

Title: From clinical research to secondary prevention: international collaboration in the development of the Alcohol Disorders Identification Test (AUDIT)

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## From Clinical Research to Secondary Prevention

### International Collaboration in the Development of the Alcohol Use Disorders Identification Test (AUDIT)

In 1982 the World Health Organization (WHO) asked an international group of investigators to develop a simple screening instrument to identify persons who are at risk of developing alcohol problems, using procedures that are suitable for use by health workers in both developing and developed countries. The result of this collaborative effort is the Alcohol Use Disorders Identification Test (AUDIT). This article will describe briefly how clinical research that employed alcohol-related assessment procedures developed this international screening instrument. For a complete description of the study, the reader is referred to the detailed reports and articles cited below.

### DEVELOPMENT OF AUDIT

Health workers utilize screening procedures to identify treatable disorders in early or presymptomatic stages. Health professionals often use screening tests for case-finding, that is, for identifying persons who already show a serious alcohol problem, such as alcohol dependence. By contrast, AUDIT was designed to give primary emphasis to screening, not case-finding, by focusing on the preliminary signs of harmful and hazardous drinking and identifying mild dependence symptoms.

Harmful alcohol use is defined as a pattern of drinking that is already causing damage to health. The damage may be either physical (e.g., alcohol-related injuries) or mental (e.g., mild dysphoria secondary to heavy drinking). Hazardous alcohol use is defined as an established pattern of drinking that carries with it a high risk of future damage to physical or mental health, but which has not yet resulted in significant medical or psychiatric ill effects. High risk of future damage to health is crucial to the concept of hazardous use.

To devise an instrument capable of identifying hazardous as well as harmful alcohol use, the collaborating investigators reviewed a variety of behavioral, laboratory, and clinical procedures that have been used for alcohol screening in different countries. They then initiated a cross-national study to select the best features of these various national approaches to screening. This comparative field study was conducted in six countries--Norway, Australia, Kenya, Bulgaria, Mexico, and the United States. U.S. participation in this project was supported by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) through a grant to the University of Connecticut Alcohol Research Center. (For detailed information about the procedures and findings of this complex project, see Saunders and Aasland 1987; Saunders et al. in press; Babor et al. 1989a.)

The investigators developed the screening instrument from data collected from a representative sample of patients attending health care facilities. Nearly 2,000 patients were assessed by means of a comprehensive assessment of drinking habits and related problems in conjunction with a clinical examination and several biological tests. The assessment instrument consisted of approximately 150 questions that cover socioeconomic variables, past medical history, current symptomatology, the level and frequency of alcohol consumption, psychological reactions to alcohol, alcohol dependence, and various alcohol-related problems. The investigators asked each collaborating center to recruit patients from health care facilities that were typical for that country.

On the basis of their responses to questions on alcohol consumption and previous treatment, the investigators classified the patients into three groups: nondrinkers (defined as total abstainers or very infrequent drinkers), alcoholics (persons who had been admitted to residential treatment with this diagnosis, or had been treated in the past for a drinking problem), and the remaining patients, who were termed "drinking patients."

The investigators developed the 10-item AUDIT screening instrument from this study by selecting only questions that refer specifically to alcohol. As described in Table 1, the core instrument contains three questions on the amount and frequency of drinking, three questions about alcohol dependence symptoms, and four items that deal with personal and

social problems associated with alcohol misuse. All three domains showed high intrascale reliability across the collaborating centers. The investigators had selected the questions on the basis of their representativeness, correlation with alcohol consumption, high face validity, and ability to distinguish light drinkers from those with harmful drinking.

Based on the total sample of 913 drinking patients, the collaborating investigators examined the accuracy of AUDIT in detecting harmful and hazardous alcohol consumption by comparing the sensitivity (i.e., the test's ability to correctly identify heavy drinkers) and specificity (i.e., AUDIT's correct classification of nonhazardous drinkers and abstainers) for five different "gold standards": 1. hazardous alcohol consumption

(defined as a typical daily intake

exceeding 60 g for a man and 40 g for a

woman), or recurrent intoxication 2. dependence symptoms (a positive

response to at least one feature of the

alcohol dependence syndrome) 3. alcohol problems in the last year

(indicated by a positive response to any

of five questions regarding physical

and psychosocial consequences) 4. a combined index (a summation of all

the evidence of harmful or hazardous

alcohol consumption from the data

set) 5. positive classification within groups of

known alcoholics or abstainers.

The investigators determined two cutoff points for the screening instrument--8 + and 10 +--by examining the relationship between sensitivity and specificity for the first four conditions. Using the lower cutoff point, the sensitivity for hazardous consumption or recurrent intoxication or both ranged from 95 percent to 100 percent. For dependence symptoms it varied from 93 percent to 100 percent, and for problems in the last year from 91 percent to 100 percent. The sensitivity using the combined index ranged from 87 percent to 96 percent, with 92 percent representing the overall value. The specificity of AUDIT, with respect to the combined index, ranged from 81 percent to 98 percent, with an overall value of 93 percent. The sensitivities were lower when the cutoff point of 10 was taken, with an overall value of 80 percent for the combined index. The specificities were correspondingly higher: for the combined index, values ranged from 95 percent to 100 percent, with an overall value of 98 percent.

Among the drinking patients, all respondents who had three or more dependence criteria had a score of 10 or more. Of the known alcoholics, 99 percent had a score of 10 or more; less than 2 percent of nondrinkers had a score of 8 or more.

## THE CLINICAL SCREENING PROCEDURE

Some patients may not answer the AUDIT questions accurately because they refer specifically to alcohol use and problems. Some patients may be reluctant to confront their alcohol use or to admit that it is causing them harm. An individual who feels threatened by revealing this information to a health worker, or who is intoxicated at the time of the interview, or who has a certain kind of mental impairment, may give inaccurate responses.

Accordingly, the investigators developed a second "Clinical Screening Procedure," which consists of two questions about traumatic injury, five items on clinical examination, and a blood test, the serum GGT (Table 2). The clinical screening procedure does not refer directly to problems with alcohol; it is particularly relevant for those situations in which alcohol-specific questions cannot be asked with confidence.

The investigators based the initial questions on trauma on a longer scale developed by Skinner et al. (1984). The clinical

examination emphasizes measures that can be assessed easily and are minimally intrusive. The basic structure of the examination is provided by the LeGo Grid method, a quantitative diagnostic procedure based on physical stigmata associated with chronic alcohol use (LeGo 1977). It focuses on cardinal signs that can be detected by examining two aspects of the patient's physical appearance (skin and eyes), two kinds of tremor (tongue and hands), and the size of the liver. The examiner obtains summary scores by totaling the individual items, rating each on a four-point scale ranging from "not present" to "severe." (The laboratory tests should be conducted on a blood sample obtained after the clinical exam.) A score of five or more indicates a "positive" case.

The sensitivity and specificity of the clinical procedure were also examined, again using "hazardous alcohol consumption" as the reference standard. The sensitivity varied from a low of 13 percent in Bulgaria to 67 percent in Norway, with a mean value of 41 percent. The specificity was better, ranging from 81 percent to 97 percent with a mean of 92 percent. It performed poorly in comparison with the core instrument in all centers except Norway, where it was superior. The marked center-to-center variation in validity suggests that disguised screening procedures may be feasible, but that country-specific tests may need to be devised. Sensitivity also was calculated using the alcoholics as the criterion group. The results, which averaged 74 percent across the centers, indicate that the clinical procedure may have limited utility, even for detecting alcoholics.

## HOW TO USE AUDIT

Screening with AUDIT can be conducted in a variety of primary care settings by persons who have different kinds of training and professional backgrounds. The core AUDIT is designed to be used as a brief structured interview or self-report questionnaire that can be easily be incorporated into a general health interview, lifestyle questionnaire, or medical history. When presented in this context by a concerned and interested interviewer, few patients are offended by the questions. The experience of the WHO collaborating investigators (Saunders and Aasland 1987) indicate that AUDIT questions are answered accurately regardless of cultural background, age, or gender. In fact, many patients who drink heavily have been pleased to find that a health worker is interested in their use of alcohol and the problems associated with it.

The authors of AUDIT have compiled a user's manual to guide the interviewer and to assist with scoring and interpretation (Babor et al. 1989b). Because this instrument is new, the investigators have included guidelines in the manual for additional validation research.

## CONCLUSION

Although no single alcohol screening procedure has gained widespread acceptance, each has its own merits, particularly when used in combination with others or when employed under suitable conditions. Health practitioners have found that laboratory tests and clinical examination are useful when the patient drinks too much but is unwilling to admit it. Self-report procedures, on the other hand, have been found to be rapid, noninvasive, inexpensive, and more comprehensive. They depend on the truthfulness of the patient, but a health practitioner can often motivate the patient to answer accurately by explaining the benefits of providing this information.

One conclusion that was drawn from this research is that no single procedure or content domain is universally suitable for the early identification of harmful drinkers in every country. By comparing the relative utility of different procedures, however, the study provided a simple screening procedure that may fit the needs of specific early identification programs and populations at risk.

Beyond its potential for practical applications, AUDIT represents a new approach to the development and validation of alcohol screening procedures. This approach attempts to shift the focus from alcoholism as a clinical entity to a public health perspective that emphasizes the early detection of a broader range of alcohol-related problems, only one of which is chronic alcoholism. [Table 2 Omitted]

PHOTO : Nearly 2,000 patients from health care facilities in the six countries indicated above

PHOTO : were interviewed to develop AUDIT, a simple screening instrument for identifying problem

PHOTO : drinkers.

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