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Enhancing outcome for potential treatment failures: Therapist–client feedback and clinical support tools

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Abstract
Enhancing treatment outcomes for clients who are predicted to deteriorate before leaving treatment has important implications for quality of client care. The effects of three interventions aimed at reducing client deterioration were examined in a sample of 1,374 clients whose outcome was contrasted across experimental groups and with a no-feedback/archival control group consisting of data from 1,445 clients. Results indicated that feedback to therapists reduced deterioration rates and improved outcome across clients, especially those predicted to be treatment failures. Therapist feedback effects were enhanced by the use of prompts to action based on a clinical support tools manual but not by the provision of direct feedback to clients.

Patient-focused research seeks to investigate treatment effects at the level of the individual patient by modeling expected courses of recovery and providing this information to therapists during the course of treatment (Howard, Moras, Brill, Martinovich, & Lutz, 1996). The delivery of progress information allows real-time adjustments to be made while treatment is occurring. Modifying treatment activities to improve outcome is important because, although the beneficial effects of psychotherapy are well documented, a minority of clients (about 8%) deteriorate while in therapy and end treatment with negative change (Lambert & Ogles, 2004; Mohr, 1995). A program of patient-focused research aimed at reducing deterioration rates has been undertaken by Lambert et al. (2001); Lambert, Whipple, Vermeersch, et al., (2002). These researchers found that providing therapists with feedback improved outcomes for clients predicted to leave treatment deteriorated. In a meta-analysis of such studies, Lambert et al. (2003) found that feedback (vs. no feedback) yielded an effect size of 0.40, with deterioration rates decreasing from 21% to 13% and reliable/clinically significant change rates increasing from 21% to 35%. Additionally, feedback resulted in more cost-effective service delivery independent of any direct attempt to alter therapy dosage. Clients who were progressing as expected toward a good outcome (i.e., majority of clients) attended significantly fewer sessions when feedback was given than those whose therapists did not receive feedback, whereas clients at risk for deterioration whose therapists received feedback attended more sessions.

Although feedback resulted in dosage changes, relatively large treatment effects, and substantial reductions in deterioration, not all feedback clients predicted to deteriorate achieved a positive outcome. To further develop the therapeutic effect of the feedback intervention, two additional strategies were examined. Whipple et al. (2003) determined that a strengthened feedback condition, one in which therapists were given information regarding the client's assessment of the therapeutic relationship, motivation for change, and social support (clinical support tools [CSTs]), further improved outcome.

The CSTs were developed in conjunction with a formalized decision tree as an evidence-based method of leading therapists through a hierarchy of decisions and solutions based on how clients responded to the measures. The choice of which constructs to assess, as well as how to arrange them in the decision tree, was derived from a review of the psychotherapy outcome literature. More than 100 published articles supported the idea of the

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therapeutic relationship as an important predictor of final outcome. Specifically, research suggests that patient ratings of the therapeutic relationship between Sessions 3 and 5 provide reasonable predictions of treatment outcome (Horvath & Symonds, 1991). In addition to the therapeutic alliance, research suggests a client's readiness to change may predict good therapy outcome (Prochaska & Prochaska, 1999) as well as early termination (Brogan, Prochaska, & Prochaska, 1999). Suggestions to match therapy techniques with the unique readiness for change that a client exhibits have yielded increased interest in this construct as an important moderator of change. Finally, empirical research suggests that social supports are important as both mediators and moderators of recovery (Cohen, Underwood, & Gottlieb, 2000). Because clients spend only a fraction of their life in therapy and are dependent on their social network as a central means of coping with stressors, social support was seen as an important area for problem solving with cases that are predicted to have a negative treatment response. The decision tree directed the therapist to first consider the working alliance, then motivation and social support, and finally diagnostic implications for a medication referral. Cut scores on each of the first three areas of functioning indicated whether an area suggested a problem needing clinical attention.

Results with the CST intervention indicated that providing therapists with the CSTs and decision tree yielded a significant incremental effect over progress feedback alone for improving client outcome for those at risk for deterioration (Whipple et al., 2003). The combined intervention reduced deterioration rates among these potential treatment failures from 21% to 8% and increased success rates from 21% to 50%. However, the study was limited by the failure to assign clients to the CST condition on a random basis, leading to the possibility of a selection bias (on the part of therapists who were free to use CSTs when and if they deemed it appropriate).

An additional attempt to strengthen the therapist feedback condition was undertaken by Hawkins, Lambert, Vermeersch, Slade, and Tuttle (2004), who examined the effect of providing clients with ongoing feedback regarding their progress in psychotherapy. Although there have been very few studies assessing the impact of providing clients with feedback on their treatment progress, the procedure has been used with HIV patients (Gustafson et al., 1999) and drug- and alcohol-abusing populations (Agostinelli, Brown, & Miller, 1995). Hawkins et al.'s results suggested that giving clients feedback improved outcome for those predicted to have a negative outcome as well as those on track for a good outcome. Specifically, those clients in the treatment condition who received feedback and whose therapists received feedback had better outcomes on average than those in the therapist feedback or no-feedback (treatment-as-usual) conditions. Improved outcomes occurred without an increase in number of sessions consumed by the feedback group. Unfortunately, the Hawkins' study did not use the CST intervention and included a relatively small number of clients.

The effect of providing client progress feedback to therapists has been replicated several times, but the effects of client feedback and CST feedback interventions have not. The present study sought to assess the benefit of using CSTs and providing feedback to clients and therapists while remedying some methodological shortcomings in earlier analyses. Specifically, our primary goal was to examine the benefit of providing clients with progress feedback compared with therapist feedback only. Further, we sought to replicate the earlier CST finding, with the important addition of random assignment to CST treatment condition. Client outcome in these experimental groups was compared with client outcome in a no-feedback/archival control group (i.e., a treatment-as-usual control). No-feedback/archival control clients ($n = 1{,}445$) from three prior feedback studies conducted in the same center were included from the original data bases (Lambert et al., 2001; Lambert, Whipple, Vermeersch, et al., 2002; Whipple et al., 2003). These clients had been randomly assigned to a no-feedback (treatment-as-usual) condition that provided a control condition for examining the effects of feedback in the preceding studies.

The current sample did not include random assignment to a no-feedback (treatment-as-usual) condition because the Counseling Center staff, convinced by the evidence favoring therapist feedback compared with treatment as usual, changed routine practice patterns in the center to include the routine use of feedback to therapists. Because the archival database used to estimate the impact of treatment as usual was very large, collected over a 4-year period (1999–2003) and derived from random assignment in the three prior feedback studies conducted at the center, it was considered a reliable benchmark for comparisons with the experimental conditions.

For clients identified as potential treatment deteriorators, the following hypotheses were tested:

1. Clients whose therapists receive feedback on the session-by-session progress in treatment as measured by the Outcome Questionnaire-45 (OQ-45) will have better outcomes compared with clients those therapists did not receive this

information (i.e., clients in the no-feedback/archival control condition).

2. The experimental condition in which both clients and their therapists receive feedback on session-by-session progress data as measured by the OQ-45 will have better outcomes than the group in which only therapists are given this OQ-45 feedback information.
3. Clients whose therapists receive CST feedback (i.e., information on the client's assessment of the therapeutic alliance, social support, and readiness for change) in addition to weekly progress feedback based on the OQ-45 will fare better than those whose therapists do not receive this CST information.

Method

Design

The study design is somewhat complex, using random assignment, benchmarking, and a quasi-experimental design. Figure 1 is a detailed representation of the design procedures. The OQ-45 feedback comparison involved random assignment to one of two OQ-45 feedback groups (therapist OQ-45 feedback and client–therapist OQ-45 feedback). These two randomly assigned groups were compared with a no-feedback/archival control benchmark. A quasi-experimental design was used to assess the effect of CST feedback information because, although clients were randomly assigned to two groups (CST feedback and no CST feedback), attrition within these groups precluded the inclusion of all patients randomly assigned to the two conditions. Implications are considered later here, but these details are presented now to facilitate ease of understanding of design procedure and subsequent results.

Participants

A total of 1,705 adult clients seeking treatment at a large university counseling center were invited to participate as part of the center's intake procedure. Of these, 1,374 clients chose to participate. Combining the archival and new samples yielded a total sample of 2,819 clients, whose outcome was the basis for the present study. Of these 2,819 clients, 297 clients did not return for a second session and 53 did not complete the outcome measure more than once, yielding a subset of 350 clients who did not have a second outcome measure. To examine the most conservative estimate of treatment effects, and because treatment length was indeterminate (see Kendall, Holmbeck, & Verduin, 2004), all 2,819 clients who consented to be studied were included in the analysis; the pretest score was carried forward and used as the posttest score for the 350 clients with a single observation on the outcome measure.

The sample ranged in age from 17 to 58 years ($M = 22.65$, $SD = 3.68$) and was composed of 1,804 (64%) women and 1,015 (36%) men. Broken down by race/ethnicity, the group included 2,482 (88%) Caucasians, 141 (5%) Hispanics, 28 (1%) Asians, 56 (2%) Pacific Islanders, 28 (1%) African Americans, and 28 (1%) Native Americans; 56 (2%) were identified as "other." Clients in the clinic are

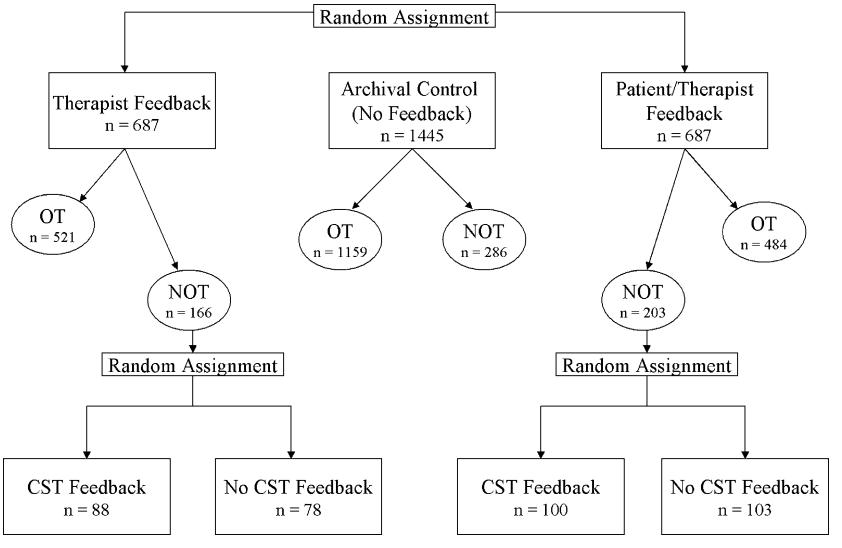

Figure 1. Flow diagram showing initial randomization of 1,394 clients to treatment conditions that were compared with each other and 1,445 clients drawn from an archival database. After entering treatments, clients' progress was deemed either on track (OT) or not on track (NOT) based on their trajectory of recovery. NOT clients were then randomly assigned to experimental conditions in which a clinical support tool (CST) manual guided interventions or was not used.

routinely diagnosed by the treating clinician, and no attempt was made to have clients undergo structured diagnostic interviews. Seventy-one percent of the clients were diagnosed, whereas the remaining 29% had their diagnosis deferred at intake and never had a formal diagnosis recorded in the database. Because the reliability of diagnoses was unknown, they are provided for descriptive purposes only. Formal clinical diagnoses included mood disorder ($n = 620$ [22%]), adjustment disorder ($n = 282$ [10%]), anxiety disorder ($n = 254$ [9%]), eating disorder ($n = 113$ [4%]), V-code diagnosis ($n = 677$ [24%]), and other ($n = 873$ [31%]).

Clients were assigned to therapists through routine intake procedures regardless of experimental group. Therapists were 72 staff consisting of 28 doctoral-level psychologists and 44 doctoral students in training. Therapists used a variety of treatment orientations; most subscribed to an integration of two or more systems. The most common orientations were cognitive–behavioral ($n = 30$ [42%]), psychodynamic–interpersonal ($n = 15$ [21%]), humanistic–existential ($n = 11$ [15%]), behavioral ($n = 4$ [6%]), and other ($n = 12$ [17%]). Therapists were either salaried faculty of the university or students in training and did not receive a direct fee for the services provided.

Clients who had been assigned to no-feedback/archival treatment control groups ($n = 1{,}445$) were seen by the same cohort of doctoral-level therapists as those in the present experimental conditions. Trainee-level therapists in the experimental conditions had similar training and backgrounds as trainee therapists in the no-feedback/archival control conditions, but there was little overlap in trainee therapists who participated in the current study. Control clients had similar demographics and diagnoses as those in the experimental condition. Control clients ranged in age from 17 to 57 years ($M = 22.63$, $SD = 3.68$) and included 954 (66%) women and 491 (34%) men. Broken down by race/ethnicity, the group included 1,257 (87%) Caucasians, 72 (5%) Hispanics, 15 (1%) Asians, 15 (1%) African Americans, 28 (2%) Pacific Islanders, and 15 (1%) Native Americans; 43 (3%) identified as "other." Seventy-two percent of the clients were diagnosed, whereas the remaining 28% had their diagnosis deferred at intake and never had a formal diagnosis recorded in the database. Formal clinical diagnoses included mood disorder ($n = 318$ [22%]), adjustment disorder ($n = 159$ [11%]), anxiety disorder ($n = 116$ [8%]), eating disorder ($n = 58$ [4%]), V-code diagnosis ($n = 332$ [23%]), and other ($n = 462$ [32%]).

Measures

Outcome measure. Psychological dysfunction was assessed during and after treatment using the OQ-45 (Lambert, Morton, et al., 2004), a 45-item self-report instrument designed to measure client progress repeatedly (before each session) throughout the course of therapy. Client progress is monitored along three primary dimensions: (a) subjective discomfort (e.g., anxiety and depression: "I feel blue"), (b) interpersonal relationships (e.g., "I feel lonely"), and (c) social role performance (e.g., "I have too many disagreements at work/school"). Possible scores range from 0 to 180; higher scores reflect more severe distress. The OQ-45 total score, a global assessment of client functioning, was used in the present study.

Previous studies have provided information about the psychometric properties of the OQ-45. The internal consistency of the OQ-45 was $\alpha = .93$, and the 3-week test–retest reliability was .84 (Lambert, Morton, et al., 2004). Concurrent validity of the OQ-45 has been demonstrated through correlates with a variety of scales (e.g., Symptom Checklist-90-R [Derogatis, 1983], $r = .78$; Beck Depression Inventory [Beck, Ward, Mendelson, Mock, & Erbaugh, 1961], $r = .80$; Casper-13F [Snell, Mallinckrodt, Hill, & Lambert, 2001], $r = .77$), The development of norms for the OQ-45 was based on data collected nationally (Lambert et al., 1996; Umphress, Lambert, Smart, Barlow, & Clouse, 1997) and indicates that it discriminates well between client and nonclient samples. Using formulas developed by Jacobson and Truax (1991), clinical and normative data for the OQ-45 were analyzed by Lambert, Morton, et al. (2004) to provide cutoff scores for the reliable change index (14 points) and clinically significant change (dysfunctional/functional cutoff, 64/63). Support for the validity of the OQ-45's reliable change and clinical significance cutoff scores have been reported by Lunnen and Ogles (1998), Beckstead et al. (2003), and Bauer, Lambert, and Nielsen (2004). This research suggests that the Jacobson–Truax formulas provide a sound basis for estimating cutoff scores and that classification of change based on other measures results in considerable consensus with OQ-45 classifications.

CST measures. The CST measures were selected to provide a quantitative analysis of the quality of the therapy relationship, nature of motivation, and strength of social supports. In addition to having adequate psychometric properties, the naturalistic nature of this study required that they be brief. The Revised Helping Alliance Questionnaire (HAq-II) is

a 19-item self-report measure of the alliance between client and therapist (Luborsky et al., 1996). Internal consistency (Cronbach's $\alpha = .90$) and 3-week test–retest ($r = .78$) have been reported to be high across a variety of samples (Luborsky et al., 1996). Concurrent validity estimates are also adequate; correlations between the HAq-II and the California Psychotherapy Alliance Scales range between .59 and .71, depending on the session assessed.

The Stages of Change Scale (SCS) is a measure of a client's readiness to change as based on the stage model developed by McConnaughy, Prochaska, and Velicer (1983). Eight items, scored on a 5-point Likert scale, measure each stage. The stage with the highest overall score was used to determine the client's readiness to change. Cronbach's alpha internal consistency estimates for the SCS range from $\alpha = .79$ to .84 depending on the patient population (McConnaughy et al.)

The Multidimensional Scale of Perceived Social Support (MSPSS) is a 12-item inventory designed to measure three sources of perceived social support: family, friends, and significant others (Zimet, Dahlem, Zimet, & Farley, 1988). The MSPSS is psychometrically sound with internal reliability coefficients (Cronbach's α) of .87, .85, and .91, for the Family, Friends, and Significant Other subscales, respectively. Two-week test–retest estimates were between .72 and .85 for each of the subscales (Zimet et al.).

Based on a review of the literature, no evidence was found to support the use of appropriate cutoff scores for prompting therapist exploration/problem-solving actions on any of the three measures. The therapeutic relationship and social support network were (somewhat arbitrarily) determined to be in need of problem-solving actions if when a client was found to be off track for a positive outcome the client scored 1 *SD* or more below the reported mean on the instrument (Luborsky et al., 1996; Zimet et al., 1988). Problematic motivation was evidenced by a client's scoring in the precontemplation or contemplation stage of readiness to change.

Progress feedback. Progress feedback consisted of written statements and graphs of all the client's scores up to the current session. Decision rules were used to classify a client's treatment progress, with white and green dots signifying average progress and red and yellow dots indicating the client was not progressing as well as expected (see Lambert et al., 2001, for detailed feedback descriptions). Colored dot (red, yellow, white, green) stickers (¼-in.) were placed on the graphs to immediately convey the status of client progress. An updated graph and message were provided to therapists at each session. The accuracy of the decision rules has been documented by Hannan et al. (2005), Lambert, Whipple, Bishop, et al. (2002), and Spielmans, Masters, and Lambert (2006). In these studies, in which the base rate of deterioration was about 8% depending on sample and procedures, the decision rules were able to correctly identify 69% to 100% of deteriorators. The decision rules had a false-positive rate (predicted deterioration–not deteriorated) of approximately 20%. In contrast, Hannan et al. (2005) found that therapists' accuracy in predicting deterioration based on their clinical judgment was near zero (0.03%).

Progress feedback to clients consisted of an identical color-coded progress graph as was provided to therapists. The feedback messages, however, were modified to include a blend of positive and negative language with the intent of avoiding content that might be discouraging to the client (see Hawkins et al., 2004, for complete messages). The feedback consisted of the client's current self-reported level of distress according to the OQ-45, progress since intake, and prognosis given current progress. Additionally, clients who were designated as not responding as well as expected were encouraged to discuss personal concerns about their progress, ideas for therapy modification, and goals for therapy with their therapist.

CST Feedback and Decision Tree

When the decision rules identified a client as a predicted deteriorator (red or yellow warning), the client was administered the three CST measures at the beginning of the next session. The questionnaires were administered after the first alarm rather than each time an alarm occurred in the case of multiple alarms. The measures were scored by a research assistant, and then feedback was delivered to the therapist's mailbox on the morning of the client's next session. CST feedback consisted of a copy of the decision tree and a report of the client's scores referenced to the norms for the measure. Additionally, the feedback directed the therapist to review a copy of the CST manual (Lambert, Whipple, et al., 2004), a 22-page compilation of suggestions culled from the psychotherapy research literature for improving therapeutic alliance, motivation for therapy, and social support.[1]

Procedure

Over a 14-month period of current data collection, clients were invited at intake to participate in a research study with the possibility of receiving weekly updates regarding treatment progress and requests to

complete additional instruments as part of treatment. The study complied with Institutional Review Board standards; clients completed an informed consent protocol at intake. After informed consent, clients were randomly assigned to a therapist feedback ($n = 687$) or client–therapist feedback ($n = 687$) experimental group using a randomized block design; therapists served as the blocking variable to control for effects associated with therapists (see Figure 1). The no-feedback/archival group ($n = 1{,}445$) consisted of archival data from three prior feedback studies at the same clinic conducted in previous years (Lambert et al., 2001; Lambert, Whipple, Vermeersch, et al., 2002; Whipple et al., 2003).

After the first treatment session, and for all sessions thereafter, client progress graphs with corresponding messages were provided to therapists and to half of the clients (depending on experimental group assignment). Owing to the need to scan and score the paper-based OQ-45, the feedback graphs provided information that was delayed 1 week. In this way, at the beginning of Session 3, the therapist or client, or both, would receive feedback associated with progress up to Session 2, and so on. Therapist feedback graphs and messages were stapled to therapists' daily schedule and placed in their mailboxes at the beginning of the day. Client feedback was delivered in a sealed envelope that receptionists provided to the client. Envelopes were imprinted with the message "Enclosed is feedback about your treatment progress. Please open this envelope in the presence of your therapist." Similar to other quality assurance studies, this study was designed to test the effect of feedback on client progress in routine clinical practice, with the possibility of generalizing the study's results to similar clinical settings. Therefore, feedback was simply provided; no effort made to require therapists or clients to use the feedback in a certain way.

Because the particular aim of this study was to improve outcome for poorly responding clients, clients were classified into an additional between-groups treatment variable based on their ongoing treatment response (see Figure 1). Clients were designated as on track for a positive outcome if they received only white or green messages throughout treatment, signifying they were progressing as expected. Clients were classified as not on track if they received a yellow or red message at any time during the course of treatment. Clients designated as not on track ($n = 369$) were further randomly assigned (again, assignment was blocked on therapist) into two groups: CST feedback and no CST feedback. Clients in both of these groups were administered the three CST measures after algorithm generation of the first red or yellow signal. Questionnaires were provided to clients by receptionists on presentation for the session. Although clients in both groups took the CSTs, only therapists of clients in the CST feedback experimental condition received information on client scores. Information on CST response was "buried" for individuals in the no CST feedback group. Although therapists agreed to and were encouraged to use the CST manual, discuss the results of the CST measures with their clients, and take actions they deemed appropriate, their actions were not monitored. At the inception of the study and multiple times over the course of the investigation, therapists were reminded by memo and staff meeting announcements to use the CSTs.

Therapists were free to use their judgment regarding treatment termination. There was some pressure to be efficient, but the center has no rules regarding efficiency and no session limits (in contrast with many managed-care settings). Treatment is often terminated at the end of the school year because of the tendency of many students to return home during summer months. Most treatment terminations are either client initiated or jointly agreed on by client and therapist. For this reason, clients in the present study had varying treatment lengths. In the present study, data collection and feedback provision continued for an additional 4 months after the last client was admitted to the study to allow clients to complete treatment.

Because treatment length was indeterminate, the final outcome status of each client was determined by the last available OQ-45. This procedure probably slightly underestimates the variance of change, because OQ-45 data after the final session of treatment are not collected (e.g., Lavori, 1992). However, this problem would be more serious if fixed time length was used and dropout was included in the analyses, which is not the case in this study. Therefore, this problem is negligible in this data set because in almost all of the cases the last observation was the OQ-45 score from the session immediately preceding termination.

Results

Pretreatment

Before testing the effectiveness of the feedback interventions, preliminary analyses were completed to test for preintervention group differences. A one-way analysis of variance (ANOVA) was conducted to test for statistically significant mean OQ-45 score at pretreatment for each treatment group. Table I shows the means and standard deviations of the three experimental groups for this measure. No

Table I. Means, Standard Deviations, and Pre–Posttreatment Effect Sizes for Outcomes by Treatment Group.

	Total sample ($n=2819$)								
	No feedback/archival ($n=1445$)			Therapist feedback ($n=687$)			Client/therapist feedback ($n=687$)		
	Pre-	Post-	ES (d)	Pre-	Post-	ES (d)	Pre-	Post-	ES (d)
M (SD)	70.28 (22.60)	61.68 (23.88)	.37	71.10 (22.58)	57.09 (23.76)	.60	71.28 (22.74)	58.21 (25.10)	.55
Δ	−8.61 (18.35)			−14.04 (19.79)			−13.08 (19.73)		
	Not-on-track sample ($n=655$)								
	No feedback/archival ($n=286$)			Therapist feedback ($n=166$)			Client/therapist feedback ($n=203$)		
	Pre-	Post-	ES (d)	Pre-	Post-	ES (d)	Pre-	Post-	ES (d)
M (SD)	79.45 (19.66)	80.17 (20.74)	−.04	79.83 (19.41)	73.47 (22.18)	.31	80.21 (19.02)	72.60 (22.56)	.36
Δ	+.7168 (20.19)			−6.36 (22.10)			−7.62 (23.02)		
	On-track sample ($n=2164$)								
	No feedback/archival ($n=1159$)			Therapist feedback ($n=521$)			Client/therapist feedback ($n=484$)		
	Pre-	Post-	ES (d)	Pre-	Post-	ES (d)	Pre-	Post-	ES (d)
M (SD)	68.01 (22.71)	57.11 (22.35)	.48	68.32 (22.82)	51.87 (21.82)	.74	67.54 (23.14)	52.17 (23.64)	.66
Δ	−10.92 (17.12)			−16.45 (18.36)			−15.38 (17.72)		

Note. Pre- and posttreatment and change values represent means ± standard deviations. ES = effect size.

statistically significant between-groups differences were found, $F(2, 816) = .589$, $p > .5$. These results suggest that randomization was effective in creating groups that did not have dissimilar levels of initial disturbance.

Clients whose response to treatment resulted in classification as on track versus not on track differed in mean intake OQ-45 score. As expected, the mean not-on-track initial OQ-45 score ($M = 79.78$, $SD = 19.37$) was significantly higher than the mean score for their on-track counterparts ($M = 67.98$, $SD = 22.82$), suggesting that, as a group, not-on-track clients begin therapy more disturbed than on-track clients, $t(2817) = -11.99$, $p < .001$. Further, 78.9% of clients in the not-on-track group began treatment in the dysfunctional range (OQ-45 > 63) compared with 57.4% of on-track clients. As can be seen in Table I, both not-on-track and on-track clients had similar pretreatment OQ-45 scores within their assigned feedback group conditions. The small differences between these groups did not reach statistical significance, $F(2, 813) = .153$, $p > .8$.

Pre–Posttreatment Changes

Table I shows the means and standard deviations of OQ-45 pre- and posttreatment scores. Paired t tests were conducted to assess within-group treatment effects for the no-feedback/archival, therapist feedback, and client–therapist feedback treatment groups. Results indicated significant improvement for each treatment group over the course of psychotherapy, $t(1444) = 17.79$, $p < .001$, $d = 0.37$; $t(686) = 18.56$, $p < .001$, $d = 0.60$; and $t(686) = 17.37$, $p < .001$, $d = 0.55$, respectively.

Disregarding assignment to treatment condition, over the course of therapy, clients improved with an average change of 11.01 OQ-45 points ($SD = 19.21$), $t(2819) = 30.42$, $p < .001$, $d = 0.47$). The improvement was even larger for the subgroup of clients ($n = 1{,}759$ [62.4%]) who began treatment in the dysfunctional range (OQ-45 > 63), because they improved by an average of 15.07 points, $t(1759) = 31.70$, $p < .001$, $d = 0.79$. Thirty-three percent of the clients beginning treatment in the dysfunctional range were classified as having achieved clinically significant change by the end of treatment; an additional 15% met criteria for reliable improvement.

Effect of Feedback

A 2 × 3 multivariate analysis of covariance (MANCOVA) comparing the two progress conditions (on track vs. not on track) and three feedback conditions (no feedback/archival, therapist feedback,

client–therapist feedback) was performed, with pretreatment OQ-45 score as the covariate and the client's posttreatment OQ-45 score, calculated as the last available OQ-45, and number of sessions as the dependent variables. MANCOVA yielded significant multivariate effects for progress status, $F(2, 2812) = 657.07$, $p < .001$, feedback condition, $F(4, 5624) = 34.18$, $p < .001$, and the Progress × Feedback interaction, $F(4, 5624) = 20.04$. $p < .001$, suggesting that the analysis of covariance (ANCOVA) effects presented later are due to reliable group differences and not merely to conducting multiple ANCOVAs on correlated measures.

Effects of Feedback on Outcome

Results indicated significant effects for the two progress conditions (on track vs. not on track), $F(1, 2812) = 297.97$, $p < .001$, and the three feedback conditions (no feedback/archival, therapist feedback, client–therapist feedback), $F(2, 2812) = 33.94$, $p < .001$, on outcome. On average, clients who were designated as on track for a positive outcome left treatment with 21 points more improvement than their not-on-track counterparts.

Planned comparisons were used to test the main hypotheses under consideration regarding OQ-45 feedback: (a) Clients in both experimental feedback conditions will have better outcomes than no-feedback/archival controls, and (b) clients who receive formal progress feedback (i.e., feedback to both client and therapist) will have better outcomes than those who do not receive direct feedback (i.e., feedback to therapist only). When considering the total sample, contrasts yielded a significant contrast estimate of 6.31 ($p < .001$) between the feedback (therapist feedback and client–therapist feedback, $n = 1{,}374$) and no-feedback/archival ($n = 1{,}445$) groups. The therapist feedback versus client–therapist feedback comparison was not statistically significant (contrast estimate = .154, $p > .8$). Table I provides details of average change scores by treatment group broken down by on-track or not-on-track status. These results suggest that providing therapists with feedback improves outcome, whereas the addition of formal written feedback to clients does not provide an additional benefit.

On track. Owing to the significant effect for the two progress conditions, separate analyses were conducted for on-track and not-on-track clients. Considering only those clients whose therapy response designated them as on track for a positive outcome yielded a significant effect for feedback condition, $F(2, 2160) = 26.92$, $p < .001$. Similar to results for the total sample, there were significant differences between the feedback and no-feedback/archival groups (contrast estimate = 5.06, $p < .001$, $d = 0.23$) and no significant differences between outcomes in the therapist feedback and client–therapist feedback groups (contrast estimate = −.842, $p > .4$, $d = 0.01$).

Not on track. Planned comparisons between the three treatment groups in the not-on-track condition were conducted. Contrasts yielded a significant contrast estimate of 7.478 ($p < .001$, $d = 0.33$) between the feedback (therapist feedback and client–therapist feedback, $n = 369$) and no-feedback/archival ($n = 286$) groups. The therapist feedback versus client–therapist feedback comparison was not statistically significant (contrast estimate = 1.066, $p = .60$, $d = 0.04$). These results mirror those for the total sample and suggest that the addition of formal client feedback to therapist feedback did not enhance outcome for not-on-track clients.

Effects of Feedback on Number of Sessions

An additional interest of the study was to assess the effect of feedback on session utilization. ANCOVA results indicated that rates of attendance were significantly different for the two progress conditions (on track vs. not on track), $F(1, 2812) = 707.21$, $p < .001$, $d = 1.19$, and the three feedback conditions (no feedback/archival, therapist feedback, client–therapist feedback), $F(2, 2812) = 52.75$, $p < .001$, with a significant interaction between progress status and feedback condition, $F(2, 2812) = 40.26$, $p < .001$. On-track clients averaged 4.60 ($SD = 3.85$) sessions, with no significant session differences between the three feedback conditions, $F(2, 2160) = 1.48$, $p > .2$. Not-on-track clients averaged 10.30 ($SD = 6.71$) sessions. For not-on-track clients, however, there was a significant session difference between feedback conditions, $F(2,651) = 28.41$, $p < .001$. Contrasts yielded a significant contrast estimate of −4.088 ($p < .001$, $d = 0.59$) between the feedback (therapist feedback and client–therapist feedback, $n = 369$) and no-feedback/archival ($n = 286$) groups. This indicates that not-on-track clients in the feedback conditions received significantly more sessions than their no feedback/archival counterparts. The therapist feedback ($n = 166$, $M = 11.73$, $SD = 8.39$) versus client–therapist feedback ($n = 203$, $M = 12.38$, $SD = 8.47$) comparison did not reach statistical significance (contrast estimate = −.651, $p > .3$, $d = 0.08$).

The Effect of CST on Outcome

An additional aim of this research was to test the effect on outcome of a strengthened feedback

condition that provided therapists of not-on-track clients with CST information. Before testing the effectiveness of the CST intervention, a one-way ANCOVA, with pretreatment OQ-45 as covariate, was conducted to see whether any statistically significant differences between groups existed at the time of random assignment to a CST condition (i.e., at session of first alarm signal). The mean OQ-45 score at time of first signal for clients in the CST feedback condition ($M_{adj} = 87.79$, $SE = 0.61$) was not significantly different than the mean first signal OQ-45 score for clients in the no CST feedback condition ($M_{adj} = 88.65$, $SE = 0.62$, $F(1, 366) = 0.977$, $p > .3$). Additionally, a one-way ANOVA found no significant pretreatment OQ-45 score differences for the CST feedback ($M = 78.79$, $SD = 19.29$) and no CST feedback ($M = 81.34$, $SD = 19.01$) groups, $F(1, 367) = 1.64$, $p > .2$.

The naturalistic nature of this study (i.e., clients can terminate treatment at any time), combined with the likelihood of not-on-track clients ending treatment before experiencing significant benefit, resulted in some attrition before the CST intervention was completed. Of those who signaled and were in the CST feedback condition, 10.6% ($n = 20$) did not return for any additional sessions after their first signal. An additional 11.2% did not complete all ($n = 2$) or any ($n = 19$) of the CST questionnaires, 14.4% ($n = 27$) failed to show up for their session on the day feedback was given to their therapist (decreasing the likelihood feedback was used in session), 11.8% ($n = 22$) had no additional OQ-45 scores after CST completion, and 1.5% ($n = 3$) were not given the questionnaires as a result of administrative error. This yielded a final CST feedback sample of 95 clients. Similarly, of those who signaled and were in the no CST feedback condition, 11% ($n = 20$) did not return for additional sessions after their first signal. An additional 14.3% did not complete all ($n = 6$) or any ($n = 20$) of the CST questionnaires. One additional client produced an invalid protocol. This yielded a final no CST sample of 134 clients. No statistically significant mean differences in intake OQ-45, $t(367) = -0.289$, $p = .773$, or OQ-45 at time of first signal, $t(367) = 0.691$, $p = .49$, were found between the final CST comparison sample and clients lost to attrition.

Table II shows the means and standard deviations for the CST groups and the no-feedback/archival condition. A one-way ANCOVA comparing the CST conditions (CST feedback, no CST feedback) was performed to test the main hypothesis that CST feedback would provide an additive outcome-enhancing effect for clients predicted to end treatment with negative change. Pretreatment OQ-45 score was included as the covariate, with the OQ-45 posttreatment score as the dependent variable. Results indicated a significant effect for CST feedback versus no CST feedback, $F(1, 226) = 4.99$, $p = .026$, $d = 0.31$. The comparison between the CST feedback group and no-feedback/archival group yielded an even stronger effect ($d = 0.73$). On average, clients in the CST condition experienced 5.3 points more improvement than their no CST feedback counterparts and 14.78 points more than no feedback/archival. Statistically significant differences between CST feedback and no CST feedback were also found when the OQ-45 score at the time of the signal alarm was substituted for intake score as a covariate, $F(1, 226) = 4.18$, $p = .042$. The strengthened feedback condition (both OQ-45 and CST feedback) resulted in average posttreatment scores that were only 1 point above the cutoff for the functional range (63) in contrast with not-on-track no-feedback/archival clients, who ended treatment 16 points above the cutoff. Figure 2 presents the average change scores for the feedback conditions. On average, clients in the CST feedback condition had 3.46 more sessions than their no CST feedback counterparts. This difference is partly due to the exclusion of clients not completing at least one OQ-45 posttreatment delivery of CST feedback and is discussed in detail in the Discussion section.

Analysis of Clinical Significance

To further assess the meaningfulness of the feedback and CST interventions, clients were categorized into

Table II. Means, Standard Deviations, and Change Scores for Pretreatment, Signal, and Posttreatment Outcomes by Treatment Group: Not-on-Track Clinical Support Tools (CST) Comparison ($n = 515$).

	No feedback/archival ($n = 286$)			No CST feedback ($n = 134$)			CST feedback ($n = 95$)		
Variable	Pre-Tx	Signal	Post-Tx	Pre-Tx	Signal	Post-Tx	Pre-Tx	Signal	Post-Tx
M	79.45	89.90	80.17	80.84	88.60	72.07	79.45	86.65	65.39
SD	19.66	15.14	20.74	19.44	15.06	23.48	18.56	14.08	19.33
Δ		0.72 ± 20.19			−8.78 ± 24.12			−14.06 ± 20.96	

Note. Change values represent means ± standard deviations. Pre-Tx = pretreatment; post-Tx = posttreatment.

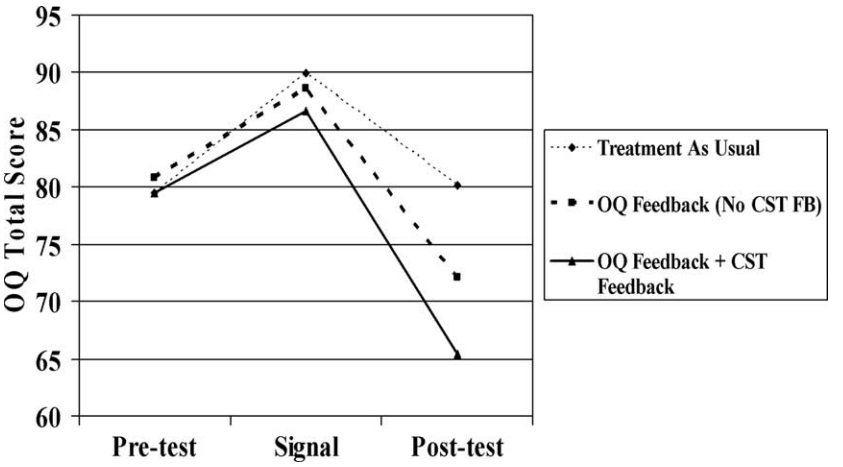

Figure 2. Treatment outcome for clients whose treatment response was predicted to end in deterioration as measured by the Outcome Questionnaire-45 (OQ). Results are shown for an archival treatment-as-usual control (no progress feedback), progress feedback (FB), and progress plus clinical support tool (CST) feedback. This graph plots the average score at intake, when the first not-on-track signal was given, and before the last treatment session.

Table III. Percentage of Not-on-Track Clients Meeting Criteria for Clinically Significant Outcome at Termination.

	No feedback/archival ($n=286$)		OQ feedback ($n=274$)		OQ feedback+CST feedback ($n=95$)	
Outcome classification	*n*	%	*n*	%	*n*	%
Deteriorated or reliable worsening	61	21.3%	49	17.9%	7	7.4%
No change	165	57.7%	14	52.9%	48	50.5%
Reliable or clinically significant change	60	21.0%	80	29.2%	40	42.1%

Note. $\chi^2 = 20.797$, $p < .001$. OQ = Outcome Questionnaire-45; CST = clinical support tools (3, $n = 655$).

final outcome classifications based on Jacobson and Truax's (1991) criteria for reliable or clinically significant change. These data are presented in Table III. Because there were no significant outcome differences between the therapist feedback and client–therapist feedback conditions, these groups were combined into a single OQ-45 feedback group. A chi-square comparison between the no-feedback/archival, OQ-45 feedback, and OQ-45 feedback plus CST feedback groups was significant, $\chi^2(\text{df} = 3, N = 655) = 20.8$, $p < .001$. The strengthened feedback condition resulted in a 67% (7% vs. 21%) reduction in deterioration compared with the no-feedback group. Further, whereas 21% of clients in the no-feedback/archival condition showed reliable improvement or clinically significant change, 29.2% in the OQ-45 feedback condition and 42.1% in the OQ-45 feedback plus CST feedback condition reached this same level of success. Essentially, the use of CSTs doubled (21% vs. 42.1%) the number of clients who were rated as recovered or reliably improved according the Jacobson–Truax criteria.

Discussion

The present study identified 23.2% of clients as predicted deteriorators (not on track for a good outcome). We anticipated that the addition of CST information to weekly progress feedback would improve the outcome for these clients compared with feedback to therapists and a no-feedback (treatment-as-usual) control. The results of the present study supported both of these hypotheses and are consistent with those found in our earlier research (Lambert et al., 2003), despite the fact that the Whipple et al. (2003) study did not use random assignment to the CST group. Of particular note is the fact that these effects are relatively large for comparisons between two active treatments (Lambert & Ogles, 2004; Wampold et al., 1997) and the therapists provided treatments in all conditions. Within each of the studies in this program of research that offered both treatment-as-usual and experimental groups, therapists provided treatment as usual as well as feedback-assisted therapy. This is in contrast to typical comparisons between two active treatments in which therapists

often provide treatment within only one treatment condition.

Not only were there statistically significant differences between the interventions, but these differences were apparent in estimates of the percentage of clients who experienced clinically meaningful changes. Deterioration/reliable worsening rates decreased from a base rate of 21.3% in the not-on-track no-feedback/archival controls to 17.9% for weekly progress information alone to 7.4% for weekly progress feedback combined with CST feedback. These results suggest the potential value of these research-based quality management strategies for individual clients.

In no-feedback/archival clients, the average not-on-track client ended treatment 1 point worse than when they started (17 points above the cutoff for the functional range, or nearly 1 *SD*). With the combined intervention (OQ-45 feedback and CSTs), the average not-on-track client reliably improves, leaving treatment with an OQ-45 change of 14 points. These findings, coupled with those of Whipple et al. (2003), support the conclusion that when therapists receive information regarding their client's weekly progress and assessment of the therapeutic relationship, readiness for change, and social support system along with an organized problem-solving strategy for approaching the negatively responding client, outcome is enhanced in statistically and clinically meaningful ways. OQ-45 feedback effects must be tempered by the possibility of a Maturation × Treatment interaction owing to the 5-year history of using feedback in the center. It is possible that therapists' valuing of OQ-45 feedback rather than the OQ-45 feedback itself is responsible for the measured treatment effect. This is a possible limitation of using an archival control. However, prior studies did not provide evidence that therapists were learning from the feedback in such a way that they could correctly characterize client progress without receiving the feedback information.

We did not monitor the ways in which clinicians used CSTs or any measure of adherence applied in the present investigation. The practical constraints of monitoring therapist adherence were deemed too burdensome for therapists in this treatment setting. In the absence of monitoring therapist CST-prompted actions, little is known about the way in which therapists used the information that was supplied. Monitoring, with competence and adherence checks, are typical in randomized clinical trials and enable researchers to explore relationships between these variables and outcome. However, in such studies, manuals specify therapist actions and prohibit the application of other actions. In the current research, the CST manual is seen not as guiding therapists to apply a treatment protocol but as offering a focus on a few possible problem areas, providing suggestions for problem solving, and stressing flexibility in making therapy more responsive to client needs. We argue that the CST intervention must remain flexible, so that adherence and competence cannot be assessed. Nevertheless, a limitation of the current research is knowledge about the use of the CST package.

In the absence of formally monitoring CST usage, some hints as to use were obtained through an informal survey of therapists who had received CST feedback for one or more clients. When asked what they did with the information, responses ranged from doing nothing with the information ("I anticipate many of my clients to get worse before they feel better given the therapeutic approach I use") to reviewing the information and using it to guide treatment planning ("I mostly just thought through my case conceptualization of the client and determined how my case conceptualization matched the information that was being told") to discussing the results with the client ("The information showed that there was not a good therapeutic alliance. It provided a good opportunity to use that information to process how she was experiencing therapy and what she thought of the relationship. We were able to talk through expectations, goals, and process issues"). Although anecdotal, this information suggests possible mechanisms of action for the CST intervention. Future research is needed to further assess the ways in which clinicians use the CST feedback and decision tree.

An additional aim of the study was to assess the impact of providing both therapists and clients with weekly progress information. We hypothesized that an integration of all of the interventions identified in past studies would result in the greatest benefit. This hypothesis was not supported; providing both clients and therapists with weekly OQ-45 feedback did not yield an additional outcome-enhancing effect compared with providing feedback to therapists alone. This result was not consistent with the findings of Hawkins et al. (2004), who found a significant effect for client–therapist feedback when compared with therapist feedback alone in a hospital-based outpatient clinic. The reasons for this inconsistency are currently unclear, and further research is needed to illuminate the circumstances under which formal feedback to clients will result in client benefits. One obvious difference between the current study and Hawkins et al. (2004) was that the clients in the latter were, on average, much more disturbed than those in the current study, having intake OQ-45 scores that were approximately 15 points higher (.75 *SD*). Tracking therapist use of progress feedback

more closely would allow researchers to determine the degree to which therapists are already sharing feedback information with clients.

In concert with previous studies investigating the feedback interventions (Hawkins et al., 2004; Lambert et al., 2001; Lambert, Whipple, Vermeersch, et al., 2002; Whipple et al., 2003), clients identified as not on track attended significantly more sessions than their on-track counterparts. This is expected in light of the fact that these clients began treatment more severely disturbed. In addition, not-on-track clients in the therapist feedback or client–therapist feedback conditions attended more sessions than their no-feedback archival control counterparts. This finding is consistent with two of the prior studies (Lambert et al., 2001; Lambert, Whipple, Vermeersch, et al., 2002) but was not found in two others (Hawkins et al., 2004; Whipple et al., 2003). In a similar line of feedback research undertaken in a Swiss inpatient unit, Berking, Orth, and Lutz (2006) reported positive feedback effects in the context of treatments lasting a prescribed number of sessions.

The discrepancy in findings related to session differences raises some confusion in interpreting the mechanisms of action for improved outcomes in the feedback conditions. A session increase in the feedback conditions suggests that therapists may be helping mainly by keeping clients around longer. However, when positive outcomes are obtained without increased treatment length, another mechanism is suggested, such as the use of more responsive therapeutic techniques. At this point, it seems fair to conclude that the positive effects of feedback can be obtained with and without extending treatment length.

It should be noted that the way in which the impact of the CST intervention was analyzed had an effect on the number of sessions attended. The addition of the CSTs to OQ-45 feedback conditions meant that the analysis of client outcome in the CST condition could only be calculated for clients who received the intervention. After the session of alarm signal, clients had to attend at least three more sessions (one session to complete the CSTs, one for feedback to be given to the therapist, and one to take the OQ-45 again after the dissemination of CST feedback). This is in contrast with the no CST feedback comparison group, whose treatment response could be assessed if they attended at least one more session after their session of signal (one session to complete the CST measures). Although an examination of intake OQ-45 and OQ-45 at the time of warning yielded no significant differences between clients who received the full CST intervention and those lost to attrition, the requirement of three additional sessions to complete the intervention should not be ignored by those seeking to understand or replicate the current research. The next study in this line of research will minimize this possible design artifact by (a) utilizing instantaneous electronic OQ-45 feedback using OQ-Analyst software and (b) e-mailing CST questionnaires to clients in the same week that they signal so that CST feedback will be delivered to the therapist in the session after a red or yellow (signal alarm) warning. Such procedures may allow us to extend our understanding of the mechanisms underlying the positive consequences of using CSTs, but, more importantly, they may help maximize timely therapist problem-solving actions.

We believe that a care setting in which therapists routinely assess the client's social support network, readiness for change, helping alliance, and other decision support tools when they first receive information that a client is not on track would likely decrease attrition and keep these clients in treatment longer, but this is open to empirical analysis and must be tempered by recognition of the quasi-experimental nature of the comparison. It appears that when clients stay in treatment and have a chance for their therapist to get the CST information, they have better outcomes.

Although the primary focus of the current study was on predicted deteriorators, the present study also found a positive feedback effect for on-track clients. The on-track clients in the feedback conditions (excluding CST feedback, which was only used for not-on-track clients) were significantly more improved at termination than their no-feedback/archival counterparts. This significant difference in improvement occurred without the corresponding increase in sessions that was found for not-on-track clients, suggesting that for on-track clients feedback is working independent of any effect on therapy duration. On average, on-track clients in the feedback conditions left treatment with significantly greater change scores (therapist feedback = 16 points, client–therapist feedback = 15 points) compared with the average change score for no feedback–archival clients (11 points). This finding has been inconsistent in our earlier studies, with Hawkins et al. (2004) also finding superior outcomes for on-track OQ-45 feedback, compared with no-feedback, clients. In general, our past research has found that feedback to on-track clients has reduced the number of sessions of treatment they received without reducing positive outcomes, thus making the use of feedback cost-effective (Lambert et al., 2003). The current study supports this general conclusion.

The current research has a number of inherent limitations. Although the use of a single, self-report instrument likely does not fully capture the complexity of client experience, providing timely progress information necessitates the use of a brief instrument that can be administered quickly and often. Although the OQ-45 is sensitive to the effects of interventions (Vermeersch, Lambert, & Burlingame, 2002; Vermeersch et al., 2004), our current research does not assess whether improved treatment response as measured by a short, simple measure of outcome would hold up if more elaborate progress and outcome assessments had been used. The demonstrated utility of providing therapists with progress feedback suggests that this is an important intervention that can significantly improve outcomes for poorly responding clients. Our program of research has focused mainly on an outpatient clinic, with the majority of clients at the less disturbed end of the patient continuum. As already noted, feedback has also been found to work with more severely disturbed out- and inpatients (Berking et al., 2006; Hawkins et al., 2004), but there is a need for further research across a greater variety of clinics and patient samples.

Note

[1] Contact Michael Lambert for a copy of the manual.

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