or less of the practices revenue, the practice is much more likely to reject the offer.

Non-profit agencies and those serving public sector populations tend to be easier to engage. Partly because, the payer or funding source asking for outcome data represents a much larger percentage of their revenue. Also, the agencies are more likely to see that outcome data will help attract new financial support in the form of funding from United Way and other sources of grant money. It is also possible that agencies that are less driven by profit motive are more open to arguments that feedback informed treatment is in the best interest of the patient.

Clearly, the provider is more likely to engage if they see the potential for benefit to the practice. This can be accomplished in a number of ways, including eliminating utilization review, increasing referrals, increasing reimbursement and/or implementation of pay for performance.

Providing feedback to providers on both outcome and cost can provide powerful incentives. Since the evidence so far indicates that participating providers have costs below the average for the network as a whole, letting them know that that they are seen as the kind of high value provider the health plan is seeking reassures the provider that participation may well pay off in the future.

Following are a list of best practices that are associated with successful provider engagement:

- 1) **Active support from the analytics department within the health plan, or better yet, sharing of claims data.** This permits identifying providers who see a large number of plan members.
- 2) **Active involvement by network management staff. This goes beyond simply identifying potential providers.** The plan network management staff needs to be actively engaged in recruiting providers and facilitating engagement.
- 3) **Focus on agencies and group practices with strong clinical leadership.** In the absence of such leadership, only a relatively small percentage of individual clinicians within the practice are likely to willingly participate.
- 4) **Protect patient confidentiality.** Providers and patients are less likely to resist measurement efforts if the patient's identity is not revealed. For purposes of analyzing cost, it is sufficient to know the payer and diagnosis for the patient. Requiring the use of a patient identifier that reveals the patients identify to the health plan may require the use of specific informed consent. Even if the health plan maintains that this is not necessary, providers will resist.

- 5) ***Offer inducements, such as increased referrals, or pay for performance based on meeting criteria for good outcomes.*** In the absence of inducements, provider fear of how the data may be used against them leads to rejection of efforts to measure outcomes.

Summary and directions for the future

This paper has outlined the history of a 20 collaboration of researchers, clinicians and funders of care to explore means to improve the outcome of behavioral health care. These called ACORN collaboration, initiated in 2007, formalized this collaboration and continues this work. While the make-up of the organizations and key personalities involved in collaboration changes over time, there is also continuity and continued effort to build on the work that has come before.

Many of the early key figures, such as Michael Lambert and Bruce Wampold are nearing retirement and no longer directly involved in the ACORN collaboration. Other younger researchers, such as Takuya Minami, remain actively involved and our introducing a new generation of graduate students to the collaboration.

Scott Miller has become internationally famous giving lectures and trainings around the world on the power of feedback informed treatment. In 2009, he launched a website, the [International Center of Clinical Excellence](#) to further encourage clinicians to meet, share information, and collaborate. In the summer of 2014, the Jeb Brown of the ACORN collaboration and Scott Miller of the International Center for Clinical Excellence began to actively explore opportunities for collaboration between the two networks of clinicians employing feedback informed treatment.

Interest in the ACORN system has growing rapidly with the advent of health care reform and increased demands for accountability. The largest area of growth is expected to be among providers serving Medicaid and other publically funded populations. There is clearly a need to both manage outcomes and cost, assuring that the public funds is being spent wisely, assuring the greatest benefit to the greatest number of patients. The ACORN system was developed for this purpose, and is ideally suited to the needs of payers and providers in the new era of healthcare accountability.

Brown, G.S. . & Lambert, M. (1998) Tracking patient Progress: Decision making for cases who are not benefiting from therapy. 29th Annual Meeting of the Society for Psychotherapy Research at Snowbird, Utah.

Brown, G.S., Dreis, S. & Nace, D. (1999) What really makes a difference in psychotherapy outcomes? And why does managed care want to know? In Miller, S. & Hubble, (M. Eds.), *Heart and Soul of Change* (pp. 389-406). American Psychological Association Press: Washington.