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PROGRAMME ON

SUBSTANCE ABUSE

AUDIT
The Alcohol Use Disorders Identification Test:

Guidelines for use in Primary Health Care

Thomas F. Babor
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- the advantages of screening for alcohol problems;
- how AUDIT was developed;
- applications of AUDIT to the early identification of alcohol-related problems;
- scoring and interpretation of AUDIT.

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This is an update of Document No. WHO/MNH/DAT/89.4, under the same

PURPOSE OF THIS MANUAL

This manual describes a screening procedure called AUDIT, the **A**lcohol **U**se **D**isorders **I**dentification **T**est. The AUDIT procedure was developed by the World Health Organization to identify persons whose alcohol consumption has become hazardous or harmful to their health. Because alcohol use poses health risks and causes a variety of health problems, systematic screening by health care workers is likely to contribute to preventive medicine. By way of introducing AUDIT, this manual describes:

- The advantages of screening for alcohol problems;
- How AUDIT was developed;
- Applications of AUDIT to the early identification of alcohol-related problems;
- Scoring and interpretation of AUDIT.

Epidemiologists and other health scientists may also wish to use this manual to guide their efforts at further evaluation of this screening instrument. Because the AUDIT procedure is still under development, further research on its reliability and validity is suggested using the guidelines outlined in Appendix A.

THE BENEFITS OF SCREENING

Screening is a way of conducting a health examination by using only a portion of the usual diagnostic procedure. It is most often directed at people who appear not to have the condition (e.g., alcohol dependence) in order to identify those who probably have the condition. Alcohol screening tests have often been used for case-finding, that is, identifying persons who are already showing serious alcohol problems. The purpose of AUDIT is to give primary emphasis to screening, not case-finding.

The benefits of routine screening include 1. educating drinkers about the hazards of heavy drinking; 2. identifying problems before serious dependence has developed; 3. motivating patients to change their drinking behaviour; and 4. exposing persons at risk to brief but effective interventions that are designed for health care workers (1).

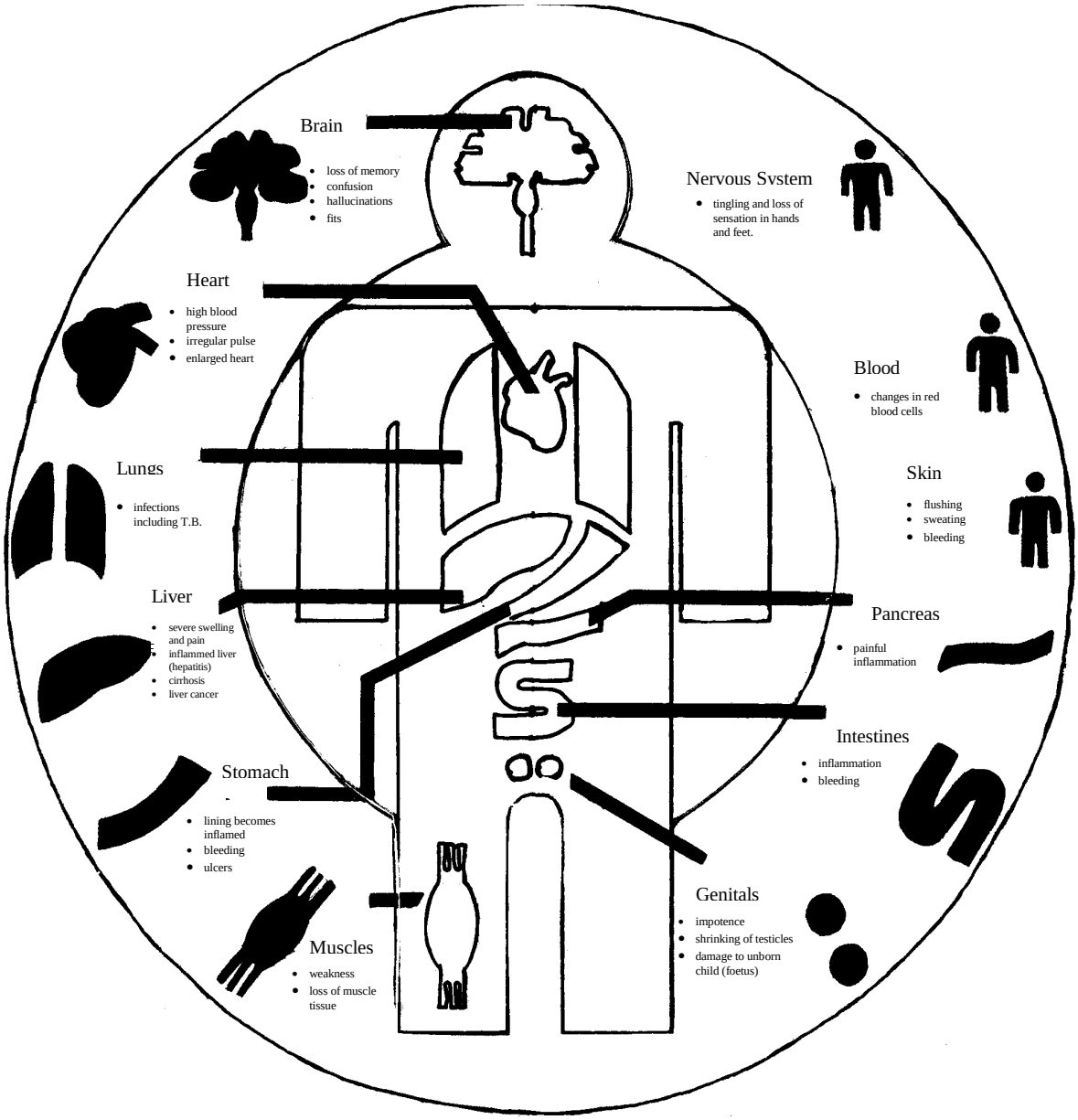
Figure 1 shows the large variety of health problems associated with alcohol use. Although these consequences tend to be concentrated in chronic alcoholics, even the use of alcohol in the range of 20-40 grams absolute alcohol per day is a risk factor for accidents, injuries and chronic health conditions (2). This is confirmed by evidence from hospital and primary care settings showing that a significant proportion of general medical patients have alcohol-related problems associated with their presenting symptoms (3). There is general agreement that health care workers are likely to encounter many individuals drinking at harmful or hazardous levels. Because low intensity, brief interventions such as education brochures and sympathetic counselling have much to recommend as the first approach to the harmful drinker (1), primary care workers should play a more active role in screening and early management of harmful alcohol use.

ADVANCES IN SCREENING

A screening procedure is a method used to screen for alcohol use, alcohol-related problems, or alcohol dependence. Three types of screening procedure have been used: verbal report methods, such as questionnaires and interviews; biological measures of biochemical and hematological markers; and clinical examination procedures. A variety of screening tests or instruments have been developed using one or several of these procedures.

Figure 1

EFFECTS OF ALCOHOL ON THE BODY



The Risks of heavy drinking.

REPEATED EXCESSIVE DRINKING WILL EVENTUALLY DAMAGE ALL THESE PARTS OF THE BODY

Recent reviews of alcohol screening (4,5) indicate that certain social and behavioural changes, such as heavy regular consumption, frequent intoxication, concern expressed by others about one's drinking, and alcohol-related accidents, may be early signs of problem drinking and unambiguous signs of dependence risk. These can be assessed easily by means of interviews or self-administered questionnaires, when the patient does not feel threatened and sees it in his or her best interests to respond accurately. Several laboratory tests may also be useful in the detection of heavy or problematic alcohol use. Serum gamma-glutamyl transferase (GGT), mean corpuscular volume (MCV) of red blood cells and serum aspartate amino transferase (AST) are common laboratory tests likely to provide, at relatively low cost, a possible indication of recent excessive alcohol consumption, especially when used in combination with psychosocial indicators (4). Finally, clinicians have for some time emphasized the importance of physical stigmata in the detection of harmful alcohol use (5). These include tremor of the hands, the appearance of blood vessels in the face, and changes observed in the mucous membranes (e.g., conjunctivitis) and oral cavity (e.g., glossitis).

Although no single screening procedure has gained widespread acceptance, each has its own merits, particularly when used in combination with others, or when employed under suitable conditions. 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, are rapid, non-invasive, inexpensive, and more comprehensive. They depend on the truthfulness of the patient, but explaining the benefits of providing this information often motivates the patient to answer accurately.

The settings in which screening of high risk individuals might be conducted will vary from country to country. **Table 1** summarizes information about the settings, screening personnel and target groups considered appropriate for a screening programme using AUDIT. Murray (6) has argued that screening might be conducted profitably with: 1. general hospital patients, especially those with disorders known to be associated with alcohol dependence (e.g., pancreatitis, cirrhosis, gastritis, tuberculosis, neurological disorders, cardiomyopathy); 2. persons who attempt suicide; 3. psychiatric patients; 4. patients attending casualty and emergency services; 5. patients attending general practitioners; 6. vagrants; 7. prisoners; 8. those cited for legal offences connected with drinking (e.g., driving while intoxicated, public intoxication). To these should be added groups considered by a recent WHO Expert Committee (7) to be at high risk of developing alcohol-related problems: middle-aged males, adolescents, migrant workers, and certain occupational groups (such as business executives, members of the professions, publicans and seamen). The nature of the risk differs by age, gender, drinking context and drinking pattern, with sociocultural factors playing an important role in the definition and expression of alcohol problems.

In general, the design of a screening programme will depend on a variety of considerations that will differ according to the purpose of screening, the groups to be identified, the resources available to the screening agent, and the level of cooperation to be expected from the population screened. When those involved are cooperative and non-defensive about their drinking behaviour, then alcohol-specific verbal report procedures have many advantages. These are particularly useful if embedded in a medical history or lifestyle questionnaire. When the population is suspected of being defensive or forgetful (e.g., the elderly), then laboratory or clinical examination findings may provide important supplementary information. In most cases, a combination of procedures will increase the confidence that can be placed in the results of any given screening test.

Table 1

Personnel, settings and groups considered appropriate for a screening programme using AUDIT		
Screener	**Setting**	**Group**
Nurse, social workers	Primary care clinic	Medical patients
Physician, nurse	Emergency room	Accident victims, intoxicated patients, trauma victims
General practitioner, family physician	Physician's Room Surgery	Medical patients
Internist	General Hospital wards Out-patient clinic	GI patients, patients with hypertension, heart disease neurological disorders
Psychiatrist	Psychiatric hospital	Psychiatric patients, particularly those who are suicidal
Officers, counsellors	Court, jail, prison	DWI offenders, violent criminals
Health and human services workers	Other health-related facilities	Persons demonstrating impaired social, occupational functioning (e.g. marital discord, child neglect)
Medics	Armed forces	Enlisted men
Work supervisor	Employee Assistance Programme (industrial setting)	Workers

DEVELOPMENT OF AUDIT

In 1982 the World Health Organization asked an international group of investigators to develop a simple screening instrument. Its purpose was to identify persons with early alcohol problems using procedures that were suitable for health workers to use in both developing and developed countries. The investigators reviewed a variety of self-report, laboratory and clinical procedures that had been used for this purpose in different countries. They then initiated a cross-national study to select the best features of these various national approaches to screening (9,10). This comparative field study was conducted in six countries (Norway, Australia, Kenya, Bulgaria, Mexico, and the United States of America).

The method consisted of selecting items that best distinguished light drinkers from those with harmful drinking. Unlike previous screening tests, the new instrument was intended for the early identification of harmful drinking rather than alcoholism. However, the screening instrument can also detect alcoholism with a high degree of accuracy.

One conclusion 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 developed two simple screening procedures that fit the needs of specific early identification programmes and populations at risk.

The main screening instrument devised from this study is a ten-item questionnaire called "AUDIT", the Alcohol Use Disorder Identification Test. Only questions that refer specifically to alcohol were selected. As described in **Table 2**, the core instrument contains three questions on the amount and frequency of drinking, three questions on alcohol dependence and four on problems caused by alcohol, including adverse psychological reactions. All these domains showed high intra-scale reliability across all collaborating centres and correlated highly with alcohol consumption. The questions themselves were selected on the basis of their representativeness, correlation with alcohol consumption, high face validity, and ability to distinguish light drinkers from those with harmful drinking.

In certain medical settings and for groups of patients who may be defensive or uncooperative, a disguised screening procedure may be advantageous. Accordingly, a second "Clinical Screening Instrument" was devised. As shown in **Table 3**, this consists of two questions about traumatic injury, five items on clinical examination, and a blood test, the serum GGT. The clinical screening instrument does not refer directly to problems with alcohol. It is particularly relevant for those situations where alcohol-specific questions cannot be asked in confidence. Additional information about the validity of both instruments is given in Appendix B.

As the first screening test designed specifically for use in primary care settings, AUDIT has the following advantages:

- Cross-national standardization: AUDIT was validated on primary health care patients in six countries. While additional evaluation needs to be conducted, at present AUDIT is the only screening test specifically designed for international uses;
- Identifies harmful and hazardous alcohol use;
- Brief, rapid and flexible;
- Designed for primary health care workers;
- Contains a supplementary non-alcohol-specific clinical instrument;
- Consistent with ICD-10 definitions of alcohol dependence and harmful alcohol use;
- Focuses on recent alcohol use.

Table 2

W H O A U D I T

ALCOHOL USE DISORDERS IDENTIFICATION TEST

HAZARDOUS ALCOHOL CONSUMPTION	1. Frequency of drinking 2. Typical quantity 3. Frequency of heavy drinking
DEPENDENCE SYMPTOMS	4. Impaired control over drinking 5. Increased salience of drinking 6. Morning drinking
HARMFUL ALCOHOL CONSUMPTION	7. Guilt after drinking 8. Blackouts 9. Alcohol-related injuries 10. Others concerned about drinking

Table 3

W H O A U D I T

CLINICAL SCREENING INSTRUMENT

TRAUMA HISTORY	1. Injured head since age 18 2. Broke bones since age 18
CLINICAL EXAMINATION	3. Conjunctival injection 4. Abnormal skin vascularization 5. Hand tremor 6. Tongue tremor 7. Hepatomegaly
BLOOD TEST	8. GGT

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 survey that can 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 will be offended by the questions. The experience of the WHO collaborating investigators (9) indicated that AUDIT questions were answered accurately regardless of cultural background, age or gender. In fact, many patients who drank heavily were pleased to find that a health worker was interested in their use of alcohol and the problems associated with it.

In some patients the AUDIT questions may not be answered 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. Individuals who feel threatened by revealing this information to a health worker, who are intoxicated at the time of the interview or who have certain kinds of mental impairment, may give inaccurate responses. Patients tend to answer most accurately when:

- The interviewer is friendly and non-threatening;
- The purpose of the questions is clearly related to a diagnosis of their health status;
- The patient is alcohol and drug free at the time of screening;
- The information is considered confidential;
- The questions are easy to understand.

Health workers should try to establish these conditions before AUDIT is given. When these conditions are not present, the Clinical Screening Instrument may be more useful. Alternatively, health workers may also use AUDIT to guide an interview with a concerned friend, spouse or family member. In some settings (such as waiting rooms) AUDIT may be administered as a self-report questionnaire, with instructions for the patient to discuss the meaning of the results with the primary care worker.

The clinical examination emphasizes measures that can be assessed easily and are minimally intrusive. The basic structure of the examination is provided by the LeGô Grid method, a quantitative diagnostic procedure based on physical stigmata associated with chronic alcohol use (11). It focuses on cardinal signs detected by examination of two aspects of the patient's physical appearance (skin, eyes), two kinds of tremor (tongue, hands) as well as the size of the liver. Summary scores are obtained by totalling the individual items, each rated by the examiner 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. Refer to Appendix C for a detailed description of the clinical examination procedure.

In addition to these general considerations, the following interviewing techniques should be used:

- Try to interview patients under the best possible circumstances. For patients requiring emergency treatment, or who are severely impaired, it is best to wait until their condition has stabilized and they have become accustomed to the health setting where the interview is to take place.

- Look for signs of alcohol or drug intoxication. Patients who have alcohol on their breath or who appear intoxicated may be unreliable respondents. Consider conducting the interview at a later time. If this is not possible, make note of these findings on the patient's record.

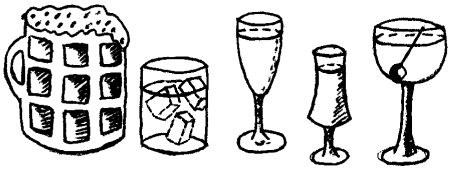
- If AUDIT is embedded, as recommended, in a longer health interview, then a transitional statement will be needed when the AUDIT questions are asked. The best way to introduce the AUDIT questions is to give the patient a general idea of the content of the questions, the purpose for asking them, and the need for

Figure 2

Illustrations of "standard drinks", with locally appropriate beverages and typical amounts for the United Kingdom, Norway and Mexico

United Kingdom

1 standard drink =



½ pint of ordinary beer or lager | A single measure =of spirits = (whisky, gin, bacardi, vodka, etc) | A glass of wine | A =small = glass of sherry | A measure of vermouth or aperitif

Norway

EN ALKOHOLENHET:

1 halv flaske pils = 1 vanlig glass bordvin = 1 Litre glass hetvin = 1 drink med brennevin

Mexico

BEBIDA TIPO:

-Una botella de cerveza.

-Un vaso de vino de mesa.

-Una copa de licor:

Brandy
Rum
Whisky

Ginebra
Vodka

Tequila
Mezcal

y pulque

accurate answers. The following is an illustrative introduction: "Now I am going to ask you some questions about your use of alcoholic beverages during the past year. Because alcohol use can affect many areas of health (and may interfere with certain medications), it is important for us to know how much you usually drink and whether you have experienced any problems with your drinking. Please try to be as honest and as accurate as you can be." This statement should be followed by a description of the types of alcoholic beverages typically consumed in the population to which the patient belongs (e.g., "By alcoholic beverages we mean your use of wine, beer, vodka, sherry, etc."). If necessary, include a description of beverages that may not be considered alcoholic, e.g. cider, low alcohol beer, etc.

- It is sometimes useful for both the interviewer and the patient to translate their answers in terms of "standard drinks". While the types and amounts of alcoholic drinks will vary according to culture and custom, the alcohol content of a typical serving of beer, wine and spirits tends to be roughly equivalent in many countries. **Figure 2** illustrates the concept of a standard drink for several representative countries.

- It is important to read the questions as written and in the order indicated. By following the exact wording, better comparability will be obtained between your results and those obtained by other interviewers.

- Most of the questions in AUDIT are phrased in terms of "how often" symptoms occur. It is useful to offer the patient several examples of the response categories (for example, "Never", "Several times a month", "Daily") to suggest how he might answer. When he has responded, it is useful to probe during the initial questions to be sure that the patient has selected the most accurate response (for example, "You say you drink several times a week. Is this just on weekends or do you drink more or less ever day?"). If responses are ambiguous or evasive, continue asking for clarification by repeating the question and the response options, asking the patient to choose the best one. At times answers are difficult to record because the patient may not drink on a regular basis. For example, if the patient was drinking intensively for the month prior to an accident, but not before or since, then it will be difficult to characterize the "typical" drinking sought by the question. In these cases it is best to record the amount of drinking and related symptoms for the heaviest drinking period in the past year, making note of the fact that this may be atypical or transitory for that individual.

- Record answers carefully, using the comments section of the interview brochure to explain any special circumstances, additional information, or clinical inferences. Often patients will provide the interviewer with useful comments about their drinking that can be valuable in the interpretation of the total AUDIT score.

In summary, the following procedure is recommended for use of AUDIT in most screening situations:

1. Use the ten AUDIT questions first.

2. When the screening agent feels that the patient is not providing accurate answers to these questions, or when additional information is desired to supplement the self-report questions, then the Clinical Screening Instrument should be administered.

3. Ideally, the ten core questions should be integrated into a longer health interview, and the clinical items should be made a routine part of a clinical exam. The results should be then interpreted together. When this is not possible, either AUDIT or the Clinical Screening Instrument can be used alone. This will depend on the skills of the person screening, the conditions of the screening situation, the cooperation of the patient, and the time and resources available to the health worker.

4. The laboratory test is a valuable component of the Clinical Screening Instrument. However, under certain conditions it may not be feasible to conduct a GGT test, and in most cases the results will not be available immediately.

This should not discourage health workers from conducting the remaining items of the Clinical Instrument and using this information to supplement their interpretation of AUDIT.

SCORING AND INTERPRETATION OF AUDIT

An easy-to-use brochure has been designed to guide the interviewer and to assist with scoring and interpretation. This should only be used after becoming thoroughly familiar with the more detailed procedures described below. As indicated by the AUDIT questions shown in **Table 4**, each item is scored by checking the response category that comes closest to the patient's answer.

On the basis of evidence from the validation study (10), two cut off points are suggested, depending on the purpose of the screening programme or the nature of the research project. A score of eight or more produces the highest sensitivity, while a score of ten or more results in higher specificity (see Appendix B). In general, high scores on the first three items in the absence of elevated scores on the remaining items suggest **hazardous** alcohol use. Elevated scores on items 4 through 6 imply the presence or emergence of **alcohol dependence**. High scores on the remaining items suggest **harmful** alcohol use. As discussed in the following section on diagnosis, each of these areas of alcohol-related problems implies different types of management.

The Clinical Screening Instrument, shown in **Table 5**, is considered to be elevated when the total score is five or greater. Here too the examiner should give careful consideration to the different meanings attributed to alcohol-related trauma, physical signs, and the elevated liver enzyme. It should be noted that false positives can occur when the individual is accident prone, uses drugs (such as barbiturates) that induce GGT, or has hand tremor because of nervousness, neurological disorder or nicotine dependence.

WARNING: AUDIT IS NOT A DIAGNOSTIC INSTRUMENT

- Screening with AUDIT may identify hazardous or harmful drinkers, even alcohol dependent patients, but is not in itself a diagnostic test.

- If identified as a harmful drinker by AUDIT, it is desirable to call for an in-depth diagnostic evaluation by a qualified practitioner.

DIAGNOSIS, MANAGEMENT AND REFERRAL

Screening in itself is just the first step in a process of identifying, diagnosing and treating a patient. Following the recognition that a patient scores positively on either AUDIT or the Clinical Screening Instrument, a more thorough evaluation should be conducted. This should be conducted by a qualified professional who is familiar with alcohol-related disorders. Typically, the diagnosis of alcohol use disorders is established by evaluating the history of the patient's drinking, the signs and symptoms present, as well as laboratory data such as liver enzyme abnormalities. Health workers using AUDIT should be familiar with the ICD-10 system of classifying alcohol-related disorders (12). They should refer patients for proper evaluation if they do not feel competent to do so themselves. The value of establishing a diagnosis is to provide a logical basis for management or treatment. The flow chart shown in **Figure 3** illustrates the proper sequence of screening, diagnosis and intervention following interpretation of AUDIT results.

Central to the diagnosis of alcohol use disorders in ICD-10 is the concept of a dependence syndrome, which is distinguished from alcohol-related disabilities (12). The dependence syndrome is seen as an interrelated cluster of cognitive, behavioural and physiological symptoms. Alcohol-related disabilities, on the other hand, consist of those physical, psychological and social dysfunctions that follow directly or indirectly from harmful drinking and dependence.

According to the ICD-10 diagnostic system for substance use disorders, a complete description of an individual's alcohol-related pathology must include the nature and severity of dependence, the kinds and degrees

of disability, and the personal and environmental factors that influence the drinking problem.

In part to address the complexity of alcohol-related problems, ICD-10 introduced the term harmful use into the nomenclature. This category is concerned with medical or related types of harm, since the purpose of ICD is to classify diseases, injuries and causes of death.

Harmful use is defined as a pattern of use which is already causing damage to health. The damage may be either physical (e.g., liver damage from chronic drinking) or mental (e.g., episodes of depressive disorder secondary to heavy drinking). As with hazardous use, harmful patterns of use are often criticized by others and are sometimes associated with adverse social consequences. However, the fact that drinking is disapproved by the family or culture is not by itself evidence of harmful use.

A diagnosis of **dependence** should only be made if three or more of the following have been experienced or exhibited at some time in the previous twelve months: 1. a physiological withdrawal state; 2. alcohol use with the intention of relieving withdrawal symptoms and with awareness that this strategy is effective; 3. an impaired capacity to control the onset, termination or level of use; 4. a narrowing of the personal repertoire of patterns of use, e.g., a tendency to drink in the same way on weekdays and weekends, regardless of the social constraints; 5. progressive neglect of alternative pleasures or interests in favour of alcohol use; 6. persistence of use despite clear evidence of harmful consequences; 7. evidence of tolerance; and 8. a strong desire or sense of compulsion to take alcohol.

Flow Chart of Screening, Diagnosis and Intervention Using AUDIT

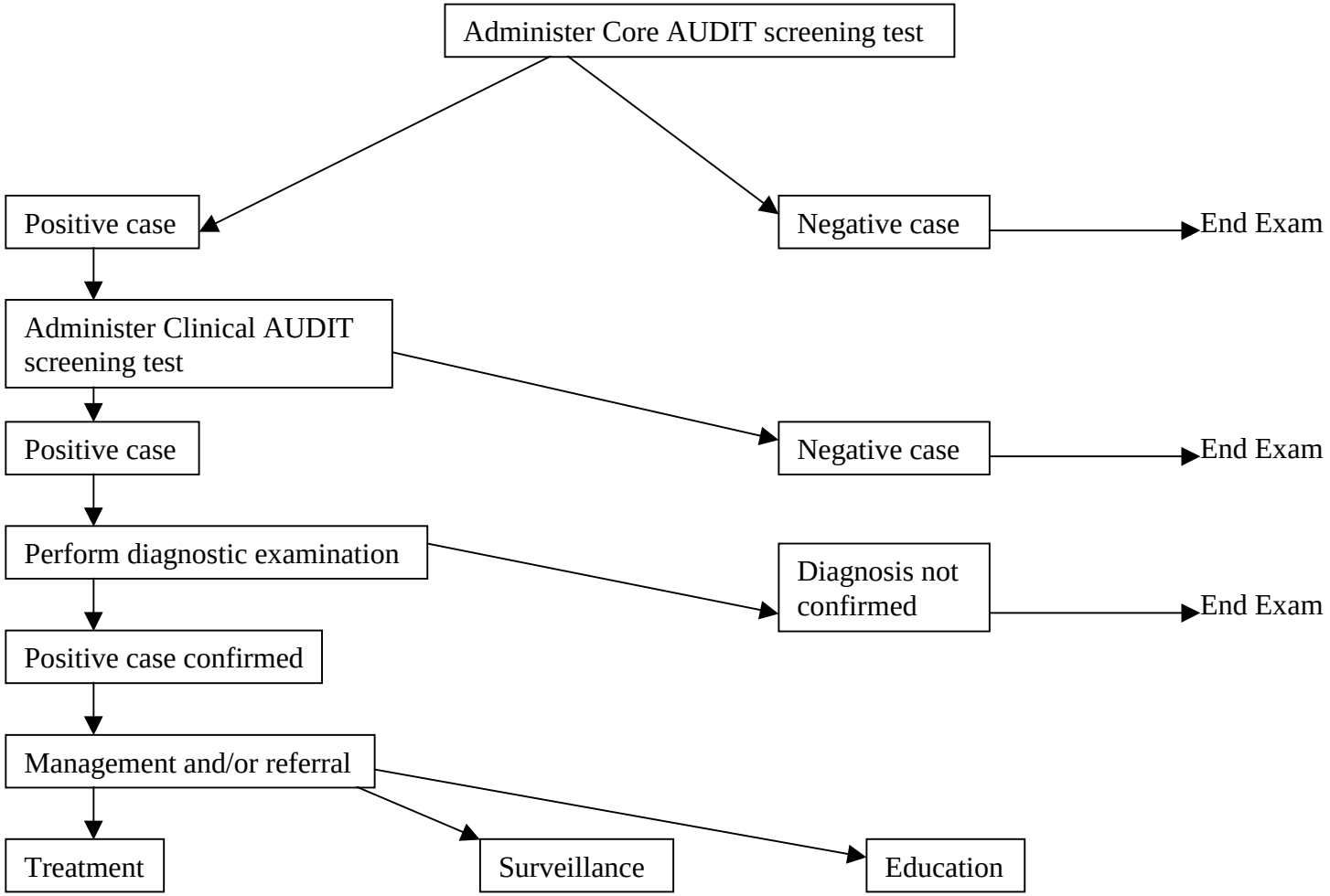


Table 4 THE AUDIT QUESTIONNAIRE

Circle the number that comes closest to the patient's answer.

1. How often do you have a drink containing alcohol?

(0)	NEVER	(1)	MONTHLY OR LESS	(2)	TWO TO FOUR TIMES A MONTH	(3)	TWO TO THREE TIMES A WEEK	(4)	FOUR OR MORE TIMES A WEEK

2.* How many drinks containing alcohol do you have on a typical day when you are drinking? [CODE NUMBER OF STANDARD DRINKS]

(0)	1 OR 2	(1)	3 OR 4	(2)	5 OR 6	(3)	7 OR 8	(4)	10 OR MORE

3. How often do you have six or more drinks on one occasion?

(0)	NEVER	(1)	LESS THAN MONTHLY	(2)	MONTHLY	(3)	WEEKLY	(4)	DAILY OR ALMOST DAILY

4. How often during the last year have you found that you were not able to stop drinking once you had started?

(0)	NEVER	(1)	LESS THAN MONTHLY	(2)	MONTHLY	(3)	WEEKLY	(4)	DAILY OR ALMOST DAILY

5. How often during the last year have you failed to do what was normally expected from you because of drinking?

(0)	NEVER	(1)	LESS THAN MONTHLY	(2)	MONTHLY	(3)	WEEKLY	(4)	DAILY OR ALMOST DAILY

6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?

(0)	NEVER	(1)	LESS THAN MONTHLY	(2)	MONTHLY	(3)	WEEKLY	(4)	DAILY OR ALMOST DAILY

7. How often during the last year have you had a feeling of guilt or remorse after drinking?

(0)	NEVER	(1)	LESS THAN MONTHLY	(2)	MONTHLY	(3)	WEEKLY	(4)	DAILY OR ALMOST DAILY

8. How often during the last year have you been unable to remember what happened the night before because you had been drinking?

(0)	NEVER	(1)	LESS THAN MONTHLY	(2)	MONTHLY	(3)	WEEKLY	(4)	DAILY OR ALMOST DAILY

9. Have you or someone else been injured as a result of your drinking

(0)	NO	(2)	YES, BUT NOT IN THE LAST YEAR	(4)	YES, DURING THE LAST YEAR

10. Has a relative or friend or doctor or other health worker been concerned about your drinking or suggested you cut down?

(0)	NO	(2)	YES, BUT NOT IN THE LAST YEAR	(4)	YES, DURING THE LAST YEAR

* In determining the response categories it has been assumed that one "drink" contains 10g alcohol. In countries where the alcohol content of a standard drink differs by more than 25% from 10g, the response category should be modified accordingly.

Record sum of individual item scores here _____ .

Table 5

AUDIT "CLINICAL" QUESTIONS AND PROCEDURE

Trauma History

1. **Have you injured your head since your eighteenth birthday?**

   (3) YES (0) NO

2. **Have you broken any bones since your eighteenth birthday?**

   (3) YES (0) NO

Clinical Examination

3. **Conjunctival injection**

   (0) NOT PRESENT (1) MILD (2) MODERATE (3) SEVERE

4. **Abnormal skin vascularisation**

   (0) NOT PRESENT (1) MILD (2) MODERATE (3) SEVERE

5. **Hand tremor**

   (0) NOT PRESENT (1) MILD (2) MODERATE (3) SEVERE

6. **Tongue tremor**

   (0) NOT PRESENT (1) MILD (2) MODERATE (3) SEVERE

7. **Hepatomegaly**

   (0) NOT PRESENT (1) MILD (2) MODERATE (3) SEVERE

8. **GGT Values***

Lower normal	(0	- 30 IU/1)	= (0)
Upper normal	(30	- 50 IU/1)	= (1)
Abnormal		(50 IU/1)	= (3)

* These values may change with laboratory methods, and standards may vary with sex and age of the drinker.

Record sum of individual scores here _____.

A related concept, not included in ICD-10, but nevertheless important to screening, is hazardous use (13). **Hazardous use** is defined as an established pattern of use carrying with it a high risk of future damage to health, physical or mental, but which has not yet resulted in significant medical or psychiatric ill effects. Hazardous patterns of use are often criticized and disapproved by other people, and sometimes result in social consequences such as domestic conflicts, financial difficulties and marital breakdown. However, the fact that use of alcohol, or the individual's pattern of use, is disapproved by his or her family or culture is not by itself evidence of hazardous use; nor is the fact that it may have led to social problems such as driving under the influence of alcohol. High risk of future damage to health is, therefore, crucial to the concept of hazardous use. In assessing the extent of that risk, the scale and pattern of use, as well as other factors such as family history, should be taken into account.

Following diagnosis of hazardous use, harmful use, alcohol dependence syndrome, or other alcohol-related disabilities, a variety of options are available to the primary health care worker. In less serious cases, the health worker should consider practising some of the secondary prevention and brief intervention strategies that have been developed for use in demonstration programmes and research evaluation studies (1,3). These include simple advice, brief counselling, information giving, self-help manuals, and periodic monitoring of progress. In more serious cases, the patient should be referred to local professionals with expertise in alcohol problems or specialized health care facilities, if these are available.

Summary: WHAT TO DO WITH POSITIVE CASES ON AUDIT

- Use the clinical screening instrument if not previously used.
- Confirm or rule out diagnosis of alcohol dependence.
- Refer patient for treatment, surveillance or health education programme as appropriate.

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APPENDIX A: Research Guidelines for AUDIT

Although AUDIT was developed on the basis of an extensive six-nation validation trial, additional research is necessary to evaluate its accuracy and utility in different settings, populations and cultural groups. To guide this process, it is recommended that health researchers use AUDIT to answer some of the following questions:

1. Does AUDIT correlate with external sources of information about hazardous use, harmful use and alcohol dependence, which are measured at the same time? This is termed "concurrent" validity. External sources of information that should be considered in relation to the core and clinical versions of AUDIT include: a) Self-report measures of alcohol consumption, dependence symptoms and alcohol-related problems; b) biochemical tests known to be sensitive to alcohol consumption, or to be markers of damage resulting from chronic drinking; c) observational evaluations of alcohol consumption, dependence symptoms, and alcohol-related problems provided by family members, friends or other observers; d) public and hospital records of alcohol-related problems such as police reports and medical records.

2. Does AUDIT discriminate between persons who do or do not exhibit various alcohol-related behaviours and disease conditions? Discriminant validity can be evaluated by comparing AUDIT scores obtained from known groups such as abstainers, infrequent drinkers, formerly alcohol-dependent persons, as well as current drinkers who meet ICD-10 criteria for hazardous use, harmful use and alcohol dependence syndrome. The demands of methodologically sound validation require the use of independent diagnostic criteria, which themselves have been validated. Two instruments that may be useful for this purpose are the Composite International Diagnostic Interview (CIDI) and the Structured Clinical Assessment for Neuropsychiatry (SCAN). Both of these interviews provide independent verification of a variety of alcohol use disorders according to ICD-10 and other diagnostic systems.

3. Does AUDIT predict future alcohol problems as well as treatment response? This can be evaluated by conducting repeated AUDITs on the same individuals. Total scores can be correlated with various indicators of future symptomatology. It would be desirable to know, for example, whether AUDIT assesses alcohol-related problems along a continuum of severity, whether severity scores increase progressively among individuals who continue to drink heavily, and whether scores diminish significantly following advice, counselling, and other types of intervention. A screening test should not be conceived in isolation from intervention and treatment. It must be evaluated in terms of its impact on the morbidity and mortality of the population at risk. Its contribution to secondary prevention is therefore dependent on the availability of effective treatment strategies.

4. What is the validity of AUDIT in different risk groups using different validation criteria? In future evaluations of the AUDIT screening procedures, careful attention should be given to defining the alcohol-related phenomena to be detected or predicted. With increasing emphasis now being given to the differential assessment of various aspects of alcohol dependence, as well as alcohol-related disabilities, and the empirical identification of alcoholic subtypes, it would seem that the validity of screening tests could be improved by focusing on more carefully defined risk groups and more specific alcohol-related problems. Specification of high-risk target populations whose problems are to be the focus of screening with AUDIT will enhance the development of reliable and valid screening programmes, provide clearer criteria for their evaluation, and improve the cost/benefit ratio of a screening programme.

5. What is the practical utility of AUDIT? Important constraints on screening tests are imposed by cost considerations and by the acceptability of screening to both health professionals and the intended target populations. When screening tests are expensive, the results of a screening programme may not justify its cost. This is also true when the procedure is time consuming, overly invasive, or otherwise offensive to the target group. This type of process evaluation should be conducted with AUDIT.

6. What is the relationship between AUDIT scores, considered as both categorical and continuous measures, and other screening tests, such as the CAGE, MAST, LeGô procedure, and biochemical markers? This should

provide a useful evaluation of the construct validity of AUDIT, although careful attention should be given to any overlap or duplication in item content. To the extent that AUDIT contains similar questions or procedures, any concordance between AUDIT and other tests may be a reflection of its reliability rather than its validity.

7. What are the relative merits of AUDIT and the Clinical Screening Procedure when used alone and in combination with each other? Does the Clinical Procedure identify persons who score low on AUDIT, and if so, what are their characteristics?

8. Can AUDIT be scored to produce separate assessments of hazardous use, harmful use and alcohol dependence? If screening can be differentiated into these separate domains, it may prove useful for the purpose of evaluating different educational and treatment approaches to secondary prevention.

9. How can AUDIT be used in epidemiological research? AUDIT may have applications as an epidemiological tool in surveys of health clinics, health service systems and general population samples. Because it was developed as an international instrument, it may be a useful way to compare samples drawn from different national and cultural groups, with respect to the nature and prevalence of hazardous drinking, harmful drinking and alcohol dependence.

10. What is the concurrent validity of AUDIT items and total scores when compared with different "objective" indicators of alcohol-related problems, such as blood alcohol level, biochemical markers of heavy drinking, public records of alcohol-related problems, and observational data obtained from persons knowledgeable about the patient's drinking behaviour. To the extent that verbal report procedures may have intrinsic limitations, it would be useful to evaluate under what circumstances AUDIT results are biased or otherwise invalid. Procedures to increase the accuracy of AUDIT should also be investigated (see reference 14 for suggestions).

11. How acceptable is AUDIT to primary care workers? How can screening procedures best be taught in the context of educating health professionals? How extensively are screening procedures using AUDIT applied once students or health workers are trained?

Further information about research applications and validation research can be obtained by writing to the Programme on Substance Abuse, World Health Organization, 1211 Geneva 27, Switzerland.

APPENDIX B: Validity of AUDIT and Clinical Screening Instrument

Based on the sample of 913 drinking patients, Saunders et al. (see references 9,10,15 and 16) evaluated the accuracy of AUDIT in detecting harmful and hazardous alcohol consumption by comparing the sensitivity and specificity for five different "gold standards": 1. hazardous alcohol consumption (defined as a typical daily intake exceeding 60g for a man and 40g 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/a positive response to any of five questions on physical and psychosocial consequences); 4. a combined index (which was a summation of all the evidence of harmful of hazardous alcohol consumption from the data set); and 5. positive classification within groups of known alcoholics or abstainers. The cut-off points for the screening instrument were determined by examining the relationship between sensitivity and specificity for the first four conditions. Two cut-off points were determined, 8+ and 10+. Using the lower cut-off point the sensitivity for hazardous consumption and/or recurrent intoxication ranged from 95% to 100%. For dependence symptoms it varied from 93 to 100%, and for the problems in the last year from 91% to 100%. The sensitivity using the combined index ranged from 87 to 96%, with the overall value being 92%. The specificity of AUDIT with respect to the combined index ranged from 81 to 98%, with an overall value of 93%. When the cut-off point of 10 was taken, the sensitivities were lower, with an overall value of 80% for the combined index. The specificities were correspondingly higher: for the combined index values ranged from 95 to 100%, with an overall value of 98%.

Among the drinking patients, all those who had three or more dependence criteria had a score of 10 or more. Of the known alcoholics, 99% had a score of 10 or more. Less than 2% of the non-drinkers had a score of 8 or more.

Using a score of 5 or more as indicating 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% in Bulgaria of 67% in Norway with a mean value of 41%. The specificity was better, ranging from 81% to 97% with a mean of 92%. It performed poorly in comparison with the core instrument in all centres except Norway, where it was superior. The marketed centre-to-centre variation in validity suggests that disguised screening procedures may be feasible but that country-specific tests may need to be devised. Sensitivity was also calculated using the alcoholics as the criterion group. The results averaging 74% across centres indicate that the clinical procedure may have limited utility even for the detection of alcoholics.

Additional research on the reliability and validity of AUDIT has been reported by Fleming et al. (see reference 17).

APPENDIX C: Physical Examination for Clinical Screening Procedure

The clinical examination focuses on physical signs of alcohol dependence and chronic alcohol use. Only qualified health workers should conduct the examination. Several of the items listed in **Table 5** require explanation in order to achieve reliable ratings on the four-point rating scale (0=Not present; 1=Mild; 2=Moderate; 3=Severe).

1. **Conjunctival injection**. The condition of the conjunctival tissue is rated on the basis of the extent of capillary engorgement and scleral jaundice. Examination is best conducted in clear daylight by asking the patient to direct his gaze upward and then downward while pulling back the upper and lower eye-lids. Under normal conditions (0 rating), the normal pearly whiteness is widely distributed. In contrast, a positive value (1-3) is given to rate the relative degree of departure from the norm. Capillary engorgement is reflected in the appearance of burgundy-coloured vascular elements and the appearance of a greenish-yellow tinge to the sclera.

2. **Abnormal skin vascularization**. This is best rated by examination of the face and neck. These areas often give evidence of fine wiry arterioles that appear as a reddish blush. Other signs of chronic alcohol ingestion include the appearance of "goose-flesh" on the neck and yellowish blotches on the skin.

3. **Hand tremor**. This should be estimated with the arms extended anteriorly, half bent at the elbows, with the hands rotated toward the midline.

4. **Tongue tremor**. This should be rated with the tongue protruding a short distance beyond the lips, but not too excessively.

5. **Hepatomegaly**. Hepatic changes should be rated both in terms of volume and consistency. Increased volume can be gauged in terms of finger breadths below the costal margin. Consistency can be rated as normal (0), firm (1), hard (2) or very hard (3).

APPENDIX D: Note on Translation and Adaptation to Local Drinking Customs

In some cultural settings and linguistic groups, the AUDIT questions cannot be translated literally. There are a number of sociocultural factors that need to be taken into account in addition to semantic meaning. For example, the drinking customs and beverage preferences of certain countries may require adaptation of the first three questions to conform to local conditions. With regard to translation into other languages, it should be noted that the AUDIT questions have been translated into Spanish, Slavic, Norwegian, Swahili, and Romanian. These translations are available by writing to the Programme on Substance Abuse, World Health Organization, 1211 Geneva 27, Switzerland.

Before attempting to translate AUDIT into other languages, interested individuals should consult with WHO Headquarters about the procedures to be followed and the availability of other translations.

APPENDIX E: Availability of Training Materials for AUDIT

A training module was recently developed in the United States to teach AUDIT screening and brief intervention techniques to health professionals. The module was created by Project NEADA (Nursing Education in Alcohol and Drug Abuse) through a federal contract with the University of Connecticut School of Nursing. Module materials include: 1. a 30-minute video entitled Alcohol Screening and Brief Intervention, which presents a conceptual overview, an introduction to interviewing techniques, examples of brief advice giving, interviews with simulated patients, and information on how to identify and refer cases not suitable for brief interventions; 2. an Instructor's Manual with lecture material, role playing exercises, guidelines for group discussions and learner activity assignments; and 3. a 70-minute video, Identifying Alcohol Abusers which presents six patient sessions demonstrating AUDIT screening and related counselling techniques.

This module is designed as part of a professional education course or workshop on the identification and management of Alcohol Use Disorders. It can be used in a variety of educational settings including graduate training and continuing education. Further information can be obtained by writing to Thomas F. Babor, Ph.D., Department of Psychiatry, UConn Health Centre, Farmington, CT, USA, 06030 (Fax: 203-679-1296).

APPENDIX F

CLINICAL SCREENING PROCEDURE

Record numerical score in box at right

TRAUMA HISTORY

HAVE YOU INJURED YOUR HEAD SINCE YOUR 18TH BIRTHDAY? ☐

(3) Yes (0) No

HAVE YOU BROKEN ANY BONES SINCE YOUR 18TH BIRTHDAY? ☐

(3) Yes (0) No

CLINICAL EXAMINATION

Code as follows:

(0) Not present (2) Moderate
(1) Mild (3) Severe

CONJUNCTIVAL INJECTION ☐

ABNORMAL SKIN VASCULARIZATION ☐

HAND TREMOR ☐

TONGUE TREMOR ☐

HEPATOMEGALY ☐

GGT VALUES ☐
(0) Lower normal (0-30)
(1) Upper normal (39-50)
(3) Abnormal (50-or higher)

Record sum of individual items here ☐

Consult User's Manual if score is greater than five.

COMMENTS

Supplementary information, (defensiveness, state of intoxication, interview conditions, etc.)

* Refer to the AUDIT User's Guidelines for questions concerning diagnosis, management and referral.

WARNING

The **AUDIT** is not a diagnostic instrument.

A U D I T

A SCREENING TEST

for

PRIMARY HEALTH

CARE

AUDIT

THE ALCOHOL USE DISORDERS IDENTIFICATION TEST

AUDIT was developed by the World Health Organization to identify persons whose alcohol consumption has become hazardous or harmful to their health. Persons at high risk include medical patients, accident victims, suicidal persons, drunk driving offenders and armed forces personnel. Screening with AUDIT can be conducted in a variety of health settings.

AUDIT is a brief structured interview that can be incorporated into a medical history. It contains questions about recent alcohol consumption, dependence symptoms and alcohol-related problems.

The option **Clinical Screening Procedure** consists of two interview items, a brief physical examination and a laboratory test. It is designed to complement the **AUDIT** under conditions where additional clinical information is required.

REMEMBER

* Read questions as written
* Record answers carefully
* Use the ten **AUDIT** questions first

* Begin **AUDIT** by saying "NOW I AM GOING TO ASK YOU SOME QUESTIONS ABOUT YOUR USE OF ALCOHOLIC BEVERAGES DURING THE PAST YEAR". Explain what is meant by "alcoholic beverages by using local examples of beer, wine, vodka, etc. Code answers in terms of "standard drinks".

* Refer to the **AUDIT** Guidelines for detailed instructions.

AUDIT CORE

Place correct answer number in box

HOW OFTEN DO YOU HAVE A DRINK CONTAINING ALCOHOL? ☐

(0) Never
(1) Monthly or less
(2) 2 to 4 times a month
(3) 2 to 3 times a week
(4) 4 or more times a week

HOW MANY DRINKS CONTAINING ALCOHOL DO YOU HAVE ON A TYPICAL DAY WHEN YOU ARE DRINKING? ☐

(0) 1 OR 2
(1) 3 OR 4
(2) 5 OR 6
(3) 7 OR 9
(4) 10 OR MORE

HOW OFTEN TO YOU HAVE SIX OR MORE DRINKS ON ONE OCCASION? ☐

(0) Never
(1) <monthly
(2) Monthly
(3) Weekly
(4) Daily or almost daily

HOW OFTEN DURING THE LAST YEAR HAVE YOU FOUND THAT YOU WERE NOT ABLE TO STOP DRINKING ONCE YOU HAD STARTED? ☐

(0) Never
(1) <monthly
(2) Monthly
(3) Weekly
(4) Daily or almost daily

HOW OFTEN DURING THE LAST YEAR HAVE YOU FAILED TO DO WHAT WAS NORMALLY EXPECTED FROM YOU BECAUSE OF DRINKING? ☐

(0) Never
(1) <monthly
(2) Monthly
(3) Weekly
(4) Daily or almost daily

HOW OFTEN DURING THE LAST YEAR HAVE YOU NEEDED A FIRST DRINK IN THE MORNING TO GET YOURSELF GOING AFTER A HEAVY DRINKING SESSION? ☐

(0) Never
(1) <monthly
(2) Monthly
(3) Weekly
(4) Daily or almost daily

HOW OFTEN DURING THE LAST YEAR HAVE YOU HAD A FEELING OF GUILT OR REMORSE AFTER DRINKING? ☐

(0) Never
(1) <monthly
(2) Monthly
(3) Weekly
(4) Daily or almost daily

HOW OFTEN DURING THE LAST YEAR HAVE YOU BEEN UNABLE TO REMEMBER WHAT HAPPENED THE NIGHT BEFORE BECAUSE YOU HAD BEEN DRINKING? ☐

(0) Never
(1) <monthly
(2) Monthly
(3) Weekly
(4) Daily or almost daily

HAVE YOU OR SOMEONE ELSE BEEN INJURED AS A RESULT OF YOUR DRINKING? ☐

(0) No
(2) Yes, but not in the last year
(4) Yes, during the last year

HAS A RELATIVE OR FRIEND OR A DOCTOR OR ANOTHER HEALTH WORKER BEEN CONCERNED ABOUT YOUR DRINKING OR SUGGESTED YOU CUT DOWN? ☐

(0) No
(2) Yes, but not in the last year
(4) Yes, during the last year

☐
Record total of specific items here
If total is 8 or greater, consult User's Manual.