

## ***Patient-Treatment Matching***

For several decades it has been suggested that matching alcoholic patients to treatments based on their particular characteristics may have the potential to improve alcoholism treatment outcomes. This idea developed from observations that alcoholics differ and that while many benefit from treatment, no single treatment has been shown to be effective for all. In fact, in many areas of medicine, matching patients to treatments on the basis of patient characteristics is widely practiced; for example, patients with a cancer diagnosis may be matched to surgery, radiation, or chemotherapy.

Interest in matching for alcoholism treatment accelerated as evidenced from more than 30 studies accumulated in the literature (1). These studies examined the interaction between a number of treatment approaches (e.g., coping-skills training, interactional therapy, or relationship enhancement) and patients with particular characteristics to determine whether certain patients would benefit more from one type of treatment than another. Examples of the patient characteristics that were matched to particular treatments included psychiatric severity, sociopathy, cognitive impairment (2,3), and high or low social support (4).

These studies indicated that some treatment approaches were more effective than others for patients with certain characteristics. For example, Kadden and colleagues (2) found that coping-skills training was more effective than interactional therapy at the end of 6 months of treatment in preventing relapse among patients with more psychiatric problems or higher in a rating of sociopathy. These patients were followed for an additional 18 months after treatment, and these matches were still present at the end of this followup period (3). Contrary to their expectations, the researchers found that patients with cognitive impairment had better outcomes when treated with interactional therapy than with coping-skills training. In addition, Kadden and colleagues (5) found that patients who reported less anxiety and fewer urges to drink during their first skills training session experienced better outcomes with interactional therapy than with coping-skills training. Conversely, those who reported more anxiety or more urges to drink experienced better outcomes with coping-skills training than with interactional therapy (5).

Longabaugh and associates (4) studied patients randomly assigned to individually focused cognitive-behavioral treatment (a treatment in which patients are taught to cope with drinking-related stresses) or a combination of couples therapy and brief cognitive-behavioral treatment. They found that those patients with high social support did well with either treatment, and those with low support did better with cognitive-behavioral therapy. In this same study, they also found that patients who met DSM-III criteria for antisocial personality (ASP) drank less per drinking day if treated with cognitive-behavioral therapy than with relationship enhancement therapy. Both treatments were equivalent for patients without ASP (6).

To build on studies of patient-treatment matching that had already been conducted and to make recommendations about appropriate patient-treatment matches, the National Institute on Alcohol Abuse and Alcoholism (NIAAA) initiated Project MATCH (Matching Alcoholism Treatment to Client Heterogeneity) in late 1989. By the time Project MATCH began, the Institute of Medicine (IOM) had urged systematic and definitive studies of the patient-treatment matching hypothesis to improve treatment

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**Project MATCH built on earlier studies to determine whether treatment outcome is affected by matching alcoholics to specific treatments.**

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outcomes and better utilize scarce resources (7,8). The large sample size in Project MATCH would enhance statistical power, allow many hypotheses defined in advance to be tested, enable findings to be replicated, and facilitate an exhaustive assessment of treatment outcome. The goal of Project MATCH was to learn whether different types of alcoholics respond selectively to particular treatments. Specifically, the study tested 16 patient-treatment combinations that appeared promising based on experimental evidence and/or theory.

### **Structure of Project MATCH**

A total of 1,726 patients were recruited at treatment facilities throughout the United States, making this the largest clinical trial of psychotherapies undertaken to date. Twenty-five percent of the patients were women, and 15 percent were from minority populations. There were two parallel arms representing the two major venues of treatment for alcoholic patients: an "outpatient" arm, with patients recruited directly from the community, and an "aftercare" arm, consisting of patients who had just completed an inpatient or intensive day hospital treatment (9).

Procedures were the same in both study arms. Participants were first assessed, using interviews and tests, to obtain information on demographic characteristics, personality, drinking behavior, factors predisposing to alcohol problems, the personal and medical effects of their drinking, and alcohol treatment history. Both groups involved identical assessment methods, treatment procedures within and across programs, followup evaluations, and analytic techniques. The two-group design allowed exploration of possible differences in matching among patients recruited from different settings (10).

Ten patient characteristics were studied, mostly based on promising leads in the literature. They were severity of alcohol involvement, cognitive impairment, conceptual level, gender, meaning seeking, motivation, psychiatric severity, social support for drinking versus abstinence, sociopathy, and alcoholic typology (10,11).

### **Treatments**

All patients were randomly assigned to one of three treatments: Twelve-Step Facilitation (TSF), Cognitive-Behavioral Therapy (CBT), or Motivational Enhancement Therapy (MET). These treatments were selected because they showed potential for matching, promising outcomes, and utility in clinical situations. TSF consisted of 12 weekly sessions in which the therapist encouraged patients to attend and become involved in the traditional fellowship activities of Alcoholics Anonymous (AA) and to introduce the first 5 of the 12 steps. Involvement in AA included finding a sponsor, attending meetings regularly, and reading AA material. TSF was an approach designed specifically for Project MATCH. Although grounded in the 12-Step principles, it was a professionally delivered, individual therapy different from the usual peer-organized AA meetings and was not intended to duplicate or substitute for traditional AA. In CBT, therapists taught and coached skills to enable patients to cope with situations and emotional states known to precipitate relapse. Patients practiced drink-refusal skills, learned to manage negative moods, and learned to cope with urges to drink in 12 weekly sessions. MET therapists used techniques of motivational psychology and, rather than training the patients in particular skills, encouraged individuals to consider their situation and the effect of alcohol on their life, develop a plan to stop drinking, and implement the plan. MET consisted of four sessions over the course of 12 weeks (9,10).

Procedures for administering treatments were carefully described in detailed manuals developed for each treatment (12-14). All three treatments were delivered by carefully trained and supervised professionals in individual therapy sessions. All therapy sessions were videotaped (with the patients' permission), and 25 percent were randomly selected for monitoring by supervisors to ensure that the therapy was conducted as intended (10).

Retention in treatment was excellent: Patients kept about two-thirds of their scheduled appointments. More than 90 percent completed all five of the data collection sessions during the year following treatment.

**Project MATCH employed thorough assessments, manual-guided treatments, and rigorous data analysis.**

**The treatments examined in Project MATCH were Twelve-Step Facilitation, Cognitive-Behavioral Therapy, and Motivational Enhancement Therapy.**

## Results

The findings challenged the notion that patient-treatment matching is a prerequisite for effective alcoholism treatment. The trial confirmed only one of the hypothesized patient-treatment matches: There was a significant match on psychiatric severity with TSF among the "outpatients." Patients with few or no psychological problems had significantly more abstinent days with TSF than with CBT. The study did not confirm the other hypotheses, many of which were suggested by previous research. The investigators concluded that patient-treatment matching, as exemplified by the 16 combinations of patient characteristics and treatments studied in Project MATCH, adds little to enhance the outcome of treatment (10).

In addition to the knowledge gained about matching, the trial also demonstrated that compared to their status before treatment, drinking and negative consequences declined regardless of which of the three treatments participants received. Patients had a greater percentage of days abstinent (i.e., patients averaged 25 drinking days per month before treatment, which decreased to fewer than 6 drinking days per month after treatment) as well as a substantial decrease in the number of drinks consumed on days when drinking occurred. At entry, almost all patients reported both heavy drinking and resulting recurrent problems. However, 1 year after treatment, only about 50 percent of participants reported such problems. Patients who participated in the study also decreased use of other drugs, were less depressed, and improved their liver function. These improvements were maintained throughout the 12 months following treatment (10).

Overall, more "aftercare" patients (35 percent) were able to sustain complete abstinence throughout the year after treatment than the "outpatients" (19 percent), despite the fact that the aftercare patients entered the study with more alcohol-dependence symptoms. This raises the possibility that an initial period of supervised abstinence from alcohol is important. However, it is possible that other factors, such as more exposure to treatment, may have contributed to this difference, since patients were not randomly assigned to the two arms. Among the aftercare patients, there were no differences in sustained abstinence according to type of treatment received. However, in the outpatient group, 10 percent more patients who received TSF achieved continuous abstinence compared with those who received the other two treatments (24 percent for TSF as opposed to 15 percent for CBT and 14 percent for MET). Overall, gender or ethnic differences did not affect treatment outcome (10).

## ***Patient-Treatment Matching—A Commentary by NIAAA Director Enoch Gordis, M.D.***

The major finding from Project MATCH—that matching patients to treatments added little benefit to treatment results—was a surprise to clinical investigators and to service providers alike. However, it certainly is not the first time that reasonable hypotheses, when rigorously investigated in a large population, failed to yield an expected result.

After the findings from Project MATCH were publicized, it appeared clear from comments received by NIAAA that these findings, in some instances, had been misinterpreted. Therefore, I believe it is useful to clarify again what Project MATCH was and what it was not. Project MATCH was a study of patient-treatment matching; it was not a study of treatment efficacy. While it is heartening to learn that patients who participated in all three treatment arms of Project MATCH did well, this study was not designed to test whether treatment (versus no treatment) works but whether patients, based on their characteristics, responded better to one therapy versus another. Project MATCH also was not a study of the efficacy of simply attending Alcoholics Anonymous (AA) meetings. Although based on the principles of AA, the Project MATCH Twelve-Step Facilitation (TSF) treatment used intensive one-on-one sessions between patients and professional therapists, rather than the AA peer-led group experience, to introduce the initial steps of and encourage involvement in AA. Although the one match found (i.e., patients with few or no psychological problems had significantly more abstinent days with TSF than with Cognitive-Behavioral Therapy or Motivational Enhancement

**Project MATCH found that matching patients to particular therapies does not appear to be necessary for effective alcoholism treatment.**

Therapy) is of interest, on the whole it is likely that patients in competently run alcoholism treatment programs will do as well with one of the three treatments studied as with the others. The rich Project MATCH database continues to be analyzed and will, no doubt, yield important information on other possible patient-treatment matches and clinically relevant topics, such as the effect of therapists on outcome and the role of AA in Project MATCH treatments.

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