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IMPROVING THE EFFICIENCY OF OUTPATIENT TREATMENT FOR POSTTRAUMATIC STRESS DISORDER

Alan Fontana, Ph.D. and Robert Rosenheck, M.D.

ABSTRACT: This article uses service utilization and outcome data from the specialized posttraumatic stress disorder outpatient programs of the Department of Veterans Affairs to illustrate a method of evaluating the required intensity of outpatient psychiatric treatment. The analyses presented suggest that posttraumatic stress disorder treatment programs could offer intensive services for only the first four months of treatment, followed by a reduction in intensity to an average of only one visit per month, without loss of clinical gains. Workload projections suggest that applying such standards under a system of regulatory control would allow a 17%-51% increase in patients treated.

Major changes have taken place in health care delivery in the United States since the late 1960s. Health care providers in every system of care are increasingly accountable for holding down the costs of services while providing the most effective services to as many patients as possible (Gray, 1991). Many mechanisms have been developed to encourage more judicious use of health care resources, including novel organizational arrangements such as health maintenance organizations and preferred provider organizations, and innovative management techniques such as prospective payment and managed care reviews.

Attention to issues of accountability entails inevitable trade-offs between clinical and financial objectives. As described by Gray (1991),

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Alan Fontana and Robert Rosenheck are both with the Northeast Program Evaluation Center of the Department of Veterans Affairs, and with the Department of Psychiatry, Yale University School of Medicine.

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Address for correspondence: Alan Fontana, Ph.D., Northeast Program Evaluation Center (182), VA Medical Center, 950 Campbell Avenue, West Haven, CT 06516.

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> Much of the worry about the sweeping changes in health care comes from the fear that the concept of health care will be changed from that of a community service to that of a marketplace commodity. There is fear that, as a consequence, economic goals will be pursued at the expense of more humanitarian goals and values (p. 8).

Ideally, before modifications in clinical practice or in the management of health care programs are implemented, sound evidence would be presented to indicate that no adverse reactions would result. Such evidence has rarely been developed prior to implementing program or policy changes, whose major objective has been to increase the cost efficiency of care. In this article, we present data from a prospective study of the treatment of veterans suffering from posttraumatic stress disorder (PTSD) in Department of Veterans Affairs (VA) Medical Centers in support of a suggested modification in clinical practice—a modification that promises to increase efficiency without reducing effectiveness.

The treatment of Vietnam veterans suffering from PTSD has been a major priority of the VA health care system in recent years. The National Vietnam Veterans Readjustment Study (NVVRS) estimated that, as of 1988, 479,000 Vietnam veterans still suffered from PTSD (Kulka et al., 1990). Of this number, only 20% had ever used VA mental health services, and only 10% were currently using VA mental health services. These figures suggest that the vast majority of Vietnam veterans with PTSD have yet to receive VA services. Each year from 1989 through 1993, Congress appropriated special funds for PTSD programs and VA implemented new specialized programs to reach underserved veterans suffering from war-related PTSD. The outpatient components of VA's spectrum of specialized clinical services for PTSD are the PTSD Clinical Team (PCT) and Substance Use and PTSD Team (SUPT) programs. The PCTs and SUPTs offer a mix of traditional therapies for PTSD, including psychopharmacology, individual psychotherapy, cognitive behavioral therapy, exposure therapy, group therapy, rap groups, family therapy, vocational counseling, crisis intervention, stress management and social skills training.

Thoughtful management of the resources for these programs requires that they be used in such a way as to both optimize benefits to the veterans being treated and provide services to as many veterans as possible. As part of its national evaluation of specialized VA PTSD programs, the Northeast Program Evaluation Center conducted an intensive evaluation of the outcomes of PCT treatment. Analyses of these data suggested that there are two phases to outcome over the first year: a movement phase during the first four months in which significant improvements are observed; and a stabilization phase during the next eight months in which no further changes occur, but in which previously obtained gains are main-

tained (Rosenheck & Fontana, in press). To determine whether the first year stabilization phase extends into the second year, additional follow-up data were gathered during the second year after program entry. No additional improvement was observed during the second year of treatment, suggesting that, in this sample of severely troubled veterans, a relatively brief period which is productive of clinical improvement is followed by an extended period during which little change occurs (Fontana, Rosenheck & Spencer, 1993).

These results suggest the conclusion that, after four months of treatment, therapeutic efforts with these veterans stabilize their clinical status but do not result in further improvement. On the basis of these outcome data, it could be proposed that PCTs and SUPTs specifically, and psychiatric outpatient programs generally, might offer intensive therapy for only the first four months of treatment, during which time clinical change is most likely to occur. During the subsequent period of time, the programs could be designed to offer the least intensive level of treatment sufficient to maintain the previously obtained gains. A reduction in treatment intensity during the stabilization phase could free a substantial amount of clinicians' time to handle additional, as yet untreated, patients. Such a proposal, however, gives rise to two questions: 1) with less intensive treatment during the stabilization phase, would patients experience a loss of previous gains, and more specifically 2) at what level should the intensity of treatment be set during the stabilization phase? We conducted an extensive series of analyses to determine whether programmatically lowering the intensity of treatment during the stabilization phase would be likely to affect treatment outcomes adversely.

METHODS

Evaluation of specialized PTSD outpatient programs was initiated in September 1989. Six PCT sites were enlisted to participate in an intensive evaluation of treatment outcome: Boston, Jackson, Kansas City, New Orleans, Providence, and San Francisco. These sites were chosen on the basis of three criteria: they were headed by national experts in PTSD assessment and treatment; they had a track record of competence in research and data collection; and they represented a geographical diversity nationwide.

Subjects

A total of 554 male veterans participated in the outcome study: 476 served in Vietnam and 78 served in World War II and/or Korea. They averaged 45.7 (SD=8.5) years of age, with 12.8 (SD=2.5) years of education.

Fifty percent were currently married. Ethnically, 72.7% were white, 22% were African-American, and 5.3% were of other ethnicity.

Schedule of Data Collection

At the time of program entry, a clinician surveyed each veteran's demographic background, symptoms, and social functioning with a structured interview. In addition, an independent evaluation assistant made a more extensive survey of these areas for each veteran by structured interview at intake and at four, eight, and 12 months later (Fontana, Rosenheck, & Spencer, 1993). A 24-month follow-up was added subsequently at three of the sites (N=149).

Measures

Veteran's Characteristics. Veterans' demographic characteristics that were assessed included age, war era (Vietnam vs. nonVietnam), race (African-American vs. nonAfrican-American), years of education and marital status (married vs. nonmarried). Traumatic exposure was represented by combat exposure (Laufer, Yager, Frey-Wouters, & Donnellen, 1981) and childhood physical and sexual abuse. Current social support was measured by the availability of someone from whom to borrow money and from whom to receive a ride, as well as the number of people to whom the veteran felt emotionally close. VA disability status was measured by service connection for PTSD and potential for secondary gain (not service connected and not applying for benefits=0, service connected and not applying for benefits=1; applying for benefits=2). Whether veterans were prescribed psychotropic medication or not was included, as were various pathways to the PCT: referral from VA inpatient treatment, VA outpatient treatment, and from outside the VA system. The veterans' orientation to treatment was measured by their own reported need for treatment (not at all=0 to extremely=4).

Clinicians' Characteristics. Clinicians' characteristics were represented in terms of their race (African-American or white), gender, professional discipline (psychiatrist, nurse, psychologist, and social worker) and veteran status (Vietnam veteran and veteran other than Vietnam).

Amount of Treatment Received. At each assessment, veterans reported the number of outpatient sessions and days of inpatient hospitalization that they received for mental health services in the preceding period. Outpatient sessions were categorized into those received from the PCT and those received from nonPCT sources.

In addition to veterans' reports, clinicians reported the number of PCT sessions they delivered and whether veterans were terminated or not at the

time of each report. Clinicians' reports were highly correlated with veterans' reports: .76 for the first four months, and .69 for the stabilization phase. In order to minimize missing data, veterans' reports were regressed on clinicians' reports to generate a prediction equation for estimating veterans' reports when these reports were missing. In this way, the amount of PCT treatment received during the two periods of the first year were based upon the largest number of veterans and utilized the maximum amount of data available. This procedure provided the most representative estimates possible of the amount of PCT treatment received.

Measures of Outcome: Psychometric Measures. Two sets of outcomes were examined: psychometric measures based on structured interviews and clinician ratings of improvement. The first set assessed change from baseline to four months, eight months and one year on 14 psychometric measures of symptoms and social functioning. The rating period for the psychometric measures was either the preceding 30 days or four months, whichever corresponded more closely with the period used for the intake assessment. Psychometric measures included the Mississippi Scale for Combat-Related PTSD (Keane, Caddell, & Taylor, 1988); the Guilt Inventory (Laufer & Frey-Wouters, 1988); the Brief Symptom Inventory (Derogatis & Melisaratos, 1983); the psychiatric symptom, alcohol, drug, family, legal, and medical indices from the Addiction Severity Index (McLellan et al., 1985); having made a suicide attempt or not; violent behaviors and thoughts (Kulka et al., 1990); social participation (Katz & Lyerly, 1963); the number of different people to whom the veteran felt emotionally close; and the number of days the veteran worked for pay during the past month.

Measures of Outcome: Clinicians' Improvement Ratings. The second set of outcomes was clinicians' ratings of improvement at the time of their last contact with each veteran that occurred between four months and the end of the first year. At each contact, clinicians were asked to rate the amount of change from the beginning of treatment (much worse=1 to much better=5) for as many veterans as the clinicians believed had each of 15 problems. These problems were defined as difficulties with the basic necessities of life, financial support, alcohol use, drug use, employment, the legal system, family/interpersonal relationships, social activities, medical condition, PTSD (including four specific aspects: reliving of experiences, numbing of emotions, violent outbursts, and sleep disturbances), and other psychiatric conditions.

Data Analysis

The analytic strategy was to divide the sample into two groups: those who received high intensity PCT services during the stabilization phase

and those who received low intensity services during this period. Differences between the groups in the amount of clinical change that occurred during the stabilization phase (fourth through twelfth month of treatment) were identified using factorial, repeated measures analyses of covariance (ANCOVA).

High intensity and low intensity treatment groups were defined in three ways. First, as described above, using the individual veteran as the unit of analysis, the 554 veterans in the study were divided at the median on the basis of the number of PCT sessions they received during the stabilization phase of treatment. Second, using program site as the unit of analysis, the six sites were divided into two groups based on the average intensity of services they provided during the stabilization phase. This second approach minimizes the influence of any selection biases that may have operated at any particular site. Finally, in a test of a proposed standard level of intensity, veterans who received no more than an average of one PCT session per month during the eight-month stabilization phase (or a total of eight contacts) were compared with those who received a greater number of sessions. The empirical basis for the selection of this particular criterion for a standard level of intensity is explained below in the presentation of the results.

Since veterans receiving high and low intensity treatment during the stabilization phase might be expected to differ clinically at baseline, all analyses of outcome were conducted with the addition of a large number of covariates that might affect outcome. Veterans' characteristics that were used were age, war era, race, education, marital status, combat exposure, childhood abuse, current social support, service connection for PTSD, potential for secondary gain, psychotropic medication, source of referral, and need for treatment. Clinicians' characteristics included race, gender, professional discipline, and veteran status. For the psychometric change measures, the list of covariates also included the baseline levels of all outcome variables. For each of the clinicians' ratings of improvement, the rating at four months was included as a covariate.

It is also possible that veterans who received low intensity services during the stabilization phase received higher intensity services before entering PCT treatment, during the first four months of PCT treatment, and/or during the second year of PCT treatment. A separate series of analyses of variance was conducted, therefore, to ascertain whether the low intensity group received consistently lower levels of services throughout the period of treatment. Empirical data on levels of service use at various times during the course of treatment were also used to propose a standard level of treatment intensity that could be applied during the stabilization phase in the future.

RESULTS

Consistency of High and Low Intensity Utilization by Veterans

Low and high intensity groups of veterans received comparable amounts of outpatient treatment prior to beginning PCT treatment, comparable treatment from nonPCT sources following the first four months of PCT treatment, and comparable inpatient treatment throughout the two-year period (Table 1). Low intensity veterans received more nonPCT treatment than high intensity veterans during the first four months of PCT treatment. When PCT and nonPCT treatment are summed for this period, low intensity veterans received a total of 4.41 sessions per month compared to 5.51 sessions per month for high intensity veterans.

TABLE 1
Mean[a] Number of Outpatient Sessions and Inpatient Days per Month According to Amount of Treatment During the Stabilization Phase

	Stabilization Phase		
	Low Intensity $N = 271$	*High Intensity* $N = 263$	*Sig.*
Outpatient			
Prev. 6 mo.	2.14 (3.97)	1.87 (3.40)	n.s.
PCT			
1st 4 mo.	1.72 (1.64)	4.05 (2.87)	0.0001
4 mo. to 1 yr.	0.44 (0.22)	3.44 (2.37)	0.0001
2nd year[b]	0.23 (0.51)	0.89 (0.91)	0.0001
NonPCT			
1st 4 mo.	2.71 (5.08)	1.46 (3.09)	0.01
4 mo. to 1 yr.	1.52 (2.72)	1.40 (2.97)	n.s.
2nd year[b]	0.69 (2.08)	0.40 (1.08)	n.s.
Inpatient			
Prev. 6 mo.	2.40 (6.36)	1.77 (4.98)	n.s.
1st 4 mo.	0.96 (3.58)	0.57 (2.12)	n.s.
4 mo. to 1 yr.	0.95 (2.88)	0.86 (2.78)	n.s.
2nd year[b]	0.20 (0.91)	0.30 (0.97)	n.s.

[a]Standard deviations in parentheses.
[b]Based on three sites; $N = 149$.

The group that received low intensity services during the stabilization phase, received less treatment consistently throughout the two-year period. It is clear, therefore, that there was no substitution operating such that veterans who received low intensity services during the stabilization phase received especially high levels of services at some other time.

TABLE 2
Mean[a] Number of Outpatient Sessions and Inpatient Days per Month According to Amount of Treatment During the Stabilization Phase by Site

	Stabilization Phase		
	Low Intensity Site *N = 287*	*High Intensity Site* *N = 267*	*Sig.*
Outpatient			
Prev. 6 mo.	1.95 (3.25)	2.00 (4.04)	n.s.
PCT			
1st 4 mo.	1.87 (1.31)	3.91 (3.13)	0.0001
4 mo. to 1 yr.	1.24 (1.50)	2.77 (2.69)	0.0001
2nd year[b]	0.55 (1.13)	0.70 (1.37)	n.s.
NonPCT			
1st 4 mo.	2.30 (4.48)	1.67 (3.58)	n.s.
4 mo. to 1 yr.	1.55 (3.06)	1.36 (2.64)	n.s.
2nd year[b]	0.68 (1.95)	0.35 (0.95)	n.s.
Inpatient			
Prev. 6 mo.	2.03 (4.15)	2.12 (6.89)	n.s.
1st 4 mo.	0.87 (2.74)	0.95 (2.90)	n.s.
4 mo. to 1 yr.	0.95 (2.61)	0.86 (3.04)	n.s.
2nd year[b]	0.30 (0.94)	0.32 (1.16)	n.s.

[a]Standard deviations in parentheses.
[b]Based on three sites; $N = 149$.

Consistency of High and Low Intensity Delivery by Sites

High intensity sites delivered more than twice as many sessions per veteran as low intensity sites during the first four months as well as during the stabilization phase (Table 2). The two groups of sites did not differ significantly in their treatment delivery on average during the second year. Also not differing significantly between the groups of sites was the amount of nonPCT outpatient treatment and the amount of inpatient treatment received during the two and one-half years covered by the study.

Empirical Basis for Selecting a Standard Target Level of Intensity

The mean number of PCT sessions for the low intensity group of individual veterans was 0.44 per month during the stabilization phase and 0.23 per month during the second year of treatment. The mean number of PCT sessions for the high intensity group was 3.44 per month during the stabilization phase and 0.89 per month during the second year of treatment. In terms of the classification of sites, low intensity sites delivered a mean of 1.24 sessions per month during the stabilization phase and 0.55 per month during the second year. High intensity sites delivered a mean of 2.77 sessions per month during the stabilization phase and 0.70 sessions per month during the second year. In the absence of positive gains after the first four months and in view of the observed drop to less than one session per month during the second year in both the high intensity group of veterans and the high intensity sites, we propose a target level of intensity of one session per month on average (or a total of eight sessions) as a standard intensity level for veterans during the stabilization phase. This represents essentially a shift of the naturally occurring second-year level of treatment intensity for the high intensity veterans and sites backward in time to the fifth month of treatment.

Baseline Levels for High vs. Low Intensity Groups and Sites

Levels of symptoms and social functioning were compared by analysis of variance for each high and low intensity classification at each of two baselines: at intake, representing the beginning of treatment: and at four months, representing the beginning of the stabilization phase. The results of these comparisons for the first classification (by median level of contacts for individual veterans during the stabilization phase) revealed that only one out of a total of 28 comparisons was significant, a result that statistically could have been due to chance.

The results of the analyses according to the second classification (by site) produced 10 significant comparisons. In every case, the low intensity sites saw veterans who were *more* symptomatic, *more* guilty, *more* prone to

violence, and participated *less* in social activities than veterans seen at high intensity sites.

Finally, the results of the third classification (by the standard of eight sessions) followed the same pattern as the first classification. All these analyses were consistent in showing that veterans receiving low intensity treatment were not less sick than veterans receiving high intensity treatment, and that veterans treated at low intensity sites were in fact sicker than those treated at high intensity sites.

Outcomes for High vs. Low Intensity Groups and Sites

Repeated measure ANCOVAs revealed few significant differences in outcomes between high and low intensity treatment by any of the three classifications. The first classification (by the median level of contacts during the stabilization phase) yielded two significant differences each for psychometric changes and improvement ratings. Among the measures of psychometric change, the low intensity group achieved greater gains in family adjustment and regressed toward a common mean in number of days worked. With regard to improvement ratings, high intensity veterans were judged to have improved more in participation in social activities and in alleviation of numbing symptoms.

The second classification (by site) produced no significant differences for either psychometric measures or improvement ratings. The third classification (veterans with no more than one session per month vs. all others) yielded three significant differences; the same findings for psychometrically measured family adjustment and for clinically rated improvement in social activities and numbing symptoms as with the first classification. The close correspondence in results between the first and third classifications is not surprising, because only a few veterans were classified differently by the two procedures.

For the most part, these analyses indicate no differential gain or deterioration between high and low intensity groups. The few significant differences are divided as to which group they favored. Taken as a whole, therefore, these results do not indicate that either individual veterans receiving less treatment or veterans treated at sites that delivered low intensity services showed either less gain or greater clinical deterioration.

Satisfaction with Services

The relationship of satisfaction with treatment to the amount of treatment received was examined through multiple regression analysis in which the same covariates were included as above. Veterans' satisfaction with PCT treatment at the end of one year was regressed on the number of PCT sessions during the stabilization phase, as well as on the difference be-

tween the number of PCT sessions in the first four months and the stabilization phase. These analyses revealed that satisfaction was not related significantly to either the number of stabilization sessions or to the difference between the number of sessions in the first four months and the stabilization phase. We interpret these results to mean that, in all likelihood, veterans' satisfaction with PCT treatment was not affected materially by either the amount of treatment in the stabilization phase or the change in amount of treatment from the first four months to the stabilization phase.

DISCUSSION

Earlier analyses of the outcome of PCT treatment showed that there was significant change in psychometric measures of outcome as well as in improvement ratings by clinicians during the first four months of treatment. These findings are consistent with a well-established body of research showing that time-limited therapy is no less effective than time-unlimited therapy (e.g., Gurman & Kniskern, 1978; Luborsky, Singer, & Luborsky, 1975). A correct response to these data would not entail any alterations in existing clinical practice in the first four months of treatment. During this period of treatment, clinicians and veterans would be allowed to establish what seems to them to be the optimal service pattern. Extensive internal analyses of the data do suggest, however, that the frequency of clinical contact could be reduced to an average of one contact per month after the first four months of program involvement without a loss of clinical effectiveness.

It is important to note that the practice standard suggested here does not represent an absolute service ceiling for every individual veteran. We most explicitly do not intend that every veteran would be excluded from having more than eight sessions between the fifth and twelfth month after program entry. Rather, we suggest that the standard would be applied on average to the work of each clinical team as a whole. Thus, teams that offer more than one session per month on average during the stabilization phase would be identified and encouraged to review their practice styles for modification.

It is useful to distinguish between methods of managed care and regulatory control in locating our proposal within the current debate concerning the involvement of third-party payers in shaping the delivery of health care. Managed care involves the review and authorization of treatment regimens for individual patients by individual practitioners on a case-by-case basis (Gray & Field, 1989). As Berenson (1991) has pointed out, managed care attempts to "alter the way medicine is actually practiced"

(p. 110). Regulatory control, in contrast, involves the application of rules of practice uniformly and consistently to all participants in a program. It attempts to correct dislocations in service delivery without infringing on the planning of treatment regimens at the level of the individual patient and practitioner.

The proposal that we have made in this report is in the tradition of regulatory control rather than managed care. We propose to leave it to the veterans and their clinicians to determine how to best utilize the eight sessions in the stabilization phase. Further, we envision the monitoring of compliance with the target standard to be evaluated at the site level, so that the mean number of sessions per veteran at each site would be the criterion for compliance. This standard would allow leeway for some veterans to be treated more and some less intensively than the standard amount, depending upon individual circumstances.

It is possible to estimate the savings that could be realized from the adoption of two such standards in terms of the number of additional veterans who could be treated if the standards were to be implemented nationally. These estimates are only approximate because the evaluation samples were not drawn randomly from the entire population of veterans in the specialized PTSD outpatient programs. Precise determination of the nature and benefits of an optimal standard would require a randomized clinical trial of various amounts and mixes of group and individual treatment. The evaluation samples are large enough, however, to provide an informed projection of the magnitude of savings that could reasonably be expected if some such standard were to be adopted.

There were few differences in outcomes between high and low intensity treatment.

Derivation of the estimates from the available data bases require making several assumptions and adjustments. A detailed explication of the derivation is available from the authors. Here we present the end results of interest for two different standards of eight sessions of treatment during the stabilization phase. The first standard mirrors the actual mix observed in the data and consists of four individual and four group sessions. Selection of this standard was based on the assumption that retention of the same mix of individual and group contacts would be most consistent with the current clinical expectations of clinicians and veterans. The second standard consists of eight group sessions only. Selection of this standard was based on the assumption that, if veterans are prepared properly at the beginning of treatment, they would find group contacts to be acceptable

as a continuing arrangement. These two standards represent the lower and upper bounds of the savings that could be expected, given the underlying rationales for the allocations. This sensitivity analysis projects that 2,877 and 8,751 additional veterans could be treated in the specialized PTSD outpatient programs under the first and second standards respectively. These additional veterans represent increases of 17% and 51% in new workload made possible by the reallocation of clinicians' time.

There are two issues that became apparent during the course of the data analyses that are worth discussion. One is the fact that severity of illness does not determine the intensity of services. The question arises, then, as to what does determine intensity of services? Our impression is that intensity is shaped mostly by clinicians' beliefs concerning the efficacy of treatment on the one hand, and competing demands on their time due to their own interests and to the organization's interests on the other hand.

A second issue concerns the identification of individual veterans who would benefit most from treatment. It would aid the efficient allocation of clinicians' time enormously if those who would improve could be distinguished from those who would not. We employed a large number of demographic and clinical characteristics as covariates in our analyses. Unfortunately, the results for outcome were virtually unchanged when we included these covariates and when we included no covariates. This suggests that these various characteristics are of little use in identifying subgroups of veterans who differ in response to treatment, and that we must look to some unmeasured factor or set of factors.

Our candidate for such a factor is veterans' perceptions of self-efficacy in solving their problems. We believe that the veterans who improve are those who are oriented to solving their problems themselves. It is likely that they find some help in doing so from mental health professionals fairly early in treatment and then they embark on their own course of correction. We believe that the veterans who do not improve are those who believe that they are powerless to solve their own problems and must rely upon mental health professionals to solve their problems for them. These veterans believe that they are doing their part by presenting themselves for treatment and by participating in treatment in the manner and for as long as prescribed by their clinicians. It is important to note that this speculation applies mainly to patients with a chronic rather than an acute disorder, and that its validity remains to be demonstrated empirically.

Finally, while the present study deals with the outpatient treatment of veterans with PTSD specifically, the findings have applicability potentially to the outpatient treatment of patients with chronic psychiatric disorders more generally. Examination of outcome data for these patients over the

short and longer term may well reveal a similar magnitude and sequence of improvement. If so, efficiency of service delivery would make the consideration of a similar standard of treatment intensity an appealing option.

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