

**Implementing a Multi-source Outcome Assessment Protocol in a State Psychiatric Hospital:  
A Case Study from the Public Sector**

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Most mental health facilities treating patients diagnosed as severely and persistently mentally ill—SPMI (e.g., psychiatric hospitals, community mental health centers, etc.) have clinical services as their primary focus with sparse resources available to allocate for outcome assessment. Nonetheless, all facilities are faced with evidence-based accountability requirements to demonstrate the effectiveness of clinical services. Unfortunately, such patients are a notoriously difficult population to show reliable treatment gains. The difficulty in tracking change in this population is particularly vexing since their clinical services typically use a disproportionate percentage of the mental health dollar (1).

The Utah State Hospital (USH) is the only inpatient facility servicing such individuals in the state and consists of 10 units (280 inpatient beds) that treat adult, geriatric and forensic patients. In 1998, USH was awarded a three-year grant from the State Academic Collaboration Committee that provided resources for education and research in the area of outcome assessment. Since then, USH has implemented and refined an outcome management program to monitor the treatment of patients. Case studies for implementing outcome management programs in managed care (2), private practice (3) and public settings (4) are available, although a specialized model may be necessary when working with those diagnosed as SPMI. If

true, such a model might facilitate the implementation of outcome management programs by similar facilities. Accordingly, academically based researchers, USH administrators, mental health care providers and patient advocates teamed together to review current research and experiential information and provide a case study describing the development and application of an outcome management for a SPMI population. The method used to select the outcome measures is detailed in this issue by Burlingame and colleagues (5).

**Implementation of Outcome Management Program**

The USH created a committee composed of executive staff, unit administrators, discipline chiefs and line clinical staff to match hospital needs (clinical vs. administrative) with measures shown to be effective and sensitive to change with our patient population. The team selected the clinician-rated Brief Psychiatric Rating Scale—Expanded—BPRS-E (6) and self-report Outcome Questionnaire—OQ (7) as a multi-source outcome battery (see Burlingame et al., this issue). The latter instrument was chosen since it correlated highly with the SCL-90-R, the most frequently used self-report outcome instrument for our population (5), but was far more cost effective because there is no per administration fee. Moreover, this instrument had an experimental set of 15 items to track

outcome for our patient population (<http://www.oqfamily.com>). Having selected instruments, the next two tasks facing the committee were to develop an infrastructure to collect outcome data on hospital patients and a training system to insure the integrity of BPRS ratings.

### **Development of a Protocol for Outcome Data Collection**

Some have suggested that it is important to identify a “champion” to insure the success of outcome management initiatives in mental health organizations (3). Thus, a single department was given primary responsibility for each measure. The director of psychology was designated as the BPRS champion and given the responsibility of training, monitoring data collection and reporting outcome data to the hospital administration. The director of social work was given the parallel task for the OQ data that was collected during regularly scheduled individual therapy appointments with social work staff. The psychology staff was initially reluctant to take on this additional responsibility, since they did not have regular contact with all patients in the hospital. This resistance has been noted in similar public sector outcome projects (4). However, resources from an existing psychology extern program, coupled with resources from a pre-doctoral psychology internship, were combined and allocated to support this initiative. Specifically, trained psychology interns and staff would collect BPRS data and the hospital administration, would in turn, use it to monitor performance and report treatment effectiveness to its stakeholders using an electronic medical records system-EMR. The use of the EMR enabled outcome data to be immediately available to the treatment team or other authorized personnel.

The frequency of BPRS administration was established after weighing the following factors: a) the clinical utility of outcome data to the treatment team, b) administrative and staff resources, and c) patient length of stay (mean LOS = 185 days).

After assessing all factors, it was decided that the BPRS would be administered within 3 days of a patient’s admit, every 90 days thereafter, and within 3 days of discharge for all patients. At a minimum, this would provide treatment teams BPRS data to assess patients’ progress at mid-treatment. Additional BPRS protocols would be available on a prn basis.

**A word on the frequency and interval of assessment.** Utah does not have a long-term care or skilled facility, thus patients who have chronic mental illnesses are treated at the USH, thereby lengthening the LOS and our assessment interval. However, the measures we adopted at USH have been found to be useful in tracking change for inpatient stays lasting only a few days (8,9). It is critical to initially select an instrument that has been shown to be empirically sensitive to change (5) for the patient population and average LOS for the treatment under consideration.

### **BPRS Rater Training System**

Research has repeatedly shown that individual differences between raters can lower inter-rater reliability and result in rater drift on the BPRS. To prevent these problems, we established a standard of inter-rater agreement (.80) (11) and adopted two training processes to initially reach and maintain inter-rater agreement. First, an expert BPRS trainer from UCLA (11) conducted a two-day seminar that was videotaped, enabling future “generations” of psychology interns to benefit. The seminar followed Faustman and Overall’s (12) procedure which requires that one clinician interview a volunteer patient, while other clinicians observe and make simultaneous ratings. After each group practice interview, clinicians compared ratings and received feedback. This technique was repeated iteratively until group ratings converged. We also purchased UCLA’s consensus coded BPRS tapes.

The second process implemented to maintain a standard training protocol was to capacitate the psychology department to carry out this training with each new intern class. Subsequent generations of BPRS raters were provided with a BPRS manual and:

1. Read the manual and observed interviews conducted by trained BPRS raters.
2. Rated six consensus coded videos of BPRS interviews with actual patients in order to meet the agreement standard of .80.
3. Rated actual patients concurrently with a trained BPRS rater to maintain the .80 agreement in live interviews.
4. Rated a videotaped or live interview three times per year as a quality assurance check to prevent rater drift.

### Results

The training protocol resulted in inter-rater reliability (i.e., intra-class correlation coefficient) of .79 at the subscale level and .95 across items. This exceeded the numeric cutoff of .80 suggested by Ventura and colleagues (11) and suggests that applying literature-based principles for training that is anchored to a common gold standard (UCLA consensus coded tapes) can result in inter-rater reliability that is more often seen in clinical research rather than in service delivery settings (13).

Employment of the clinician-rated BPRS consumed ample resources from those hospital units principally focused on service delivery. Conversely, use of the self-report OQ led to greater “buy in” from providers. More specifically, transferring responsibility of collecting self-report patient data to the director of social work generated a second, resource-efficient outcome assessment source (patient generated change), while also engaging an important clinical resource—social workers.

While the cost of self-report patient change data was minimal, an equally and perhaps more important consideration was its benefit. In other words, was self-report outcome data from our patients meaningful? Our answer with this patient population was that it depends. While the BPRS had been shown to be sensitive to patient change, irrespective of patient diagnosis (14), the self-report measure fared less well. Approximately one-fourth of the patients admitted to the facility were either unable (due to the acuity of their illness) or unwilling to complete a self-report outcome instrument upon admission. Specifically, aggregate outcome data from these patients was either far below expected normative levels for this population or so erratic (item endorsement at both ends of the range) that meaningful interpretation was impossible. Although the proportion of “unusable” self-report outcome assessments dropped after the patients stabilized (i.e., low scores rose as denial and impaired reality remitted), the out of range values made meaningful change difficult to track.

A balancing perspective with respect to self-report measures was that changes in the remaining 75% of cases were moderately correlated with BPRS change noted by clinicians who were “independent” (i.e., psychology interns) from the actual treatment of the patient. The correspondence in change profiles between two “independent” sources is clearly promising, especially when one considers the staff resource investment with BPRS assessment. This finding suggests that the progress of a significant portion of hospitalized patients might be tracked using less costly self-report measures, once patient acuity and cooperation reach appropriate levels. Interestingly, even though some SPMI patients “under-reported” their absolute degree of symptom distress on the self-report measure, the actual change trajectory in a portion of this subsample remained similar to those with higher levels of distress.

### Lessons Learned

Implementing an outcome management program at USH has had an impact in the hospital's funding and treatment for patients. In the face of increased scrutiny by public agencies and consumers, USH has been able to provide evidence-based outcomes drawn from the extant literature that demonstrate services are making a difference in the lives of the patients. With regard to the State Legislature, each year BPRS and OQ outcome data is presented to legislators to provide evidence of patient progress in response to services. This evidence-based accountability has served as a strong rationale on more than one occasion to justify government support. However, these gains were not without internal costs.

Initially, the utilization of the BPRS-E was resisted by psychology staff due to the labor intensive nature of this instrument. Utilizing psychology interns, and justifying their employment to cover the bulk of this duty, greatly reduced the initial resistance. An unexpected side benefit to psychology staff was motivation to keep their knowledge more up-to-date as they became involved in the training and supervision of interns "fresh" out of psychology doctoral programs. Similarly, the use of the OQ added responsibilities to the social work staff. However as both instruments became more widely understood and utilized by treatment teams, acceptance increased.

Perhaps the greatest factor which contributed to "buy off" by clinical staff occurred when the data started to empirically demonstrate that treatment was effective and made a difference in the functioning of our patients. This was the single most important factor in reducing staff dread and suspicion and created an atmosphere of pride in a job well done. The group who has been both the most skeptical and embracing has been our psychiatrists. Critical inquiries often led to extensive data analysis, increasing confidence in the empirical evidence upon which to base disposition decisions. Finally, patient compliance increased with staff acceptance. Initially, outcome measures were viewed as a

"necessary evil," but it was rare for a patient to refuse. Over time it has become accepted by both staff and patients alike as a normal hospital routine.

Future directions of the outcome management program involve a fuller integration of outcome data for individual patients using our electronic treatment planning system (i.e., EMR). In order to facilitate this goal, outcome data is entered into the hospital's electronic charting system, providing clinicians current and individualized patient graphs and scores. These patient reports are used to track patient progress and adjust treatment strategies to fit individual patient needs, a process that has been shown to improve outcome (15).

The OQ provides a cut score which differentiates patients based upon level of functioning. Table 1 illustrates change from admission to discharge over the past 4 years and demonstrates that most patients leave the hospital at a higher level of functioning. The OQ also has a reliable change index (RCI) that targets that amount of change needed to be 95% confident that a patient has made significant change. Both change metrics provide an empirical target for treatment teams in making disposition decisions. The BPRS-E in Table 1 reflect a similar pattern of symptom reduction and our team is currently developing change metrics (RCI & cutscores) to increase its utility in clinical decision-making.

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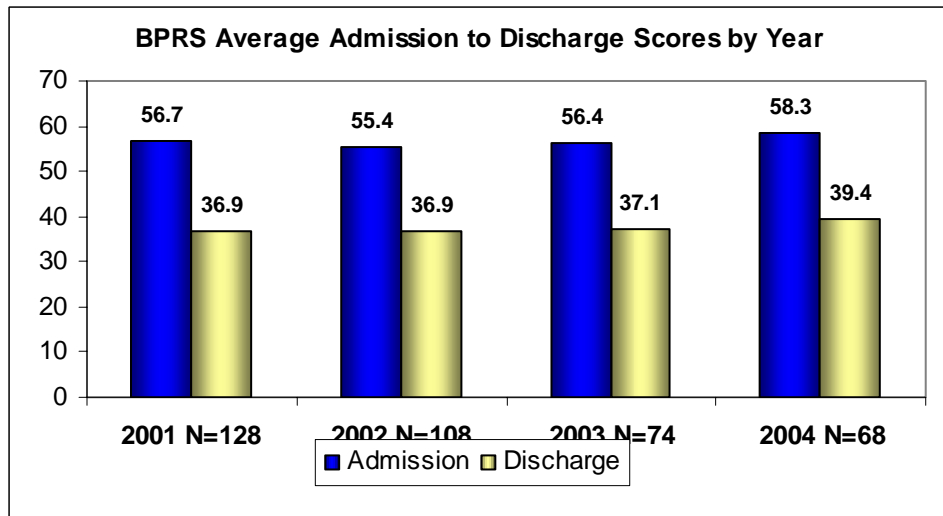


Table 1: BPRS Average Admission to Discharge Scores by Year

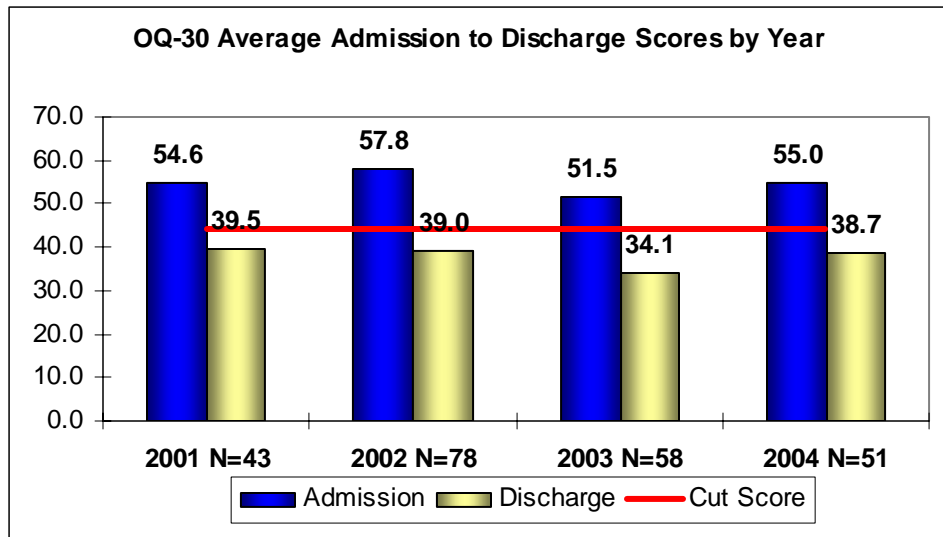


Table 2: OQ-30 Average Admission to Discharge Scores by Year