

# Measuring alcohol-related HIV risk

TECHNICAL BRIEF  
>> OCTOBER 2013

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This brief offers guidance to researchers who are not content experts on alcohol but want to explore the impact of alcohol use on health and development. Here, members of the STRIVE consortium provide appropriate measures and techniques for collecting information on alcohol misuse in the context of studies on HIV. The brief covers:

- how to measure individual alcohol use
- how to measure “a drink”
- how to measure risky behaviour
- how to measure beliefs and norms about drinking
- how to measure environmental factors

## Evidence base

The World Health Organization (WHO) ranks alcohol use as the fifth largest contributor to the global burden of disease, accounting for nearly 4% of all death and disability experienced by the world’s population.<sup>1</sup> For men, the burden is even higher: alcohol accounts for 5.5% of all death and disability and ranks as the third largest risk factor, following tobacco use and high blood pressure. Alcohol use accounts for such a large proportion of ill health and death because of its links to a wide range of health problems, including various cancers, neuropsychiatric diseases, gastrointestinal diseases, fetal alcohol syndrome and injuries (both accidental and from violence).

A growing body of social science and epidemiological research points to alcohol as a large contributor to sexual risk behaviour and HIV acquisition.<sup>2</sup> However, it is important to take up existing opportunities to elucidate these interrelationships, measure the magnitude of the problem and argue for programme and policy interventions to address it.

## Measuring patterns of individual alcohol use

**As a simple first step, add measures of alcohol use – both frequency and quantity – to existing risk behaviour surveys.**

Simple and globally validated measures of harmful alcohol use, integrated into ongoing HIV behavioural surveys, will clarify the patterns of sexual risk behaviour and HIV seropositivity that cluster among heavy, moderate and non-drinkers. A meta-analysis of 35 studies conducted in sub-Saharan Africa, for example, shows that the odds of being HIV positive were more than twice as high among individuals whose drinking fell in the “at risk” category when compared with non-drinkers.<sup>3</sup>

STRIVE recommends the **Alcohol Use Disorders Identification Test (AUDIT<sup>4</sup>)**, which allows researchers to:

- measure how much and how often a person drinks
- measure whether a person’s drinking behaviour is hazardous, harmful or dependent
- collect comparable data to show the prevalence of problem drinking across contexts
- spotlight areas where alcohol use may be contributing significantly to HIV risk.

A growing body of evidence suggests that it is the pattern of drinking, especially heavy episodic drinking (“binge” drinking), that drives a large part of alcohol-related harm. A meta-analysis of ten studies globally showed that those who consumed alcohol prior to, or at the time of, sexual relations were at an 87% increased risk for HIV infection and that binge drinkers were at

double the risk of non-binge drinkers.<sup>5</sup> By measuring frequency and quantity of drinking, an abbreviated three-question version of AUDIT (AUDIT-C) identifies binge drinking (see Table 1).

**TABLE 1: AUDIT C**

A. How often do you have a drink containing alcohol?		B. How many drinks containing alcohol do you have on a typical day when you are drinking?		C. How often do you have six or more drinks on one occasion? (for women, this number is 5)	
0	Never	0	1 or 2	0	Never
1	Monthly or less	1	3 or 4	1	Less than monthly
2	2 to 4 times a month	2	5 or 6	2	Monthly
3	2 to 3 times a week	3	7, 8, or 9	3	Weekly
4	4 or more times a week	4	10 or more	4	Daily or almost daily



### THE ALCOHOL USE DISORDERS IDENTIFICATION TEST (AUDIT)

WHO developed the 10-question AUDIT in the 1980s to screen individuals for alcohol use disorders from mild to severe, including full alcohol dependency.<sup>6</sup> Its reliability and validity are well documented.<sup>7</sup> For a handbook on how to use the AUDIT, see: [http://whqlibdoc.who.int/hq/2001/who\\_msd\\_msb\\_01.6a.pdf](http://whqlibdoc.who.int/hq/2001/who_msd_msb_01.6a.pdf)

## Measuring units of alcohol

**There is no internationally agreed standard unit of alcohol, so take care to define standard units according to local standards and measures, if these exist.**

One “standard unit” of alcohol is defined in the UK as containing 8 grams of ethyl alcohol, in the U.S. 14 grams and in Australia 10 grams. Calculators to determine standard units of alcohol are available online. The WHO recommends the use of 10g of pure alcohol as a standard drink in settings where the standard drink is not defined. See: [http://whqlibdoc.who.int/hq/2000/who\\_msd\\_msb\\_00.4.pdf](http://whqlibdoc.who.int/hq/2000/who_msd_msb_00.4.pdf)

When administering the AUDIT questions, it is useful to refer to a visual aid showing various types of alcohol containers used locally and how many standard units each contains. Where drinks are typically shared, ask how many people shared the container and divide the standard units by that number. Include non-commercially



**Alcohol containers and units in Windhoek, Namibia**

produced alcohol, such as beer and distilled spirits that sellers produce in their own homes or on the premises of the bar. These drinks may form the bulk of alcohol sales in some settings, yet are frequently overlooked in data collection. In the Windhoek example, Tombo is a locally brewed beer typically served in one litre jugs.

If possible, test informally produced drinks for alcohol content in order to determine how many standard units are contained in a typical container.

## Measuring sexual behaviour in the context of alcohol use

**Ask questions to gain a general assessment of the proportion of sexual risk behaviour affected by alcohol use or the environment in which alcohol is sold.**

Programme implementers and evaluators need finely grained information on the frequency and circumstances under which alcohol use and sexual behaviour co-occur in order to determine how best to respond. At a minimum, ask three questions to measure the intersection of alcohol use and sexual behaviour:

1. the frequency of sexual episodes that take place during or just after a drinking episode in a defined recall period (i.e. intoxicated sex)
2. the frequency of intoxicated sexual encounters in which condoms were used
3. the frequency of meeting sex partners at drinking venues.

In addition, it can be useful to gather “event-level” data on alcohol use and sexual behaviour using the **Timeline Followback (TLFB)** method. Time consuming to collect, these data enable better behavioural interventions.

In HIV-focused research, use the TLFB method to explore when and how alcohol use and sexual behaviour are inter-related.<sup>8</sup> Note that the TLFB has not been widely used in developing countries and should be adapted to local settings and to the target population.

Use a calendar as a memory aid to encourage an interactive Q&A format to draw out information iteratively and to probe for contextual details. Document alcohol quantity for each day of the month and then ask, for example:

- where the alcohol use took place (home or bar type)
- whether the respondent had sexual intercourse that day
- what type of partner the sex was with
- whether the partner was met at a drinking venue
- whether the sexual episode took place before or after drinking (either by the respondent or their partner)
- whether the sex was protected or unprotected
- whether alcohol, money or other goods were exchanged for sex

- whether physical or sexual violence took place subsequent to drinking.

This type of information provides valuable insight into:

- the ordering of risk (does alcohol use precede unprotected sex?)
- the relationship between quantity of alcohol consumed and sexual risk (does heavier drinking predict unprotected sex or sex with riskier partners?)
- the context of hazardous drinking (is drinking at particular types of venues more strongly associated with unprotected sex?)
- what relationships are more likely to involve unprotected sex in the context of alcohol use
- whether violence is associated with quantity drunk and/or unprotected sex.

These data can be used to develop new interventions or to evaluate the impact of existing interventions on alcohol-related risk.



### TIMELINE FOLLOW BACK METHOD (TLFB)

TLFB was developed in 1979 to quantify daily drinking and has been evaluated widely for reliability and validity.

Use a simple calendar, labelled with memory aids such as holidays or personally significant events, to record the number of standard units of alcohol drunk on each day.

The recall period can be as little as one week or as long as one year. Shorter periods enhance recall, while longer periods capture variation in drinking behaviour over time.

## Measuring beliefs and norms around alcohol use

**Examine how and when alcohol use and sexual risk behaviour intersect in local contexts, and the individual attitudes and social norms that shape those behaviours.**

Studies from North America, the UK, Europe and Australia show that beliefs and norms powerfully shape drinking behaviour and that interventions to challenge or shift those beliefs and norms can reduce hazardous drinking practices. However, measurement of personal beliefs or social norms has been neglected in the high-HIV prevalence countries of the south, leaving a serious gap. Shifting drinking norms and helping communities to establish healthier drinking habits should form an important part of HIV prevention programming in communities experiencing high rates of problem drinking.

### Outcome expectancies

**Explicit or implicit beliefs about the expected positive results of alcohol consumption have been found to predict alcohol consumption.<sup>9,10</sup>**

These beliefs can be measured by a well-established tool, the **Alcohol Expectancy Questionnaire (AEQ)**. Questions from the AEQ sexual enhancement subscale are particularly relevant for HIV researchers who seek to:

- explore associations between alcohol expectancies and sexual behaviour
- measure change over time in response to integrated programming on alcohol and HIV risk
- examine the relationship between alcohol use and aggression.

A growing body of research shows that intimate partner violence is a risk factor for HIV infection,<sup>11,12</sup> yet little research has explored whether individuals see aggression as a natural outcome of alcohol use and how this perception is related to actual experiences of interpersonal violence. Relevant AEQ questions on sexual enhancement and interpersonal power questions include:

1. If I am nervous about having sex, alcohol makes me feel better
2. Conversing with members of the opposite sex is easier for me after I've had a few drinks
3. After a few drinks, I feel less sexually inhibited
4. Drinking increases male aggressiveness
5. After a few drinks, it is easier to pick a fight
6. After a few drinks, I feel brave and more capable of fighting.



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### Social norms

**Drinking is predicted by both *descriptive* alcohol norms (the subject's perception of how much people in her or his peer reference group typically drink) and *injunctive* drinking norms (the subject's perception of what drinking behaviour their peers think they should be engaged in).**

The more one thinks their peers drink, the more one drinks. Likewise, the more one thinks their peer group approves of a certain level of drinking, the closer to that perceived ideal standard individuals will attempt to adhere.<sup>13</sup>

Most studies of the influence of social norms on alcohol use have been conducted with college students in North America. Few researchers so far have studied social drinking norms in communities experiencing high rates of HIV and high rates of hazardous alcohol use, even where alcohol use has been well quantified as a contributor to HIV risk.

Developed for college students, the **Drinking Norms Rating Form (DNRF)** can easily be adapted to measure descriptive drinking norms among other populations by customizing the reference groups. For example, for "an average university student", substitute "a typical member of this community who is your same age and sex". Design questions to measure injunctive drinking norms, asking respondents to estimate how many units of alcohol they think members of their social reference groups expect them to drink.



#### THE ALCOHOL EXPECTANCY QUESTIONNAIRE (AEQ)

Designed in 1982, the AEQ has been extensively tested for validity and reliability. The respondent is asked to agree or disagree with each of a list of 120 statements. Although long, the AEQ is designed to be self-administered in about 15 minutes. The statements make up six subscales measuring positive global changes in experience, sexual enhancement, social and physical pleasure, assertiveness, relaxation/tension reduction and arousal/interpersonal power.

See: [http://bit.ly/AEQ\\_inst](http://bit.ly/AEQ_inst)

For an adaptation of the AEQ for use with adolescents, see: [http://bit.ly/AEQ-A\\_inst](http://bit.ly/AEQ-A_inst)



#### THE DRINKING NORMS RATING FORM (DNRF)

This standardized tool for measuring descriptive drinking norms is used with college and university students in the U.S. The respondent reports the typical amount of alcohol s/he believes is consumed by various groups of referents on each day of a typical week (measured in standard units of alcohol).

See: [http://bit.ly/DNRF\\_inst](http://bit.ly/DNRF_inst)

## Measuring environmental factors

### Harmful alcohol use and related HIV risk are strongly determined by alcohol availability.

A variety of indicators can be used to measure how cheaply and conveniently alcohol can be consumed. When this information is correlated with sexual risk behaviour data in communities experiencing severe HIV epidemics, strong arguments can be made in support of alcohol regulation and policy interventions that reduce alcohol accessibility and that have been proven effective across the globe in reducing alcohol-related harm.<sup>14</sup>

#### Bar density and type

How many drinking venues/liquor outlets (stratified by type) are located within a target community? Types should be determined based on local realities, they may include licensed outlets (including restaurants), unlicensed outlets, bottle stores, taverns, sports bars, nightclubs, beer halls or home-based bars. Are there any local or national laws that restrict bar density or where alcohol outlets can be placed (near schools, for example)?

#### Hours of bar operation

What are the legally stipulated times for bar/liquor outlet opening and closing. On what days of the week can liquor be sold in various outlets? Visits to random selections bars outside of the legal operating days/hours can verify the degree of adherence to the laws.

#### Types of alcohol sold/packaging

What types of alcohol are sold in outlets (stratified by type of outlet)? In what quantities is alcohol being packaged? Does the packaging of alcohol seem to be designed to appeal particularly to youth? Does the packaging of alcohol encourage its consumption in low-income communities (for example, the sale of liquor in small, cheap sachets)?

#### Price of alcohol

What policies or laws exist to control the price of alcohol either through taxation or minimum unit pricing? How much does alcohol cost, by product, by size and by standard unit of alcohol? How does this price compare with staple food products? In a population-based survey of households or in a representative sample of bar patrons, what percentage of monthly income is spent on alcohol?

#### Advertising, promotion and marketing of alcohol

What laws or policies exist to control the quantity, content or placement of alcohol advertisement? Where do alcohol advertisements appear publicly within a target community? What is the content of alcohol advertisements that appear publicly? What social norms regarding

drinking are the advertisements promoting? What other types of alcohol promotion or marketing exists (for example, games or competitions, sponsorship of sporting events)?

Where specific community-level data is needed, use participatory community mapping exercises to involve community members in the data collection process, raise their awareness of alcohol as a public health problem and record valuable information on alcohol availability. In settings with informal or unlicensed producers or retailers, community mapping is the only way to document the full scope of alcohol availability. Other methods include a review of liquor license records, reviews of national and/or municipal liquor laws, review of alcohol taxation laws and laws governing the advertising and promotion of alcohol and commerce data on pricing of products and quantities sold.

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#### ETHICAL CONCERNS

Collecting data on alcohol use can trigger certain ethical concerns that researchers should be aware of and plan for. It may become clear to the interviewer that the research participant is dependent on alcohol or that their alcohol use has become harmful to themselves or to others. Be prepared to provide appropriate referrals to clinical services, to counselling and addiction treatment centres where these exist or to community-based resources such as Alcoholics Anonymous.

