Patterns of Usual Care for Schizophrenia: Initial Results From the Schizophrenia Patient Outcomes Research Team (PORT) Client Survey

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Abstract

To examine the conformance of current patterns of usual care for persons with schizophrenia to the Schizophrenia Patient Outcomes Research Team (PORT) Treatment Recommendations, the PORT surveyed a stratified random sample of 719 persons diagnosed with schizophrenia in two States. The types of treatment settings surveyed included acute inpatient programs and continuing outpatient programs in urban and rural locales. Using data from medical record reviews and patient interviews, the PORT assessed the conformance of current care with 12 of the Treatment Recommendations. The rates at which patients' treatment conformed to the recommendations were modest at best, generally below 50 percent. Conformance rates were higher for pharmacological than for psychosocial treatments and in rural areas than in urban ones. Rates of Treatment Recommendation conformance for minority patients were lower than those for Caucasians, and patterns of care varied between the two States. The findings indicate that current usual treatment practices likely fall substantially short of what would be recommended based on the best evidence on treatment efficacy. This disparity underscores the need for greater efforts to ensure that treatment research results are translated into practice.

Key words: Mental health services, quality of care.

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A principal aim of the Agency for Health Care Policy and Research/National Institute of Mental Health (AHCPR/NIMH) Schizophrenia Patient Outcomes Research Team (PORT) is a better understanding of variations in patterns of treatment for persons with schizophrenia in usual care and the implications of these variations in light of available scientific knowledge about treatment efficacy (Lehman et al. 1995b). The preceding article (Lehman et al. 1998, this issue) presents the AHCPR/NIMH Schizophrenia PORT Treatment Recommendations, which attempt to summarize knowledge about treatment efficacy. This companion article provides initial estimates of the rates at which usual treatment conforms to the PORT Recommendations based on the PORT Client Survey. By identifying aspects of usual treatment in need of further improvement, these rates of conformance add an important dimension to our assessment of implications of the PORT Treatment Recommendations.

Methods

Overview. We administered the PORT Client Survey in face-to-face interviews with a random sample of 719 persons with a clinical diagnosis of schizophrenia who were currently under usual care in two States, one in the South and the other in the Midwest. All subjects provided written informed consent for the study and were paid $10 for their time. They completed a 90-minute face-to-face survey interview and permitted a review of their current medical record. We used medical record data, augmented by information from the interview, to assess whether current treatment conformed to the PORT Treatment Recommendations. Variations in rates of conformance were then determined and examined in relation to patient demographic characteristics and treatment settings.

Sampling. The PORT contract specified a random, though not necessarily epidemiologically representative, sample of persons currently under treatment for schizophrenia in usual care settings in two States. These settings included acute inpatient and outpatient programs in the

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public, private, and Department of Veterans Affairs (VA) sectors of care. The sampling strategy was conducted at four levels: (1) States, (2) communities, (3) providers, and (4) patients.

Criteria for selection of the two States emphasized three factors: (1) a sufficient population base to make available for study an adequate number of persons with schizophrenia, (2) the quality and thoroughness in the State's Medicaid claims data and the capacity to link these claims data to State hospital utilization data (a requirement for another phase of the PORT), and (3) geographic and population diversity. Based on these initial screening criteria, we identified eight candidate States. Additional information on mental health resources and utilization in each of these States and recommendations from the Schizophrenia PORT National Advisory Panel guided the selection of the two States, with final approval by AHCPR and NIMH. The States are not identified here to maintain confidentiality. One is a large Southern State (State A) and the other a large Midwestern State (State B).

Once these States were selected and agreed to participate, the next stage of sampling was conducted at the community level. The PORT required that treatment patterns in five "communities" be sampled across the two States and that in each State at least one rural community be included. To facilitate community selection, these sources of information were studied: (1) 1990 U.S. Bureau of Census county-level statistics, including population size and characteristics and designation of urban, suburban, and/or rural counties; (2) data on the number of individuals under treatment for schizophrenia by county supplied by the two participating State mental health agencies (SMHAs); (3) data obtained from the NIMH's Inventory of Mental Health Organizations and General Hospital Mental Health Services 1990 Survey; and (4) qualitative data (e.g., types of programs available in particular areas, obtained from interviews with several representatives from both of the SMHAs). Again with the guidance of the two States and the AHCPR/NIMH, we then selected three urban communities (one in State A and two in State B) and two rural areas (one in each State).

The next level of sampling was at the treatment provider level within these five communities. The PORT design specified sampling of patients experiencing two different phases of treatment, either an acute inpatient episode or ongoing community-based care. An inventory of provider organizations located in each of the communities was compiled from the NIMH's Inventory of Mental Health Organizations and General Hospital Mental Health Services 1990 Survey. We further subclassified providers as follows: inpatient provider types (State mental hospital, VA hospital, private psychiatric hospital, and general hos-

pital) and outpatient provider types (State-funded community mental health center, VA outpatient, private outpatient, and general hospital outpatient). To ensure that the provider organizations selected had adequate patient volumes, a criterion was established whereby an inpatient provider had to have discharged at least 100 patients with schizophrenia within the past year and an outpatient provider had to have at least 100 current outpatients with schizophrenia. Provider organizations were randomly selected from a list of those meeting these criteria and their participation solicited. In State A, of the original 11 provider organizations that were selected randomly, two refused to participate. One provider did not want to participate in the study, and the other, selected as an outpatient site, reported that it did not actually provide outpatient services. In State B, of the original 14 provider organizations that were selected randomly, 3 refused to participate. Reasons given were insufficient volume of outpatients with schizophrenia seen, takeover by another corporation resulting in a state of transition during the survey period, and lack of an Institutional Review Board structure to review research efforts. Alternate providers were recruited successfully.

Finally within each provider setting, the PORT selected patients with a diagnosis of schizophrenia at random from treatment rosters. All subjects met the following criteria: current clinical diagnosis of schizophrenia, English speaking, at least 18 years of age, legally competent, and living in the local community sampled. For the acute inpatient episode sampling, all admissions were screened for eligibility, and consent was sought from all eligible admissions. For the community-based sampling frame, each provider site compiled a roster of all current patients with schizophrenia. The number of patients sampled from each site's roster was determined by the practice setting stratum in which that site was categorized to achieve target sample sizes within each strata.

The original target sample comprised 750 community-based subjects and 450 acute episode subjects. Of a total of 663 inpatients screened as initially eligible for the survey, 69.1 percent (458) agreed to allow the treatment program to release their names to the study. Of these, 398 met a more detailed eligibility assessment, and 279 of them (70.1%) completed the survey. The reasons for these later ineligibility determinations included being clinically unable to be approached for participation ($n = 23$), out of geographic area ($n = 15$), deceased ($n = 3$), and oversampled ($n = 19$). (Oversampled refers to the fact that some sites produced more eligible subjects than targeted in the sampling frame.)

A total of 1,017 community-based patients met an initial eligibility screen, and 584 (57.4%) of them gave permission to their treatment program to release their

names to the study. Subsequent eligibility assessments revealed that 550 were actually eligible for the survey, and 440 of them (80.0%) completed the survey. Reasons for these later ineligibility determinations included being clinically unable to be approached for an interview ($n = 20$), out of geographic area ($n = 6$), and deceased ($n = 8$).

Hence two types of sample attrition were encountered, first at the point of patients' consent for their treatment providers to release their names to the study and second at the point of consent and completion of the actual survey. The former type of attrition was more substantial than the latter, especially among the community samples. There were no significant differences between completers and noncompleters by gender, race, or age. The final sample is presented in table 1.

Measures. The PORT created three data collection instruments: a client interview survey and chart abstracts for the inpatient and outpatient chart reviews. The PORT Client Survey has 10 sections: demographics, social and family relationships, living arrangements, daily activities and functioning, employment, financial resources, legal issues, health status, service use, and patient knowledge

and life satisfaction. Because the survey data were used in only a very limited way for the analyses presented here, the PORT Client Survey is not described in any detail. For these analyses, it provided information on patients' current level of symptoms, medication side effects and compliance, frequency of family contacts, and employment status. For the acute inpatient sample, the Client Survey was administered 3 months after the date of index hospital admission. For the continuing community care sample, it was conducted when the person consented to the survey.

Inpatient and outpatient chart abstract forms were designed to capture information on each patient's psychiatric and medical history, health services utilization, and to review the treatment plan, current medications, and family contacts and services. The inpatient record review focused on the treatment plan at the point the patient was discharged from the hospital.

Data Analysis. The primary sources of data to assess conformance with the PORT Treatment Recommendations were the PORT Outpatient Record Review and Inpatient Record Review forms, supplemented by some data from the PORT Client Survey. Even with these sources of data, it was not possible to assess conformance

Table 1. PORT-Client Survey sample characteristics

	State A		State B		Total	
	Acute Inpatient	Community	Acute Inpatient	Community	Acute Inpatient	Community
Number of subjects	101	181	178	259	279	440
Percentage, male	65.4	60.2	65.2	62.9	65.2	61.8
Age (%)						
<35	33.7	29.8	25.8	15.8	28.7	21.6
35–44	38.6	25.4	40.5	32.4	39.8	29.6
45–64	26.7	39.2	30.3	42.1	29.0	40.9
65+	1.0	5.5	3.4	9.7	2.5	8.0
Race (%)						
White	18.8	52.5	58.8	64.6	44.2	59.6
African-American	79.2	44.8	34.5	30.7	50.7	36.5
Other	2.0	2.8	6.8	4.7	5.0	3.9
Locale (%)						
Urban	60.4	75.7	89.9	78.8	79.2	77.5
Rural	39.6	24.3	10.1	21.2	20.8	22.5
Marital status (%)						
Never married	58.4	53.6	59.3	49.6	59.0	51.3
Currently married	7.9	15.5	9.0	14.7	8.6	15.0
Other	33.7	30.9	31.7	35.7	32.4	33.7
Education (%)						
<High school	35.6	29.3	27.5	29.3	30.5	29.3
High school grad	40.6	28.2	34.3	46.3	36.6	38.9
Some college	23.8	42.5	38.2	24.3	33.0	31.8

Note.—PORT = Patient Outcomes Research Team.

with all 30 of the PORT Treatment Recommendations. Some of the Treatment Recommendations require information about aspects of longitudinal course and response to treatment that simply was not available from the client interviews or the medical records. However, using existing data from the Client Survey, we were able to estimate conformance with 12 recommendations to varying degrees. These 12 recommendations encompass all of the critical treatment modalities, including pharmacotherapies, psychological treatments, family interventions, vocational rehabilitation, and assertive community treatment (ACT)/assertive case management (ACM). For each recommendation, we identified and combined critical items from the Client Survey and the Inpatient and Outpatient Record Review forms to provide the best estimates of conformance for each recommendation.

For each patient, a dichotomous conformance rating (0 = nonconformance, 1 = conformance) was generated for each relevant recommendation. These conformance ratings were derived using electronic algorithms based on the data obtained from record reviews and client interviews. This procedure involved no judgment by the data abstractors about conformance. The data abstracted from the medical records were quite concrete; that is, such items as names of medications, dosages, and the types of services specified in the formal treatment plan. Rates of conformance for each recommendation were then computed separately for the acute episode and community care samples. Conformance rates were also computed according to the following patient and treatment setting variables: gender (male/female), age (<35, 35–44, 45–64, 65+), race (Caucasian, minority), State (State A versus State B), and urban versus rural. We used chi-square analysis throughout the data analysis.

Results

The results are presented by treatment recommendation. We first describe criteria for determining conformance and then summarize overall rates of conformance, as well as rates by patient and setting subgroups. The overall conformance rates are also summarized in table 2.

Treatment Recommendations

Pharmacotherapies.

Recommendation 1. Antipsychotic medications, other than clozapine, should be used as the first-line treatment to reduce psychotic symptoms for persons experiencing an acute symptom episode of schizophrenia. (**acute neuroleptic**)

Table 2. Rates of PORT Treatment Recommendation conformance for inpatients and outpatients

Recommendation	Conformance Rates (%)	
	Inpatients	Outpatients
Acute neuroleptic	89.2	NA
Acute CPZ dose	62.4	NA
Maintenance neuroleptic	NA	92.3
Maintenance CPZ dose	NA	29.1
Anti-Parkinson	53.9	46.1
Depot	50.0	35.0
Adjunctive depression medications	32.2	45.7
Adjunctive anxiety medications	33.3	41.3
Adjunctive psychosis medications	22.9	14.4
Psychotherapy	96.5	45.0
Family	31.6	9.6
Vocational rehabilitation	30.4	22.5
ACT/ACM	8.6	10.1

Note.—CPZ = chlorpromazine; ACT = assertive community treatment; ACM = assertive case management; PORT = Patient Outcomes Research Team; NA = not available.

Conformance criterion. At the time of discharge from the index inpatient episode, the patient was prescribed an antipsychotic agent. This recommendation could not be assessed for outpatients because we did not have data on how recently any acute symptom episodes occurred for these patients.

Conformance rates. Some 89.2 percent of inpatients were prescribed an antipsychotic agent, including 8.9 percent on clozapine, in their discharge treatment plans. There were no significant differences in rates of conformance by gender, race, or age; between the two States; or between urban and rural samples.

Recommendation 2. The dosage of antipsychotic medication for an acute symptom episode should be in the range of 300–1,000 chlorpromazine (CPZ) equivalents per day for a minimum of 6 weeks. Reasons for dosages outside this range should be justified. The minimum effective dose should be used. (**acute CPZ dose**)

Conformance criterion. The antipsychotic dosage at the time of inpatient discharge is within the 300–1,000 CPZ range. Data were not available to assess the length of the neuroleptic trial or reasons for dosages outside the 300–1,000 CPZ range. This recommendation could not be assessed for outpatients for the same reason given under Recommendation 1.

Conformance rates. Among the inpatients prescribed an antipsychotic medication at discharge, 62.4 percent were receiving a dosage in the 300–1,000 CPZ

range, 15 percent were prescribed a dosage less than 300 CPZ equivalents, and 22.5 percent were given a dosage above 1,000 CPZ equivalents. Rates of conformance did not differ between men and women or across the age groups, nor did State of residence or urban versus rural locale predict differences in conformance rates. However, race did have an effect on conformance rates: the percentages of Caucasian and minority patients whose dose of antipsychotic medication fell within the recommended range were equivalent (62.9% and 61.4%, respectively). However, among the patients whose dosage fell outside the recommended range, minority patients were much more likely to be on a high dose (>1,000 CPZ) than Caucasian patients (27.4% and 15.9%, respectively, $\chi^2 = 8.8, p = .01$).

Recommendation 7. Prophylactic use of anti-Parkinson agents to reduce the incidence of extrapyramidal side effects (EPS) should be determined on a case-by-case basis, taking into account patients and physician preferences, prior individual history of EPS, and other risk factors for both EPS and anticholinergic side effects. The effectiveness of and continued need for anti-Parkinson agents should be assessed in an ongoing fashion. (**anti-Parkinson**)

Conformance criterion. The patient reported some EPS on the Client Survey, and an anti-Parkinson agent is prescribed in the medical record. These criteria can be assessed for both inpatient and outpatients. However, it was not possible to ascertain how the factors identified in the recommendation were related to the decision to prescribe an anti-Parkinson agent.

Conformance rates. Of the inpatients who were receiving an antipsychotic medication at discharge, 74.2 percent reported at least one of the following possible EPS that they attributed to this medication: feeling restless or jittery, feeling slowed down or like a "zombie," or shaking or interference with arms or legs. Of these, 53.9 percent were prescribed an anti-Parkinson agent. Among the outpatient sample, 79.1 percent of those prescribed antipsychotic medication reported at least one of the possible EPS. Of these, 46.1 percent were receiving an anti-Parkinson agent. No differences in rates of conformance with this recommendation were found between inpatients and outpatients, urban and rural samples, or State of residence. Gender and age were also not related to recommendation conformance. Minority inpatients were more likely to meet this recommendation than were Caucasian inpatients (64.0% and 40.3%, respectively; $\chi^2 = 8.9, p = 0.003$). This race effect was not found among outpatients.

Recommendation 8. Persons who experience acute symptom relief with an antipsychotic medication should continue to receive this medication for at least 1 year sub-

sequent to symptom stabilization to reduce the risk of relapse or worsening of positive symptoms. (**maintenance neuroleptic**)

Conformance criterion. The current outpatient treatment plan includes prescription of an antipsychotic agent. Prior relief of an acute symptom episode is presumed, but cannot be confirmed, nor can the duration of the maintenance treatment be determined. This recommendation is not relevant to the inpatient sample.

Conformance rates. Some 92.3 percent of outpatients were prescribed an antipsychotic medication. No effects of gender, age, race; State; or urban/rural locale were found.

Recommendation 9. The maintenance dosage of antipsychotic medication should be in the range of 300–600 CPZ equivalents (oral or depot) per day. If the initial dosage to relieve an acute symptom episode exceeds this range, efforts should be made to reduce the dosage gradually to this range, such as a 10 percent reduction in dosage every 6 weeks until either early signs of relapse begin or until the lower level of this recommended range is achieved (see Recommendation 2). The new maintenance dosage should be at the last level at which symptoms were well controlled. Dosages in excess of 600 CPZ equivalents per day should be avoided unless symptom control and patient comfort are clearly superior at these higher dosages. The lowest effective dose should be used. (**maintenance CPZ dose**)

Conformance criterion. The current dosage of outpatient antipsychotic medication is in the 300–600 CPZ range. It was not possible to assess attempts to lower dosages higher than 600 CPZ or reasons for doses outside the 300–600 CPZ range.

Conformance rates. Among the outpatients, 29.1 percent were prescribed a dosage in the 300–600 CPZ range; 39.1 percent were prescribed dosages below this range and 31.9 percent above this range. Maintenance dosages among urban patients were less likely than those of rural patients to conform to the recommendation (26.7% and 36.3%, respectively) and were more likely to fall in the high range (>600 CPZ) (36.3% and 18.8%, respectively; $\chi^2 = 8.6, p = 0.01$).

Recommendation 12. Depot antipsychotic maintenance therapy should be strongly considered for persons who have difficulty complying with oral medication or who prefer the depot regimen. Depot therapy may be used as a first-option maintenance strategy. (**depot**)

Conformance criteria. We used patient self-reports of noncompliance with medications and rates of prescription of depot therapy as the conformance criteria. The reasons for prescribing depot medication could not be determined. The Client Survey asked patients how often they take their medications as prescribed, and they could

respond "always," "missed a few," "missed many," or "stopped medication." The question did not distinguish between missed pills and missed injections. Non-compliance was assessed using two thresholds to assess sensitivity. The low threshold was a response other than "always"; that is, the patient admitted to at least some noncompliance; the high threshold was a response of either "missed many" doses or had stopped the medication completely.

Conformance rates. Of the inpatients, 48.3 percent met the low threshold, and 7.5 percent met the high threshold. Among those meeting the low threshold, 13.3 percent were receiving depot antipsychotic medication. Among those meeting the high threshold, 50 percent were receiving depot therapy. Similarly, 40 percent of outpatients met the low threshold for noncompliance, and 5.4 percent met the high threshold. Only 24.8 percent at the low threshold were receiving depot therapy, and 35 percent of those meeting the high threshold were prescribed depot medication. With the small numbers of patients on depot medication, comparisons across subgroups lacked power, and analyses revealed no significant relationships.

Recommendation 17. Persons who experience persistent and clinically significant associated symptoms of anxiety, depression, or hostility, despite an adequate reduction in positive symptoms with antipsychotic therapy, should receive a trial of adjunctive pharmacotherapy. A trial of a benzodiazepine or propranolol has merit for persistent anxiety. An antidepressant trial should be considered for persistent depression. Adjunctive therapy with lithium, a benzodiazepine, or carbamazepine should be considered for persistent hostility or maniclike symptoms. The reasons for the absence of such trials for appropriate patients should be documented. Certain adjunctive medications should be avoided in patients currently receiving clozapine to avoid synergistic side effects; for example, respiratory depression with benzodiazepines and bone marrow suppression with carbamazepine. **(adjunctive depression medications; adjunctive anxiety medications)**

Conformance criteria. Patients who score within the upper quartile on the Symptom Checklist (SCL-90; Derogatis et al. 1973) depression subscale or who report having a current diagnosis of depression on the Client Survey or who have a current chart diagnosis of comorbid depression are prescribed an antidepressant. Patients who report a current diagnosis of anxiety disorder on the Client Survey or who have a current chart diagnosis of comorbid anxiety disorder are prescribed an antianxiety agent. It was not possible to assess hostility from the data.

Conformance rates **(adjunctive depression medications).** Some 48.3 percent of inpatients met at least one of the comorbid depression criteria, and of them, 33.8 per-

cent were prescribed an antidepressant. Among the outpatients, 42.8 percent met the depression criteria, and 45.7 percent of them were prescribed an antidepressant. Among patients meeting the criterion of need for antidepressant therapy, outpatients were more likely than inpatients to conform to the Treatment Recommendation (45.7% and 32.2%, respectively; $\chi^2 = 4.8$, $p = 0.03$). Depression treatment for outpatients in rural areas was more likely to meet the recommendation criteria than treatment for urban outpatients (66.7% and 39.6%, respectively; $\chi^2 = 7.9$, $p = 0.005$). Overall, treatment of depressed minority patients was less likely to meet the conformance criterion than treatment for depressed Caucasian patients (29.6% and 47.3%, respectively; $\chi^2 = 8.6$, $p = 0.003$).

Conformance rates **(adjunctive anxiety medications).** Some 17.8 percent of inpatients met the current anxiety disorder criterion, and of these, 33.3 percent were prescribed an anxiolytic. Among the outpatients, 22.8 percent met the current anxiety disorder criterion, and 41.3 percent of them were prescribed an anxiolytic. There was a significant interaction between gender and treatment setting. For the inpatient sample, men with a comorbid report of anxiety were more likely than women to be prescribed an antianxiety agent at discharge (48.4% and 5.9%, respectively; $\chi^2 = 7.1$, $p = 0.008$). However, the opposite was observed among outpatients, among whom 56.8 percent of women with anxiety were prescribed antianxiety agents compared with 30.9 percent of men ($\chi^2 = 5.1$, $p = 0.02$). This interaction suggests that antianxiety agents are used for different purposes among inpatients and outpatients. The pattern is consistent with the use of anxiolytics to calm agitated men in the hospital and to reduce anxiety among women in the community.

Recommendation 18. Persons who experience persistent and clinically significant positive symptoms despite adequate antipsychotic therapy, including trials with the newer antipsychotics, should receive a trial of adjunctive pharmacotherapy as described in Recommendation 17. **(adjunctive psychosis medications)**

Conformance criteria. Patients who score in the upper quartile on the SCL psychosis subscale and who are currently on antipsychotic medication are prescribed either lithium or an anticonvulsant. It was not possible to ascertain whether prior trials with the newer antipsychotic medications had been conducted.

Conformance rates. Of the inpatients on antipsychotic medications who fell into the upper quartile on persistent psychotic symptoms, 22.9 percent were prescribed either lithium or an anticonvulsant. Among the outpatients, 14.4 percent of those meeting the persistent psychotic symptoms criterion were receiving either lithium or

an anticonvulsant. No significant relationships were found between conformance with this recommendation and the various patient and treatment setting variables.

Psychological Treatments.

Recommendation 23. Individual and group therapies employing well-specified combinations of support, education, and behavioral and cognitive skills training approaches designed to address the specific deficits of persons with schizophrenia should be offered over time to improve functioning and enhance other target problems, such as medication noncompliance. (**psychotherapy**)

Conformance criteria. It was difficult to assess this recommendation adequately from the available data. All that could be determined was whether the treatment plan included individual or group psychotherapy and whether the patient reported that a treatment provided had addressed any of a series of psychological and practical life problems.

Conformance rates. Among inpatients, treatment plans indicated that 96.5 percent were prescribed either individual or group therapy at the time of discharge. In the inpatient group, 64.7 percent indicated at the followup interview that they were receiving help with at least one life problem. Most received assistance from a psychiatrist or a case manager. Among the outpatients, the treatment plan indicated that 45.0 percent were receiving individual or group therapy; 76.7 percent stated that they were receiving help for at least one life problem.

Several significant relationships were found between the prescription of psychotherapy and patient and setting characteristics. Across the entire sample, psychotherapy was more likely to be prescribed to inpatients at the time of discharge than to outpatients (96.6% and 45.3%, respectively; $\chi^2 = 2.24$, $p = 0.001$), to younger patients (80.5% for age under 35, 72.0% for 35–44, and 52.9% for age 45 or older; $\chi^2 = 39.7$, $p = 0.001$), to rural patients (74.8% rural and 63.4% urban; $\chi^2 = 6.1$, $p = 0.01$), to patients in State A than in State B (84.2% and 53.8%, respectively; $\chi^2 = 65.3$, $p = 0.001$), and to minority patients (70.6% and 61.9%, respectively; $\chi^2 = 5.1$, $p = 0.02$).

Family Treatments.

Recommendation 24. Patients who have ongoing contact with their families should be offered a family psychosocial intervention that spans at least 9 months and that provides a combination of education about the illness, family support, crisis intervention, and problem-solving skills training. Such interventions should also be offered to nonfamily members. (**family**)

Conformance criteria. Available data do not provide a very adequate basis for assessing this recommenda-

tion. However, the following assessment is possible. For patients who report some ongoing contact with family in the local area, they report that some family member(s) has received information about schizophrenia and/or has attended an educational or support program. An alternative criterion used is that "family therapy or support" is prescribed in the treatment plan for patients with available family.

Conformance rates. Most inpatients (84.5%) had some ongoing contact with their families during the past year. Based on review of their records or on the Client Survey interviews, a total of 40.8 percent inpatients were offered or received a family service. As with the inpatients, most outpatients (77.2%) had some ongoing contact with their families, and 37.2 percent were offered or received a family service. State A patients were more likely to be prescribed a family intervention than were State B patients (26.8% and 13.9%, respectively; $\chi^2 = 13.1$, $p = 0.001$), and rural outpatients were more likely than urban outpatients to be prescribed a family intervention (23.4% and 5.1%, respectively; $\chi^2 = 20.2$, $p = 0.001$).

Vocational Rehabilitation.

Recommendation 27. Persons with schizophrenia who have any of the following characteristics should be offered vocational services: The person (a) identifies competitive employment as a personal goal, (b) has a history of prior competitive employment, (c) has a minimal history of psychiatric hospitalization, (d) is judged on the basis of a formal vocational assessment to have good work skills. (**vocational rehabilitation**)

Conformance criteria. Currently unemployed patients who have a prior work history or who are currently looking for work either report participating in a program to help them find a job, or vocational rehabilitation is prescribed in the treatment plan. Currently employed patients report receiving assistance from a job coach or other employment specialist.

Conformance rates. For the unemployed inpatients, 30.7 percent either had vocational rehabilitation prescribed in their discharge plans and/or reported participating in a vocational program. Among the employed inpatients, 25 percent had a job coach. Combining employed and unemployed inpatients, 30.4 percent met the conformance criteria. Among the unemployed outpatients, 22.6 percent either had vocational rehabilitation prescribed in their treatment plans and/or reported participating in a vocational program. Of the outpatients who were employed, 21.7 percent had a job coach. Combining employed and unemployed outpatients, 22.5 percent met the conformance criterion. For the total sample, the vocational rehabilitation recommendation was more likely to

be met among younger patients (35.1% of age under 35, 29.2% of age 35–44, and 17.7% of age 45 and older; $\chi^2 = 17.3$, $p = 0.001$). The treatment of men was somewhat more likely than treatment of women to conform to this recommendation (28.4% and 21.1%, respectively; $\chi^2 = 4.2$, $p = 0.04$). Inpatients at the time of discharge were more likely to meet the criteria than were outpatients (30.4% and 22.5%, respectively; $\chi^2 = 4.6$, $p = 0.03$), as were State B inpatients compared with State A inpatients (30.4% and 22.5%, respectively; $\chi^2 = 4.6$, $p = 0.03$).

Service Systems.

Recommendation 29. Systems of care serving persons with schizophrenia who are high users should include ACT and ACM programs. (ACT/ACM)

Conformance criteria. Whether a patient was participating in a formal ACT or ACM program that meets formal standards for these program models could not be determined from the data. However, a series of ACT/ACM service characteristics could be determined from the patients' responses to questions about case management services. These criteria included receipt of case management services, having at least some visits by the case management team outside the office, seeing the case management team at least weekly, and receiving help from the case management team for at least four of seven life problem areas listed. Two criteria levels were set. For the first, narrow level, a patient has to report receiving services that met all four criteria. For the second, broad level, a patient has to report services meeting three of these criteria.

Conformance rates. Some 1.9 percent of inpatients met the narrow criterion at followup, and 8.6 percent the broad criterion. For outpatients, 2.2 percent met the narrow criterion, and 10.1 percent the broad criterion. It is not known what percentage of patients with schizophrenia should receive ACT or ACM. The only variable significantly associated with the criteria for ACT/ACM was urban/rural setting: Rural patients were more likely to be receiving services consistent with these criteria (17.0% and 10.1%, respectively; $\chi^2 = 4.6$, $p = 0.03$).

Discussion

This study is one of the first attempts to examine variations in patterns of care for persons with schizophrenia under usual treatment conditions in relationship to scientifically based treatment standards. As such, the findings should provoke both further study and action to try to improve care in the community.

Several strengths of the study provide confidence that its findings can form the basis for actions to improve care.

First, the sampling frame was broad and the sample large, lending confidence that the findings are reasonably representative of current practices. Second, the sampling procedure sought to reduce avoidable selection bias by randomly sampling treatment settings and patients within these settings. Third, standardized procedures were employed for abstracting medical record data and for interviewing subjects, and the response rate for this type of survey was substantial. Finally, the PORT procedures employed in establishing the Treatment Recommendations were quite rigorous (Lehman et al. 1998, this issue), and therefore the standards of care applied have substantial scientific validity.

At the same time, this study is an initial attempt to answer complex questions about how usual care measures up to scientifically derived standards of care, and it has a variety of limitations. The process of reducing the available data on treatment to dichotomous conformance/nonconformance ratings undoubtedly results in varying degrees of imprecision and reductionism. The data and criteria for prescription and dosages of antipsychotic medications are most precise. Far less precise are the data and criteria for judging the receipt of psychosocial interventions that meet the PORT recommendation criteria. For example, the conformance criteria for the recommendation on psychotherapy relied simply on whether treatment in this category was prescribed in the treatment plan. Most likely a substantial proportion of the services actually delivered in these psychosocial categories did not meet all criteria specified in the recommendations. Therefore, these estimates of conformance are probably inflated.

The following example illustrates the complexity of estimating treatment conformance and the methodological issues in this type of research that need further study. In assessing the conformance of treatment to Recommendation 17 on the use of adjunctive antidepressant medications, we used medical record and client interview items to ascertain the presence of depression (a chart diagnosis or high level of self-rated depression symptoms). Even assuming the accuracy of these data for ascertaining depression, it is not clear that all patients who meet this criterion need antidepressant therapy. The conformance rating provides the percentage of patients who meet the depression treatment recommendation criterion, but lacking is an empirical standard for the percentage of schizophrenia patients with comorbid depression who should receive an antidepressant. The efficacy data are clear that such adjunctive pharmacotherapy is helpful to many of these depressed patients, but because of individual variations in response and the course of depression and contraindications to the use of antidepressants, it is unlikely that 100 percent should receive the medication. This said,

it still seems likely that our finding that only 32.2 percent of inpatients and 45.7 percent of outpatients with comorbid depression received adjunctive antidepressants does point to undertreatment of this problem. Furthermore, it is difficult to reconcile the observed racial differences in the use of antidepressants on methodological grounds. It seems clear that there is a relative undertreatment of depression among minority patients with schizophrenia.

There is also the assumption that conformance to treatment standards reflects quality of care and produces better outcomes. We did not attempt to address this assumption in this study, although we may be able to examine some relationships between patterns of care and outcome in future analyses of the PORT data. Stated somewhat differently, it may not be assumed that conclusions about treatment efficacy derived from randomized clinical trials translate directly into effectiveness in usual practice (Lehman et al. 1995*a*). There are a variety of reasons for this so-called efficacy-effectiveness gap, including greater patient heterogeneity (for example, presence of comorbid conditions), greater practice heterogeneity (for example, different dosing practices), and greater patient noncompliance under usual practice conditions than in well-controlled clinical trials. The PORT Treatment Recommendations are best estimates based on the scientific data available, but their validity as quality of care indicators for usual care remains unconfirmed. In addition, it is not assumed that all patients should be treated in conformance with the recommendations. The rates of appropriate deviations from the Treatment Recommendations that represent optimal individual variations in care are not known.

There is a variety of strategies available for converting information on treatment into ratings of quality of care (Wells and Brook 1989). How sensitive our findings are to alternative methods for rating Treatment Recommendation conformity is not known. We employed a highly structured approach to estimating conformance. Trained, nonclinical record abstractors extracted concrete medical record information, such as type and dose of medications and treatments specified in the formal treatment plan. They did not provide conformance judgments. The conformance ratings were derived with electronic algorithms using the abstracted data and Client Survey items. The algorithms reflected the PORT investigators' best judgments about how conformance could be rated using the available data. The advantage of this procedure is that it avoids the problem of interrater variance in judgments when reviewing a medical record. The disadvantage is that it limits the types of data available for estimating conformance and precludes the type of sophisticated judgments about the quality of care that can be made

when highly trained clinician assessors read and integrate information from the entire record. Future research should examine conformance estimates using this latter, more standard quality of care methodology and should compare findings from other studies with those presented here.

Finally, the methods used were primarily cross-sectional. We focused on point-in-time treatment plans and did not attempt to look at changes in treatment over time. For example, we asked patients if they were depressed and evaluated their use of antidepressants based on the presence of depression. This analysis does not capture prior use of antidepressants among persons who were treated appropriately and responded, nor does it reflect failure to treat prior depressions, which subsequently resolved after considerable suffering.

With these caveats in mind, it is nonetheless worthwhile to note some of the major trends observed in the survey.

• For nearly all recommendations, the level of conformance is modest at best, with the exception of the rates of prescription of antipsychotic medications (acute neuroleptic and maintenance neuroleptic). For most recommendations, less than half the patients were receiving treatment that met the recommendation criteria.

• Overall, rates of conformance are lower for the psychosocial treatment recommendations than for the pharmacological recommendations. Data were not available to determine whether this relative lack of access to psychosocial treatments was due to the absence of these treatments in certain locales or to inadequate use of existing psychosocial services.

• Few consistent relationships were found between conformance with the recommendations and patient demographics. Younger patients were more likely to be offered psychotherapy and vocational rehabilitation. Of concern is the finding that minority patients were more likely to be on higher doses of antipsychotic medications and less likely to be prescribed an antidepressant when depressed.

• The discharge treatment plans of the inpatient sample received higher conformance ratings with the psychosocial treatment recommendations (psychotherapy, family, vocational rehabilitation) than did the treatment plans of outpatients. This finding suggests a tendency for psychosocial treatments to be prescribed at the point of discharge, but also suggests a low rate of followthrough. Failure to consider these important treatments for more stable outpatients may be a serious problem in ongoing community-based care.

• Patterns of recommendation conformance varied by location for the psychosocial treatments, but much less so for the pharmacological recommendations. Patients in

State B were more likely than those in State A to be prescribed a vocational intervention and less likely to be prescribed a family intervention or psychotherapy. The appropriate use of psychosocial interventions may be more vulnerable to local idiosyncrasies than are pharmacological treatments.

• The treatment of patients in rural areas was more consistent with the maintenance CPZ dose, adjunctive depression medications, psychotherapy, family, and ACT/ACM recommendations than was treatment of urban patients.

The findings of this survey need to be replicated in other samples and settings using variations on our methodology to evaluate their generalizability and robustness. We consider this study an early step in the development of quality-of-care research and standards in schizophrenia. As such, it moves the field forward. At the very least, it should stimulate more quality-of-care research in schizophrenia and also provoke concern about the quality of care currently afforded persons with schizophrenia in the United States.

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Commentary by: John M. Kane

Abstract

At a time when the knowledge base available to inform clinical practice is expanding rapidly and there is increasing pressure on clinicians for productivity and cost efficiency, it becomes increasingly difficult for practitioners to critically assimilate data from clinical trials, expert opinion, and personal experience. Such efforts as those undertaken by the Schizophrenia Patient Outcomes Research Team (PORT) are extremely helpful for clinicians from all disciplines involved in the care of patients with schizophrenia. Their report provides a thorough and thoughtful summary of what is known and with what degree of confidence, which helps guide both contemporary practice and future research. In addition, the PORT Client Survey provides a snapshot of clinical practice that highlights the need for more successful knowledge transfer and the development of systems that can better support optimum care.

The Schizophrenia Patient Outcomes Research Team (PORT) is to be complimented on a prodigious effort of evaluating and summarizing a vast body of literature and opinion. Such efforts are of enormous value to everyone