
Appendix A: Assessment Feedback Procedures

by William R. Miller, Ph.D.

Preface

The instructions contained in appendix A refer to the assessment feedback components of Motivational Enhancement Therapy, as practiced in Project MATCH. It is not necessary, however, to use exactly the same assessment instruments as were employed in Project MATCH. The basic idea is to assess a range of dimensions, with particular emphasis on those likely to reflect early problems or risk. If you wish to replicate the exact procedures used in MATCH, information is provided at the end of this appendix for obtaining the needed instruments. You may, however, construct your own assessment battery and design a corresponding Personal Feedback Report (PFR) based on normative data for the instruments you have chosen. The PFR used in Project MATCH is reproduced following page 89.

In general, your assessment battery should sample a variety of potential problem and risk domains. Here is a brief list of pertinent domains, with examples of appropriate assessment approaches for each.

Alcohol Consumption

The volume of alcohol consumption is a primary dimension for assessment, because all other risk and problem domains are related to the quantity and frequency of use. There are four basic approaches for quantifying alcohol consumption.

Quantity/ Frequency Questionnaire

The simplest approach is to ask a few structured questions regarding the frequency (e.g., how many days per month does the person drink) and quantity of consumption (e.g., on a drinking day, how many drinks does the person have on average). Such questions can be aided by describing a standard drink unit (see Miller et al. 1991 for alternatives) or asking separately about different kinds of beverages (beer, wine, spirits, etc.). An advantage of this approach is that, unlike the others, it can be administered by paper and pencil questionnaire. This method appears to underestimate actual consumption, however, and reliability and validity parameters have not been established.

Grid Averaging

A second approach is to reconstruct, by structured interview, a typical drinking week and then account for episodes of drinking that deviate from this pattern. This approach was introduced by Miller and Marlatt (1984) and has been employed in a variety of studies.

Timeline Followback

A third and still more detailed approach is to reconstruct drinking by filling in an actual calendar for the past few weeks or months. Day by day drinking data are obtained, taking advantage of the memory-prompting value of a calendar (Sobell et al. 1980). The Form 90 approach used in Project MATCH (see below) represents a hybrid of the timeline and grid averaging methods.

Drinking Diary

Finally, individuals can be asked to keep a daily diary of alcohol consumption. These records can then be converted into quantitative data. A freeware computer program for this purpose has been developed by Markham, Miller, and Arciniega (see resource list at the end of this appendix).

Alcohol-Related Problems

As heavy drinking continues, life problems tend to accumulate. Some counting of such accumulation is a common measure of problem severity. Measures such as the Michigan Alcoholism Screening Test (MAST; Selzer 1971) combine life problems with other factors such as alcohol dependence symptoms and help seeking. Miller and Marlatt (1984) attempted to differentiate between common problematic consequences of heavy drinking and other life problems, which may or may not be alcohol related. The DRINC questionnaire (see below), developed for Project MATCH, is intended as a purer measure of negative consequences of drinking, apart from alcohol dependence signs.

Alcohol Dependence

The alcohol dependence syndrome is currently a central diagnostic concept. Severity of dependence represents a third dimension to be tapped in comprehensive assessment. A variety of alcohol dependence scales have been published. Skinner's Alcohol Dependence Scale (Skinner and Horn 1984) has been a popular instrument in North America, with strong psychometric characteristics.

Physical Health

Heavy drinking also has predictable effects on physical health. The most common evaluation approach in this domain has been a serum chemistry profile, screening for elevations on variables commonly affected by excessive drinking. These include liver enzymes (SGOT, SGPT, GGT), mean corpuscular volume (MCV), and high-density lipoprotein (HDL). Blood pressure can also be screened, because heavy drinking contributes to hypertension.

Neuro-psychological Functioning

Knowledge of all of the above domains provides relatively little information about a person's cognitive functioning. Problem drinkers have been found to be impaired on a variety of neuropsychological tests (Miller and Saucedo 1983). Both Project MATCH and other checkup

and feedback interventions have included neuropsychological test results (see Miller and Sovereign 1989; Miller et al. 1988), although interventions can also be effective without the inclusion of neuropsychological testing (Bien and Miller submitted; Brown and Miller submitted). Tests that commonly show impairment include the Block Design and Digit/Symbol subtests of the Wechsler Adult Intelligence Scale, the Wisconsin Card Sorting Task, and Halstead-Reitan subtests including the Tactual Performance Test, the Trail-Making Test, and the Categories Test.

Risk Factors

Markers of high risk for alcohol problems can also be measured, apart from the individual's current level of use and its consequences. Family history of alcohol/drug problems can be obtained by a variety of methods (e.g., Cacciola et al. 1987; Miller and Marlatt 1984). Of personality scales designed to detect correlates of risk for substance abuse, the MacAndrew scale has fared best in research, though others are available (Jacobson 1989; Miller 1976). Beliefs about alcohol, as assessed by Brown's Alcohol Expectancy Questionnaire, have also been found to be predictive of risk (Brown 1985).

Motivation for Change

Various approaches are available for measuring the extent of an individual's motivation for changing drinking. Some consist of simple Likert scales assessing commitment to abstinence or other change goals (e.g., Hall et al. 1990). Self-efficacy scales can be constructed to ask about confidence in one's ability to change. Respondents can be asked to rate the extent to which alcohol is helping or harming them on a range of life dimensions (Appel and Miller 1984). Stages of change derived from the Prochaska and DiClemente (1984) theoretical perspective were used as the basis for construction of the University of Rhode Island Change Assessment (Prochaska and DiClemente 1992; DiClemente and Hughes 1990) and the alcohol-specific Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES; Miller).

Comprehensive Assessment Approaches

Several questionnaires and structured interview protocols provide a range of quantitative scores that can be compared with normative or diagnostic standards. None of these taps all of the above dimensions, but each provides a basis for judging status on several domains. The Alcohol Use Inventory (AUI; Horn et al. 1987) is a widely used and well-developed self-administered questionnaire that permits comparison of individual with normatived scores. The materials necessary to administer, score, and interpret the AUI are available from National Computer Systems, P.O. Box 1416, Minneapolis, MN 55440. The kit includes the AUI manual, forms, client test book, hand-scored answer key templates, and the AUI profile sheet, which summarizes the scores and can be given to the client. Structured interviews include the Addiction Severity Index (ASI; Cacciola et al. 1987), the Comprehen-

sive Drinker Profile (CDP; Miller and Marlatt 1984, 1987), and the Form 90 interview developed for Project MATCH (see below).

The crucial point is that the battery of assessment procedures to be used as a basis for feedback can be tailored to the needs, time demands, and client characteristics of a program. What follows is but one example—from Project MATCH—of how assessment feedback can be done within the context of Motivational Enhancement Therapy.

The Project MATCH Assessment Feedback Protocol and Procedures for Completing The PFR

Prior to the first session with an MET client, the Personal Feedback Report is prepared by obtaining the pertinent data from the client's file. The following information from the Project MATCH assessment battery is used:

- AUDIT score from the Quickscreen
- Form 90-I (Initial Intake)
- ASI family history section
- MacAndrew scale score
- DRINC questionnaire
- Serum chemistry profile
- Neuropsychological test results
- Alcohol Use Inventory

BACCuS, an IBM-PC software program, is used for converting alcohol consumption data into standardized measures (Markham et al. submitted).

Alcohol Consumption

The first datum to be presented to the client is the number of standard drinks consumed during a week of drinking. This calculation is available from Form 90-I, the Project MATCH interview protocol for quantifying alcohol consumption. Some degree of judgment is needed here, but remember that the goal is to provide clients with a fair picture of their alcohol consumption during a typical drinking week. If the Steady Pattern Chart has been completed (page 6), use line 38 as the number of standard drinks per week. If no Steady Pattern Chart has been completed, the client's drinking was too variable to provide a consistent weekly pattern. In this case, consult the Summary Statistics sheet. If the client abstained on fewer than 10 percent of days *during the 90-day window*, multiply the "Average SECs per drinking

day” by 7 to obtain the number of standard drinks per week. Be sure you are examining the 90-day window and not the whole current period. If abstinent days exceed 10 percent, examine the calendar to determine whether these abstinent days mostly occurred within drinking weeks (e.g., no drinking on Monday through Wednesday) or whether they occurred in blocks in between periods of drinking (i.e., periodic drinker). In the former case, determine the typical number of drinking days in an average week and multiply this number of days by the Average SECs per drinking day (from the Summary Sheet) to obtain the number of standard drinks per week. In the latter case—a purely periodic drinker—determine from the calendar whether drinking episodes are normally at least 7 days in length. If so, use the same procedure as for the Steady Pattern Chart: multiply the Average SECs per drinking day by 7 to describe the number of standard drinks consumed during a typical week of drinking. If drinking episodes are typically shorter than 1 week (e.g., 3 days), multiply the average number of days in an episode by the Average SECs per drinking day (from the Summary Statistics). Again, remember that the guiding principle is to describe the number of standard drinks that the client consumed, on average, in a drinking week.

When you have obtained the client’s average number of drinks per drinking week, use table 3 to obtain the client’s percentile among American adults. Note the separate norms for men and women.

Estimated Blood Alcohol Concentration Peaks

The second set of data presented to Project MATCH clients consists of computer-projected blood alcohol concentration (BAC) peaks, based on alcohol consumption patterns reported on Form 90–I. These projections are computed by BACCuS and will normally have been completed by the research assistant who conducted the Form 90–I interview. Nevertheless, you should check these calculations using BACCuS. Any projected peak over 600 mg% should be reported as 600 mg%. The reasoning here is that projections above this level are likely to be overestimates, because actual BAC peaks above 600 mg%, though possible, are relatively rare.

The BAC peak for a typical drinking week is obtained from line 39 of Form 90–I. This is the highest intoxication peak from the typical drinking week grid. Note that it may be necessary to use the BACCuS program (Menu #3, BAC Peak for an Episode) to estimate BAC peaks for several different days in order to determine which yielded the highest BAC. It is not always obvious, from visual inspection, which period will produce the highest BAC peak. Where a day contains at least two periods of drinking separated by several hours (e.g., 6 drinks from noon until 2:00 pm and then 8 drinks from 7:00–11:00 pm), it is wise to try the BAC level for each period within the day, as well as for the whole day. (In the above example, you would run 6 drinks in 2 hours, 8 drinks in 4 hours, and 14 drinks in 11 hours. The resulting BAC projections for a 160-pound male would be 109, 124, and 152,

Table 3. Alcohol consumption norms for U.S. adults, in percents

Drinks per week	Total	Men	Women
0	35	29	41
1	58	46	68
2	66	54	77
3	68	57	78
4	71	61	82
5	77	67	86
6	78	68	87
7	80	70	89
8	81	71	89
9	82	73	90
10	83	75	91
11	84	75	91
12	85	77	92
13	86	77	93
14	87	79	94
15	87	80	94
16	88	81	94
17	89	82	95
18	90	84	96
19	91	85	96
20	91	86	96
21	92	88	96
22	92	88	97
23-24	93	88	97
25	93	89	98
26-27	94	89	98
28	94	90	98
29	95	91	98
30-33	95	92	98
34-35	95	93	98
36	96	93	98
37-39	96	94	98
40	96	94	99
41-46	97	95	99
47-48	97	96	99
49-50	98	97	99
51-62	98	97	99
63-64	99	97	>99.5
65-84	99	98	>99.6
85-101	99	99	>99.9
102-159	>99.5	99	>99.9
160+	>99.8	>99.5	>99.9

Source: 1990 National Alcohol Survey, Alcohol Research Group, Berkeley.
 Courtesy of Dr. Robin Room

respectively. In this case, the BAC of 152, from 14 drinks in 11 hours, would be used.) If the Steady Pattern Chart was not completed on 90-I, leave this line blank.

The BAC peak for a heavier day of drinking is obtained from the Highest Peak BAC line of the Summary Statistics sheet. This represents the *highest* BAC peak reached during the 90-day period. This will never be lower than line 39 but may be the same as line 39. In this case, the number on both lines of section 2 would be the same.

Risk Factors

The third feedback panel on the PFR reflects five risk factors. Higher scores on these scales are associated with greater risk and severity of alcohol-related problems.

Tolerance Level

Tolerance level is inferred from the BAC peaks reached during the 90-day window. The rationale is that the higher the projected BAC peak, the higher the individual's tolerance. Use the higher of the two numbers in Section 2 to arrive at the classification:

0-60 mg%	Low tolerance
61-120 mg%	Medium tolerance
121-180 mg%	High tolerance
181 mg% +	Very high tolerance

Other Drug Risk

Other drug risk is judged from the lifetime use of other drugs, as reported on page 10 of Form 90-I. The rationale is that more frequent use of other drugs, or any use of drugs with higher dependence potential, is associated with greater risk for serious consequences and complications. Use the following classification system:

HIGH RISK	Any use of cocaine or crack or Any use of heroin, methadone, or other opiates or Frequent use (more than 3 months of at least once per week) of any other drug class except tobacco: Marijuana, Hash, THC Amphetamines, Stimulants, Diet Pills Tranquilizers Barbiturates
MEDIUM RISK	Any lifetime nonprescription use, but not frequent use (i.e., 3 months or less of weekly use) of any drug class except tobacco, opiates or cocaine: Marijuana, Hash, THC Amphetamines, Stimulants, Diet Pills Tranquilizers Barbiturates
LOW RISK	No use of other drugs (Code = 0 for all 10 drug classes except tobacco)

Family Risk

Family risk is judged from the family history of alcohol and other drug problems obtained in the ASI interview. The following weighting

system is used to arrive at a total Family Risk score. Assign the designated number of points for *each* blood relative indicated to be positive for alcohol/drug problems:

If father positive	add 2 points
If mother positive	add 2 points
For each brother positive	add 2 points
For each sister positive	add 2 points
For each grandparent positive	add 1 point
For each uncle or aunt positive	add 1 point

Risk levels are judged according to the following classification system:

Family Risk Classifications

0-1	Low risk
2-3	Medium risk
4-6	High risk
7+	Very high risk

MacAndrew Scale The MacAndrew Scale score can be obtained directly from this scale. The following classification system is used for risk:

MacAndrew Scale Risk Levels

0-23	Normal range; lower risk
24-29	Medium risk
30+	High risk

Age at Onset

Age at onset is the fifth risk factor in this panel. The rationale is that younger onset of problems is associated with a more severe course and symptomatology. Age at onset is calculated by the following procedure, using three items obtained from the DRINC (Drinker Inventory of Consequences) scale.

Calculating Age at Onset

- Record these three numbers, if applicable, and sum them (from page 7 of Drinker Inventory of Consequences)

Age of first regular intoxication (item 17):	_____
Age of first loss-of-control (item 18):	+ _____
Age of first alcohol problems (item 19):	+ _____
TOTAL	_____
2. Divide by the number of ages used in step 1:	
Age at onset	= _____

NOTE: If an age item was not recorded for the client (e.g., the client had never experienced loss of control), the average is based on the other two age items (divide by 2). If only one age item was completed, this constitutes the age at onset.

Risk level is judged according to this classification system:

Under 25.0	Higher risk
25.0–39.9	Medium risk
40.0 +	Lower risk

Problem Severity The *AUDIT* score is recorded directly from this scale within the Quickscreen. The *DRINC* alcohol severity score is recorded directly from this questionnaire and is the sum of scores for the 55 *lifetime* consequences. Print the client's raw score for each of these two scales under the corresponding severity range (e.g., a 19 on the *AUDIT* would be printed under the HIGH descriptor, below the 16–25 range designation.)

The other information reviewed in the fourth panel is the profile of results from the AUI. Use the AUI Profile form, published by National Computer Systems, for this purpose. Circle the client's raw scores for all scales and connect the circles with straight lines. Do not cross the solid lines that divide categories.

Serum Chemistry Obtain the client's serum chemistry scores on SGOT, GGTP, SGPT, uric acid, and bilirubin (total) from the lab report. Record these lab scores on the corresponding lines of the PFR. Interpretive ranges are shown on the PFR.

Neuro-psychological Test Results A 5-point performance scale is used to interpret neuropsychological test results:

1	Well above average
2	Above average
3	Average
4	Below average
5	Well below average

The scoring systems below attempt to correct for effects of age and/or education level, based on available norms. The Shipley-Hartford Vocabulary test is used as a "hold" test that is less likely to be affected by alcohol, thus providing an estimate of the level of performance that would ordinarily be expected from an individual.

Shipley-Hartford Vocabulary Test (SV) Use the *age-adjusted* score to obtain a normalized T-score, as specified in the revised Shipley-Hartford manual. Then use the following table to convert the T-score into our 1–5 scale:

≥ 63	1	Well above average
57–62	2	Above average
44–56	3	Average
38–43	4	Below average
≤ 37	5	Well below average

**Shipley-Hartford
Abstraction Test
(SHVA)**

Use the *age-adjusted* score to obtain a normalized T-score, as specified in the revised Shipley-Hartford manual. Then use the following table to convert the T-score into our 1-5 scale:

≥ 63	1	Well above average
57-62	2	Above average
44-56	3	Average
38-43	4	Below average
≤ 37	5	Well below average

**Trail-Making
Test, Form A
(TMTA)**

The score is the number of seconds to complete Form A.

	Age			
	20-39	40-49	50-59	60-69
1	≤ 21	≤ 22	≤ 25	≤ 29
2	22-26	23-28	26-29	30-35
3	27-41	29-44	30-48	36-66
4	42-49	45-58	49-66	67-103
5	≥ 50	≥ 59	≥ 67	≥ 104

Based on Lezak 1976, Table 17-6, page 558. Cutting points represent the 10th, 25th, 75th, and 90th percentiles.

**Trail-Making
Test, Form B
(TMTB)**

The score is the number of seconds to complete Form B.

	Age			
	20-39	40-49	50-59	60-69
1	≤ 45	≤ 49	≤ 55	≤ 64
2	46-55	50-57	56-75	65-89
3	56-93	58-99	76-134	90-171
4	94-128	100-150	135-176	172-281
5	≥ 129	≥ 151	≥ 177	≥ 282

Based on Lezak, 1976, Table 17-6, page 558. Cutting points represent the 10th, 25th, 75th, and 90th percentiles.

**Symbol Digit
Modalities Test
(SYDM)**

The score for the Symbol Digit Modalities Test is the number of correct digits associated with their respective symbols within the 90-second written testing period.

Use this table if client has 12 years or less of education.

Age	1	2	3	4	5
18-24	≥ 67	63-66	47-62	42-46	≤ 41
25-34	≥ 65	61-64	46-60	41-45	≤ 40
35-44	≥ 64	60-63	44-59	39-43	≤ 38
45-54	≥ 62	57-61	39-56	33-38	≤ 32
55-64	≥ 55	51-54	36-53	31-35	≤ 30
65+	≥ 47	42-46	25-41	20-24	≤ 19