

# Inpatient Consumer Survey: Pilot Implementation Report

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## Author's Note:

More than 15 years ago, NRI was instrumental in the development of a consumer perception of care survey designed specifically for inpatient psychiatric facilities. Over 140 facilities have used the tool and benefited from its direct insights into the consumer's perspective as well as the comparative database provided by nearly 2000 survey responses each month. Survey revalidation has shown continued relevance and association to improving the quality of care; results are published in *The Patient*. The survey continues in use by nearly 100 facilities and improvement strategies are the topic for future publications.

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## 1. Introduction

The National Association of State Mental Health Program Directors Research Institute (NRI) operates a Behavioral Healthcare Performance Measurement System (BHPMS) for state psychiatric facilities. The NRI-BHPMS recognizes the importance of integrating consumers' perceptions of care into standard performance measures for psychiatric facilities. These measures are an integral part of the accreditation requirement of the Joint Commission. Beginning in the spring of 2000, the NRI invited consumers and the MHSIP Policy Group to assist the NRI in formulating an Inpatient version of the MHSIP Consumer Survey. A workgroup was formed consisting of a representative from these two groups, a research consultant, and NRI-BHPMS staff. The outcome of a series of meetings was an instrument consisting of 43 total items organized around six conceptual domains and a plan for implementation and analysis.

There were several expectations of the pilot study. First, the pilot study was to test the instrument and ease of ad-

ministration. Second, determine the inherent factors of the instrument to develop indicators for performance measures. Third, confirm that the instrument was able to detect differences across facilities and provide facilities with information for targeted quality improvement activities. Fourth, determine whether differences in patient characteristics may impact performance rates. Finally, create a revised instrument that facilities could use for their performance indicators reported to Joint Commission.

The following report describes the process and outcome of the pilot project. The NRI thanks the participating facilities for providing data to test and refine the instrument.

## 2. Instrument Description and Administration

The 43-item instrument was piloted by 15 facilities during Nov 2000 - Feb 2001. Each item on the survey was evaluated on a 5-point scale of 1 "strongly agree" to 5 "strongly disagree". Seven demographic questions were included at the end of the survey. There were no negatively worded questions. In addition, open-ended questions sought

patients' perceptions of the instrument. Three versions of the instrument were developed that presented the questions in different orders. Each facility was asked to use two different versions of the survey and distribute them to a random sample of 50 patients (25 discharge and 25 continuing). In facilities with high discharge rates, surveys were completed by patients at discharge only. Surveys were given to patients by staff not connected to their treatment or by consumer representative. Most facilities chose not to include patient identifiers on the survey. All completed surveys were returned to the facility. The packet of completed surveys was forwarded to the NRI office for data entry and analysis.

### 3. Model of Analysis

The analysis of the inpatient consumer survey proceeded in several steps. Individual facilities distributed surveys to patients. Completed surveys were sent to the NRI for data entry and analysis. NRI staff and consultant Jack Wackwitz, PhD conducted exploratory and confirmatory factor analyses. NRI staff completed an evaluation of the indicators for differences across facilities and by patient demographic characteristics.

### 4. Survey completion

Overall, there were 1027 completed surveys. All surveys were entered into a database by NRI staff and checked for integrity. While one of the initial intents of the pilot study had been to evaluate the effect of different ordering of the questions, 76% of the responses were on Version C. Only three facilities submitted responses from at least two survey versions. Given the limited number of responses on the other two versions, testing for differences across versions was not practical. Prior research has found that when questions are grouped by domain, the internal variation for that domain is lower than when questions are not clustered in the instrument. The questions on Version C were organized by conceptual domains. The surveys from Version C were used for the exploratory and confirmatory factor analysis. Once the factor structure was determined, all surveys completed by patients at a facility were used to compute the domain scores for the facility.

### 5. Creating domains

An exploratory factor analysis was completed on the 776 surveys completed in Version C. The inter-item correlation

indicated considerable correlation among the items, ranging from .25 to .73. Such inter-item correlation suggests that scales developed from the items would also be correlated. The initial factor analysis indicated five scales (dimensions) for the instrument. As is common with initial factor analysis, several questions aligned with multiple factors. The goal of exploratory analysis is to create a factor structure such that each question aligns with only one factor and its' loading with that factor is large. In order to accomplish this goal, questions are deleted that have low weights. The analysis is then redone to assess the integrity of the factor structure given the reduced number of items. Questions with high rates of missing information and questions that load on several factors are the first consideration for removal.

Some of the questions with high rates of missing data (more than 10%) related to medication, participation in discharge planning, and satisfaction with staff identified by specialty. Two medication related questions fell into different domains, suggesting association with different aspects of care. Questions related to participation in discharge planning held together in a factor. When responses across the staff specialty questions were averaged, lower rates of missing information were obtained. However, these questions did not load well with any factor nor did they hold together in a factor by themselves.

Confirmatory factor analysis requires that all cases used in the analysis have complete data. While there are several procedures to replace missing data with values, over 80% of the Version C surveys provided complete data. The factor structure analysis was completed on this subset of surveys. The five factors were tentatively called: outcome, rights, dignity, participation, and environment. The list of questions included in each factor is provided at the end of the report. The confirmatory analysis supported the five-factor structure and reduced set of questions. Each question remaining in the analysis had a strong loading (at least .7) on only one factor. The factor structure provides good fit based on the chi-square test and the comparative fit index. In addition, the Hierarchical Path Model provided a schematic for the relationship among the five factors. The four factors of rights, dignity, participation, and environment generate at a similar strength from a general factor (coefficients of .94, .93, .84, .92 respectively). The dignity and participation factors then have a positive direct relationship to the outcome factor (.56 and .34 respectively), while the rights and environment factors have negligible direct relationships.

The strength of these relationships to outcomes would be interpreted in the low-moderate range.

## 6. Indicators developed from domains

The five factors were translated into five domains: outcomes, dignity, rights, participation in treatment, and environment. Each domain included 3-4 questions. Each question was evaluated on a scale of 1 “strongly agree” to 5 “strongly disagree”.

A domain score was calculated for each patient as the average rating for the items completed within the domain, with a stipulation that at least two items were completed. The facility indicator for each domain was calculated as the proportion of patients whose average rating on items in the domain was less than 2.5, which represented “agree to strongly agree”. In terms of the types of indicators used by the NRI-BHPMS, these indicators fall into the “proportion” class. Proportion indicators follow a binomial distribution where the mean is denoted as  $p$  and the variance is denoted as  $p*(1-p)$ . This information will be useful for tests of significant differences between a facility’s rate and the overall average.

## 7. Assessment of Indicators

Two levels of assessment were conducted for the indicators. The first set of tests focused on whether the indicators differentiate across facilities. The second set of tests focused on whether there were differences in the ratings of the indicators by patient demographic characteristics.

## 8. Evaluation of indicators across facilities

There was some variation across the 15 facilities on the proportion of patients whose average rating for items within each domain was agree to strongly agree. The following table provides the spread of rates across the facilities. On average, facilities scored better on the dignity domain than on other domains. The inter-quartile range was around 15 percentage points, indicating a condensed range of performance levels. Median scores suggested that about 2/3rds of patients felt some degree of satisfaction with aspects of their inpatient care, while there were some facilities where these rates were higher.

Scale	Percentile Grouping of Facilities		
	25 <sup>th</sup> Percentile	50 <sup>th</sup> Percentile	75 <sup>th</sup> Percentile
Outcomes	58%	67%	76%
Dignity	68%	73%	82%
Rights	55%	64%	68%
Participation	57%	62%	73%
Environment	55%	66%	77%

## 9. Evaluation of indicators across demographic groups

A diverse profile of patients completed the survey. Respondents were asked to provide information on their gender, age, race, marital status, legal status, length of hospitalization, and whether the survey was being completed on discharge. While an overall profile of all respondents to the survey could be developed, profiles of patients by individual facilities tend to differ from this pattern. Facilities participating in the pilot study received an analysis of the profile of their patients compared to the overall study. These differences provide a foundation for case-mix (or risk) adjustment, especially when these differences are related to the indicators.

Each indicator was tested for possible relationships with the various demographic characteristics of patients. For each indicator and demographic characteristic, an analysis of variance (ANOVA) procedure was performed. The ANOVA procedure tests for differences in means on the indicator across the different levels of the demographic characteristic. Mean ratings on the outcome indicator varied by marital status and discharge status. Mean ratings on the dignity indicator varied by legal status and length of hospitalization. Mean ratings in the rights indicator varied by marital status and length of stay. Mean rating on the participation indicator varied by legal status and discharge status. Mean ratings on the environment indicator varied by marital status, length of hospitalization, and discharge status. The ANOVA procedure did not indicate any relationship between the five indicators and the age and gender variables.

## 10. New Instrument and Future Considerations

After review by the initial workgroup and the NRI-BHPMS workgroup associated with the assessment measures, technical specifications were developed for administering the instrument and data reporting requirements.

The final instrument includes 28 items, seven demographic questions, and three identifying items. The wording on four of the items was changed to improve clarity and consistency. The categories of the demographic questions were updated to align with data collected by the NRI-BHPMS in its other data files. While the scale for the 28 items was initially ordered from strongly disagree to strongly agree (reading from left to right), the corresponding number assigned to the scales read from 5 down to 1. In the final version, the scale order remains the same; however, the numbers assigned to the levels of the scale are reversed. This pattern aligns better with standard survey tools. The number code is simply a tool to allow average scores to be computed. The indicators will continue to represent the percent of patients who responded positively to the domain. Given that each indicator includes 3-4 questions, missing data will not be inserted. Instead, at least two questions answered in the domain will be the completion criterion for each indicator.

In addition to the information on the survey, facilities will report on four aspects of the method of administration. This information includes: distributed by staff or consumers, anonymous or not, drop-box or mail back, and assisted or not. This information is to be reported for each survey, recognizing that facilities may use different methods on units within the facility. These different methods of administration have been shown to have an impact on ratings and will be important information for later stratification and risk adjustment.

In the NRI-BHPMS, a sampling method will not be used, although patient participation is voluntary. The instrument will be used as a discharge assessment and a review assessment. When a decision is made to discharge a patient, the patient should be given an opportunity to complete the survey. Patients with hospital episodes greater than one year should be given a survey to complete during each annual review. The expected minimum response rate will take into account situations where patients are less likely to receive a survey: patients discharged from elopement or leave and patients released by court. The standard for an expected minimum response rate will be based on the experience of facilities participating in the measures during the first six months of implementation.

Although the pilot study did not include adolescent patients, the survey will be assessed for its applicability to this group. The reading grade level for the instrument is 5.2. A review of other surveys used with adolescents indicates a reading grade levels in the range of 5th to 8th grade. These other

surveys define adolescents beginning as low as age 11; however, the Youth Services Survey endorsed by MHSIP and the data collection efforts supported by the federal Center for Mental Health Services define adolescents beginning at age 13. To provide consistency for state systems participating in these other efforts, the age range for adolescents will be 13 to 17 years old. During the first six months of implementation surveys completed by adolescents will be analyzed for extent of missing data and correspondence with the factor structure developed for adults.

After the first six months of implementation, the NRI will analyze the survey responses to confirm the factor structure developed during the pilot study. An evaluation of missing data will also be conducted. The pilot study revealed that indicator scores varied by some patient characteristics. The NRI will continue to investigate the relationships among the demographic variables and factor scores to develop case mix adjustment models. These models may additionally include information on methods of administration.

Future versions of the instrument may include a machine-readable tool and language translation. A protocol for developing language translations is being developed to protect the integrity of the instrument. In addition, a database application is being developed to record information from the survey and provide the capacity for report generation.

To request a copy of the survey and directions for use, please contact the NRI office.

## **Appendix: Survey Questions by Domain**

### **Outcome:**

As a direct result of the services I received:  
I am better able to deal with crisis.  
My symptoms are not bothering me as much.  
I do better in social situations.  
I deal more effectively with daily problems.

### **Dignity:**

I was treated with dignity and respect.  
Staff here believe that I can grow, change and recover.  
I felt comfortable asking questions about my treatment and medications.  
I was encouraged to use self-help/support groups.

### **Rights:**

I felt free to complain without fear of retaliation.  
I felt safe to refuse medication or treatment during my hospital stay.  
My complaints and grievances were addressed.

### **Participation:**

I participated in planning my discharge.  
Both I and my community provider were actively involved in my hospital treatment plan.  
(Change to: Both I and my doctor or therapist from the community were actively involved in my hospital treatment plan.)  
I had the opportunity to meet staff from the community agency prior to discharge.  
(Change to: I had the opportunity to talk with my doctor or therapist from the community prior to discharge.)

### **Environment:**

I found the surroundings and atmosphere at the hospital helped me get better.  
(Change to: The surroundings and atmosphere at the hospital helped me get better.)  
I felt I had enough privacy in the hospital.  
I felt protected while in the hospital.  
(Change to: I felt safe while in the hospital).  
The hospital environment was clean and comfortable.

### **Other Questions not included in domains:**

The medications I am taking help me control symptoms that used to bother me.  
I was given information about how to manage my medication side effects.  
My other medical conditions were treated.  
I felt this hospital stay was necessary.  
Staff were sensitive to my cultural background.  
My family and/or friends were able to visit me.  
I had a choice of treatment options.  
My contact with my Doctor was helpful.  
My contact with nurses and therapists was helpful.

(Reading grade level 5.2).