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Turning Point
Alcohol & Drug Centre

# BLOOD BORNE VIRUS TRANSMISSION RISK ASSESSMENT QUESTIONNAIRE – SHORT VERSION (BBV-TRAQ-SV)

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# 1.0 Introduction

## 1.1 Background

The Blood Borne Virus Transmission Risk Assessment Questionnaire (BBV-TRAQ) was originally developed at Turning Point Alcohol and Drug Centre (Fry, Rumbold, & Lintzeris, 1998) to measure participation in high-risk practices for the transmission of blood borne viruses (BBV), in the absence of such measures and in response to concerns regarding the spread of BBVs among individuals who engage in injecting drug use. Although public health initiatives have been largely successful in limiting the spread of human immunodeficiency virus (HIV) and the hepatitis B virus (HBV) among injecting drug users (IDU) in Australia (Wodak, 1997), the continuing high prevalence and incidence of hepatitis C (HCV) transmission among IDU remains a concern.

As a major cause of drug related morbidity and mortality in Australia, HCV poses a significant public health challenge. The prevalence of HCV in Australia has been estimated at around 150,000 to 200,000 people, the majority of whom are current or former IDUs (Law et al., 2003), where prevalence rates of between 50-80% have been reported (ANCARD, 1998; Crofts et al., 1997; Freeman et al., 2000; NCHECR, 2005). HCV incidence is estimated at between 6,000 to 11,000 new infections each year; however, recent figures suggested there were 16,000 new cases of HCV in the year 2001 (ANCHARD, 2002).

Unlike HIV, HCV may be efficiently transmitted via a range of risk practices other than the sharing of used syringes. Reports of incident HCV in IDUs who do not report sharing syringes and nosocomial transmission implicate a wider range of risk practices (e.g, environmental contamination) and injecting paraphernalia (e.g, using another person's spoon, filter, water, swab) in HCV transmission (van Beek et al., 1998; Dore et al., 2003).

While not discounting the need for structural (e.g, increasing access to clean injecting equipment) and policy reform (e.g, law and police practice), HCV transmission is unlikely to be reduced without significant changes in the specific behaviours thought to be responsible for the spread of the virus (Des Jarlais, 2001). This requires an expansion of existing strategies, including improved education and support for IDUs to reduce or prevent the sharing of injecting equipment (Crofts et al, 2000). Such strategies must have the capacity to address the variety of personal, structural and environmental barriers that may limit IDU access to health services and the application of knowledge to protect themselves against BBVs.

Innovative and targeted education and prevention programs are needed to promote sustainable changes in the injecting practices of IDUs. It is critical, however, that new strategies are rigorously evaluated so that prevention advances may be evidence based. However, there are difficulties in evaluating the efficacy of such interventions in reducing participation in high-risk practices for the transmission of HCV in IDU. The use of HCV seroconversion is complicated by high HCV prevalence and incidence rates in IDUs, such that very large numbers of participants must undergo serial testing in order to evaluate the efficacy of an intervention. An alternative approach is to assess participation in high-risk practices for HCV transmission.

This has been complicated by the lack of a standardised instrument suitable for collecting data regarding participation in a broad range of injecting and other putative risk practices associated with the transmission of HCV. Available injecting risk measures such as the *HIV Risk Behaviour Scal*e (Darke et al., 1991) and the *Injecting Risk Questionnaire* (Stimson et al., 1998) have been shown to have acceptable reliability and validity (Adelekan et al., 1996; Hunter et al., 2000). However, these tools have poor content validity for HCV monitoring purposes due to insufficient coverage of the full range of HCV risk practices implicated by the plausibility of environmental contamination. The *Injecting Risk Questionnaire* in particular does not allow for measurement of the frequency with

which sharing behaviours occur or protective practices (e.g, hand washing) – a necessary feature for exploring notions of relative 'risk' for particular practices (Hunter et al., 2000).

The BBV-TRAQ is currently the only standardised content valid instrument that enables comprehensive assessment of injecting and other risk practices for HCV, HBV and HIV (Fry & Lintzeris, 2003). The original BBV-TRAQ consists of 34 items across three sub-scales measuring the prevalence of recent (previous month) injecting, sexual and skin penetration risk practices and has demonstrated good reliability and validity (Fry & Lintzeris, 2003).

## 1.2 Developing a BBV-TRAQ Short Version

One of the shortfalls of the original BBV-TRAQ has been the lack of weights assigned to different risk practice items, such that something like unprotected sex contributed equally to final BBV-TRAQ scores as sharing injecting equipment, despite these practices being identified as carrying vastly different risks of transmitting HCV. This has meant that, although higher BBV-TRAQ scores generally equate to higher theoretical risk of BBV transmission, the predictive validity of the scale has thus far been uncertain. In response to this criticism, retrospective analyses of the original scale development data and BBV-TRAQ data from a large cohort of IDU (Dwyer et al., 2002) was used to develop a weighting system and explore the psychometric properties of the scale. This new weighted BBV-TRAQ demonstrated sound reliability, and importantly demonstrated predictive validity properties not apparent in the original scale (Stoové & Fry, 2005).

Around the time of this work, Turning Point was approached by Queensland Health to develop a revised version of the BBV-TRAQ suitable for use with IDU in needle and syringe program (NSP) settings as part of the *QLD Health NSP Automatic Brief Learning Exchange Project*. The intention of Queensland Health was to use the modified version of the BBV-TRAQ to collect information about risk behaviours among IDU and facilitate feedback and education to IDU about BBV transmission risks and injecting behaviours. In response to this request, researchers at Turning Point aimed to produce a short-version BBV-TRAQ designed to specifically assess participation in high-risk BBV transmission practices among IDU.

The present Administration & Procedures Manual describes the development of the BBV-TRAQ Short Version (BBV-TRAQ-SV) and also reports on the psychometric properties of the instrument. In addition, the appropriate administration and scoring procedures are documented. It is recommended that all parties intending to use the BBV-TRAQ-SV do so according to the procedures set out in this manual. Such consistency in administration procedures will facilitate future validation of this instrument and also provide an opportunity to develop normative data for specific high risk populations.

Note – Parties wishing to use the original 34 item BBV-TRAQ (incorporating injecting, sexual and other skin penetration risk scales) should use the original administration and procedures manual (Fry, Rumbold & Lintzeris, 1998). The new weighted scoring system described in the current document is suitable for use with both original and short version instruments (refer to Section 2.3 for weighting instructions and Appendix 2 for SPSS syntax for BBV-TRAQ-SV weighted scores).

# 2.0 Development and Structure of the BBV-TRAQ-SV

Prior to describing the weighting system for the BBV-TRAQ and the subsequent development of a short version of the scale the following sections briefly outlines how participants are required to complete survey items, how scores are assigned to individual items and how protective factor questions are used to adjust item scores.

## 2.2 Specific Risk Practice Items

BBV-TRAQ items require respondents to give categorical estimates of the frequency with which they have engaged in each specific risk practice during the month prior to interview (see example item 18a in Figure 1). Categorical response options for each item include: *No times, Once, Twice, 3-5 times, 6-10 times,* and *More than 10 times.* Numerical scoring codes (i.e, 0-5) for each response option do not appear in the actual BBV-TRAQ instrument so as to prevent respondents from mistaking these for indicators of risk practice frequency.

## 2.2 Protective Practice Items

Additional items accompany those specific risk practice items for which disinfection or cleaning of contaminated equipment prior to re-use, or the cleaning of contaminated hands/fingers via washing is possible (see example item 18b in Figure 1). Nine protective practice items were developed for the injecting risk sub-scale according to median degree of risk ratings obtained from expert key informants during phase two of the BBV-TRAQ project (Fry et al., 1998).

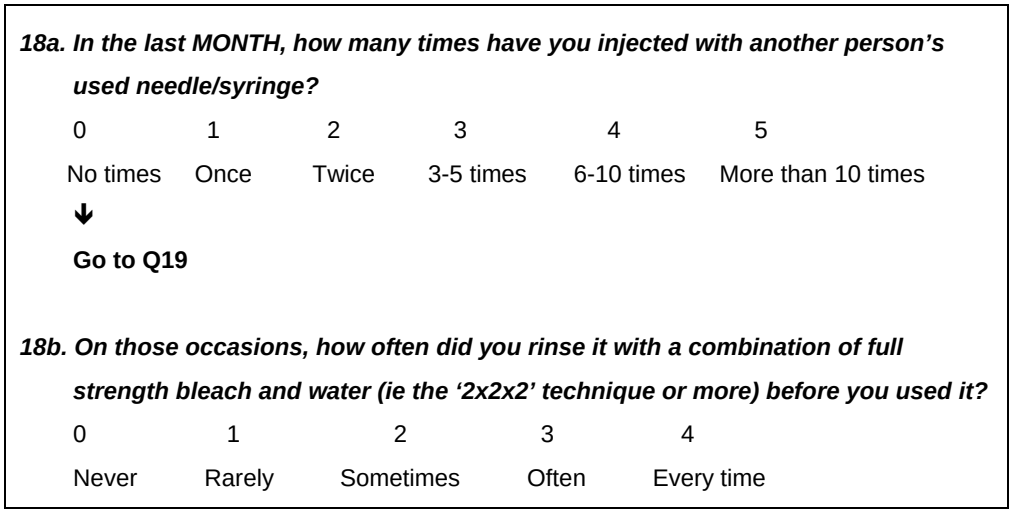


***Figure 1 - Example of BBV-TRAQ item types***

## 2.3 Weighting BBV-TRAQ Items

In the first phase of the original BBV-TRAQ scale development process, a comprehensive list of putative risk practices for the transmission of HCV, HBV and HIV was constructed. The procedures employed to identify risk practices included a focused review of recent social, behavioural, epidemiological and medical research findings pertaining to BBV transmission; and semi-structured interviews with current IDU, researchers, clinicians and other relevant key informants. During the second phase of development (aimed at designing a trial instrument) expert key informants provided

ratings of the degree of risk posed by specific practices on a scale from zero (no risk) to 10 (highest risk).

Taking this data, BBV-TRAQ items were re-categorised into five risk groups according to the median ratings of these key informants. Table A1 (Appendix 1) contains the full list of 34 BBV-TRAQ items risk categories and median key expert ratings.

There is a paucity of data to guide the *relative* ratings of risk practices – for example, how much more HCV transmission risk exists for sharing a needle and syringe compared to touching another persons injecting site? In the absence of empirical data, a half-log scale was chosen to weight the five categories of risk practice BBV-TRAQ items for the full version of the BBV-TRAQ. Items in the lowest risk category were assigned base weights of one, items in the next risk category were assigned weights of five, the next category weights of 25, the next category weights of 125 and the highest risk category weights of 625.

To develop a short instrument designed specifically for use with injecting drug using populations, items from the top two risk categories were chosen for the BBV-TRAQ-SV. While shortening the length of the survey, this process also delivered a set of relatively high BBV transmission risk items related specifically to injecting drug use. Because items from only two risk categories were included in the BBV-TRAQ-SV only two sets of scoring weights were required. As such, for the short version questionnaire the base category (receiving weights of one) is category 4, and category 5 risk items receive weights of five (see section 4.0 BBV-TRAQ-SV scoring and interpretation).

Preliminary analyses of retrospective data (Dwyer et al., 2002) showed that the weighted BBV-TRAQ scale was able to discriminate between participants according to their self-reported HCV and BBV status, thereby demonstrating predictive validity that had previously not been established with the unweighted scale (Stoové & Fry, 2005). In the absence of seroincidence data to establish the predictive validity of engagement in putative HCV risk practices, this is a significant finding as few other published risk assessment scales have been able to distinguish between groups of IDU in this way.

## 2.4 Structure of the BBV-TRAQ-SV

The BBV-TRAQ-SV consists of items contained in the two highest risk categories (items with median key expert risk ratings of 9-10 or 7-8; see Table A1, Appendix 1). These items were predominantly related to injecting practices.

Principle components factor analysis (varimax rotation, three factor solution) of the BBV-TRAQ-SV revealed three injecting practice factors:

1. Sharing needle and syringe contamination
2. Sharing other injecting equipment
3. Second person contamination (in preparation & injecting process)

This factor solution accounted for 46% of the total variance in scores. These groupings hold well together empirically (i.e, a statistical factor solution) and also from an applied construct perspective.

Additional items contained in the top two risk categories that were not related to IDU asked about unregulated or non-professional piercing and tattooing (see Table 1, items c2 and c3) and did not factor with any other items. To maintain focus on IDU practices, these items are not included in the weighted BBV-TRAQ-SV. In settings where such practices might be particularly relevant (e.g, prison), the inclusion of these items may be warranted.

Detailed descriptions of the psychometric properties of the BBV-TRAQ-SV can be found in section 7.0 of this report. A copy of the final short version questionnaire is included in Appendix 1.

# 3.0 BBV-TRAQ-SV Administration

Standardised administration procedures should be employed when administering the BBV-TRAQ-SV to assess patterns of BBV risk behaviour. Investigators intending to use this instrument are advised to do so according to the procedures set out in this manual. The BBV-TRAQ-SV is suitable for use by a range of professionals in research, clinical and peer education settings.

Note – Parties wishing to use the original 34 item BBV-TRAQ (incorporating injecting, sexual and other skin penetration risk scales) should use the original administration and procedures manual (Fry, Rumbold & Lintzeris, 1998). The new weighted scoring system described in the current document is suitable for use with both original and short version instruments (refer to Section 2.3 for weighting instructions and Appendix 2 for SPSS syntax for BBV-TRAQ-SV weighted scores).

## 3.1 Target population

The BBV-TRAQ-SV is suitable for use with populations of current IDU who are proficient in English.[1] A current IDU is defined for the purpose of this instrument as someone who has injected[2] any drug (e.g, heroin, methadone, other opiates, amphetamines, cocaine, hallucinogens, ecstasy, benzodiazepines, steroids) within the month prior to interview.

## 3.2 Administering the BBV-TRAQ-SV

The BBV-TRAQ-SV is a self-report instrument that should be completed in the presence of a trained research assistant or interviewer. Investigators intending to use the BBV-TRAQ-SV are advised to allow respondents to self-administer the instrument unless reading difficulties or other factors preclude this.

The advantages of self-report include improved quality of information obtained, as well as ease and economy of administration and scoring (Derogatis, 1993). The use of behavioural self-report is a commonly used method for collecting data about injecting drug use. The validity and reliability of self-report is respectable compared to bio-markers and collateral interviews, and therefore a suitable method for obtaining information about many aspects of drug use (Darke, 1998; Neale & Robertson, 2003; Secades-Villa & Fernandez-Hermida, 2003).

Interviewers who are administering the BBV-TRAQ-SV are advised to familiarise themselves with the accompanying BBV-TRAQ-SV *Glossary of Terms* (see Appendix 9) and the item descriptions contained in sections 5.1, 5.2 and 5.3 of this manual in responding to participant questions about terminology that appears in the BBV-TRAQ-SV, or the intended meaning of particular items. Consistent use of these definitions will serve to further standardise administration procedures for the instrument.

Prior to administering the BBV-TRAQ-SV, respondents should be given the opportunity to ask questions or seek clarification about the nature and purpose of the instrument. It is important that prospective respondents understand that the BBV-TRAQ-SV instrument contains specific questions about personal matters such as injecting drug use. In addition, respondents should be reassured that the responses they provide in completing the BBV-TRAQ-SV survey are not *necessarily* indicative of their current serostatus. However, investigators should ensure that all participants have access to

[1] The World Health Organization has translated the full version BBV-TRAQ into 8 languages see http://www.who.int/substance_abuse/research_tools/bloodbornevirusriskassessment/en/index.html.

[2] The instrument is suitable for use with people who engage in intravenous, intramuscular and sub-cutaneous injection.

information regarding safe injecting, BBV prevention and testing, as well as opportunities for debriefing with appropriately qualified professionals.

Investigators should ensure that all relevant BBV-TRAQ-SV questions/items are answered by respondents.

## 3.3 Time Set

The BBV-TRAQ-SV has a referent time period of *one month* prior to the interview date. Respondents completing the instrument are required to provide responses where relevant about the frequency with which they have engaged in each of the 15 risk practices within the last month period. This is a standard time period employed in other similar risk assessment instruments (Darke et al, 1991; Stimson et al, 1998).

## 3.4 Administration Time

The BBV-TRAQ-SV requires between six to eight minutes to complete.

## 3.5 Availability

There is no charge for using the BBV-TRAQ-SV. However, to assist in monitoring the future use of the instrument and in the development of normative data, parties intending to use the BBV-TRAQ-SV are requested to notify the authors prior to use.

The BBV-TRAQ-SV layout, item content, structure and scoring procedures may not be altered in any way without first obtaining permission from the authors.

# 4.0 BBV-TRAQ-SV Scoring and Interpretation

The BBV-TRAQ-SV is scored in three steps. Scores on *specific risk practice* items must first be recoded according to responses given to the accompanying *protective risk practice* items. Next, weights are assigned to all highest risk category 1 items[3] by multiplying item scores by five. Finally, BBV-TRAQ-SV scores are summed both within and across each sub-scale to obtain sub-scale and total scores.

## Step 1 - Recoding scores obtained on specific risk practice items

Responses for all *specific risk practice* items (part 'a' of any item) are scored according to a 6-point (i.e, '0-5') scale. For all scores of '4' (i.e, a response of *"Every time"*) on *protective practice* items (part 'b' of any item), the associated scores on the accompanying *specific risk practice* items should be recoded to '0'. An example of this is presented in Figure 2 (see Appendix 2 for BBV-TRAQ-SV recoding syntax).

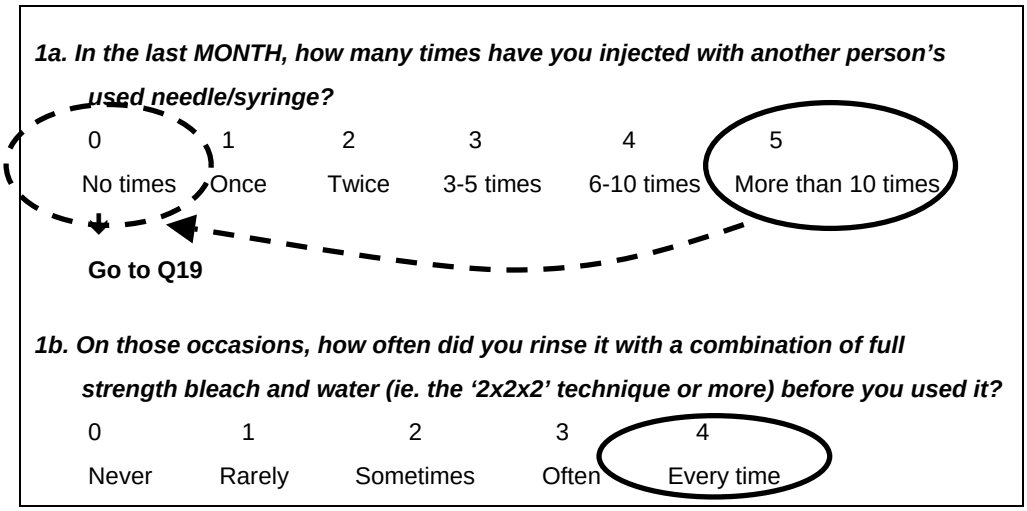


***Figure 2 - Example of a specific risk practice item (1a) recode***

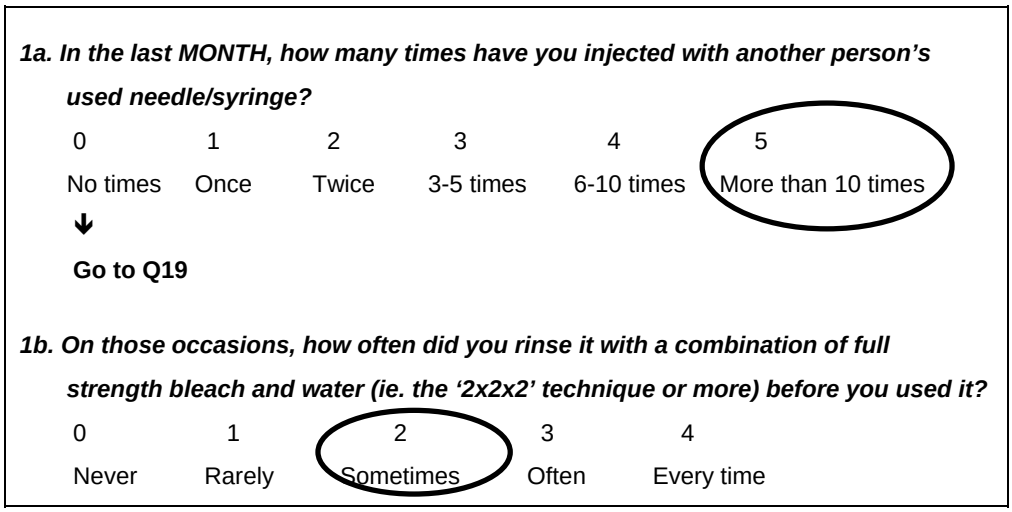


***Figure 3 - Example where a specific risk practice item (1a) is not recoded***

[3] Category 5 for the full BBV-TRAQ scale, see Appendix 1.

The purpose of recoding specific risk practice items in this way is to score for the protective effect of taking steps to disinfect or clean contaminated equipment and surfaces prior to engaging in potentially risky behaviour such as injecting drug use.

Conversely, for scores of '0' (*"Never"*),'1' (*"Rarely"*),'2' (*"Sometimes"*) or '3' (*"Often"*) on *protective practice items*, the corresponding *specific risk practice item* scores remain unchanged (see Figure 3 for an example). Protective practices may not be considered entirely protective unless they have been performed prior to every specific risk practice episode reported.

These item score recodes may be performed manually on hard copy raw data (marked clearly as "RECODE") at the end of each interview, or via electronic database management and analysis software after the BBV-TRAQ-SV raw data has been entered.

### Step 2 - Weighting specific risk practice item scores

Category 1 item[4] scores (adjusted for protective factors where applicable) are multiplied by five in order to account for the added risk associated with these practices over and above the risk of category 2 items[5].

### Step 3 - Summation of scores

The BBV-TRAQ-SV is designed to provide four scores: a *total score* which represents the total level of injecting drug use BBV transmission risk behaviour in the preceding month; a *needle and syringe contamination score* representing the level of injecting risk behaviour related specifically to the sharing of needles and syringes; a *second person contamination score* for the level of risk behaviour related to second persons assisting in the drug preparation and injecting process; and an *other equipment sharing score* representing the level of risk behaviour related to the sharing of other equipment involved in the drug preparation and injecting process.

Following appropriate item recodes, these four score types are obtained by summing all *weighted specific risk practice item* scores. The maximum total score possible on the BBV-TRAQ-SV is 215 (i.e, scoring five for all 15 items). The maximum possible score obtainable for needle and syringe contamination, other injecting equipment sharing and second person contamination sub-scales are 100, 85 and 30 respectively.

## 4.1 Distribution of BBV-TRAQ-SV Scores

Figure A1 in Appendix 4 contains the distribution of BBV-TRAQ-SV total scores for the Australian Blood Borne Virus Risk and Injecting Drug Use Study (ABRIDUS; Dwyer et al., 2002) sample of 433 IDU. See section 6.0 for a detailed description of this study sample. Table 2 contains mean total and sub-scale scores and standard deviations for the 433 sample participants. Table 2 shows, in relation to maximum possible scores, the ABRIDUS sample reported modest total and sub-scale scores. Discrepancies between mean and median scores also demonstrate the positively skewed nature of weighted BBV-TRAQ-SV scores with most respondents clustering towards the low end of the score range (also see Figure A1, Appendix 4). Consistent with such skewed data, there is substantial variance in these scores with high standard deviations relative to means. Table A2, Appendix 4 contains detailed descriptive statistics for total and sub-scale scores.

[4] Category 5 for the full BBV-TRAQ scale, see Appendix 1.
[5] Category 4 for the full BBV-TRAQ scale, see Appendix 1.

***Table 1 - Mean BBV-TRAQ-SV total and sub-scale scores***

| | Mean Scores | Median Scores | Standard Deviation |
|---|---|---|---|
| Needle and syringe contamination sub-scale | 5.66 | 0 | 12.22 |
| Other injecting equipment sharing sub-scale | 17.82 | 10.00 | 22.09 |
| Second person contamination sub-scale | 5.19 | 3.00 | 6.79 |
| Total BBV-TRAQ-SV | 28.66 | 17.00 | 34.53 |

## 4.2 Interpreting BBV-TRAQ-SV Scores

BBV-TRAQ-SV scores represent the cumulative frequency with which an individual has engaged in specific risk behaviours during the month prior to interview. As the risk practices contained in the BBV-TRAQ-SV are considered to carry high risk of BBV exposure (compared to other items included in the full version of the scale), individuals obtaining 'high' scores on the instrument are considered to have a particularly high risk of BBV exposure during the preceding month. The higher an individual's BBV-TRAQ-SV score, the greater is their participation in risk behaviours and in turn, the greater is their risk of infection and/or reinfection with or transmission of BBVs.

Preliminary normative data for total BBV-TRAQ-SV scores are presented in Table 2. BBV-TRAQ-SV scores from the ABRIDUS sample (N=433) were divided into quartile groups representing score ranges for four percentile categories of scores. Because of the large numbers of respondents scoring zero on sub-scale totals and to enhance interpretation of category score ranges in Table 3, zero scores were removed before producing quartile normative scores. As such these groupings should be interpreted as quartile normative scores for IDU that report some risk behaviours in the previous month. These groupings range from the 'lowest' to 'highest' scores for the ABRIDUS sample, yet should be interpreted with caution as this is the first such sample with which the BBV-TRAQ-SV has been scored and weightings applied. Table 2 shows that 'high' scores on the BBV-TRAQ-SV for the ABRIDUS sample ranged from 56 to 159, whereas 'low' scores for this sample ranged from zero to 10. The increasing quartile score ranges are indicative of the skewed BBV-TRAQ-SV data. Future applications of the instrument with different samples of IDU will provide important comparative data on percentile score categories, and will further facilitate the development of normative data.

***Table 2 - BBV-TRAQ-SV score categories***

| Category (quartiles)[1] | Needle/syringe sharing score range (n=134) | Other equipment sharing score range (n=253) | Second person contamination score range (n=259) | Total BBV-TRAQ-SV score range (n=328) |
|---|---|---|---|---|
| 1 | 0 - 5 | 0 - 15 | 0 - 3 | 0 - 10 |
| 2 | 6 - 12 | 16 - 25 | 4 – 6 | 11 - 27 |
| 3 | 13 - 25 | 26 - 45 | 7 – 13 | 28 - 55 |
| 4 | 26 - 75 | 45 - 83 | 14 - 30 | 56 - 159 |

[1] zero scores removed

As reported earlier, the BBV-TRAQ demonstrated promising predictive validity (retrospective) properties using the ABRIDUS sample. However, there were several methodological limitations associated with this analysis (see Stoové & Fry, 2005). The best opportunity for a sound and robust

assessment of the predictive validity of the original and short versions of the BBV-TRAQ is via longitudinal cohort studies with baseline sero-negative IDU. Such studies would provide the requisite data to allow investigators to test for predictive relationships between higher scores on the BBV-TRAQ and subsequent HCV, HBV and HIV seroconversion. Moreover, such studies will be extremely important in providing the information needed for quantifying the relative degree of transmission risk associated with the comprehensive set of specific injecting risk practices contained in the instrument. In turn, this evidence will be critical in ensuring that BBV prevention initiatives are both informed and appropriately targeted.

## 4.3 Clinical Interpretation of the BBV-TRAQ-SV Scores

Given the relatively short administration time needed, and the ease with which the instrument may be administered, the BBV-TRAQ-SV may be suitable for use by clinicians working within the alcohol and drug setting (e.g, pharmacotherapy maintenance programs, HCV treatment) as an ongoing indicator of client risk behaviour. Such information could be utilised for the purpose of developing a range of interventions that aim to prevent BBV transmission. Similarly, this instrument is also appropriate for use within peer education settings as a means of collecting information upon which to base the development of targeted prevention resources or as a way of engaging clients in discussions about specific risk practices, their general risk practice profile and to encourage subsequent BBV testing[6].

As each of the 15 BBV-TRAQ-SV risk practices are considered to carry some degree of exposure risk, any score greater than '0' on the instrument is worthy of follow-up in both clinical and peer education settings. Until such time that transmission risk can be quantified reliably for particular risk behaviours, investigators applying the instrument in clinical and peer education settings are advised to interpret BBV-TRAQ-SV scores in conjunction with a review of the specific risk practices reported by respondents. In this way, scores obtained on the instrument may be used to identify those specific risk behaviours requiring follow-up with clients as well as an overall risk profile. [4] Given the promising predictive validity results, risk scores can be useful in recommending further BBV antibody testing (see mean group BBV-TRAQ-SV scores by self-report serostatus, Appendix 7).

Professionals using the instrument in these settings may choose to focus on the reported areas or domains of risk (i.e, other injecting equipment sharing, second person contamination, needle and syringe sharing) as a means of developing targeted intervention strategies. Such an approach would permit clinicians, peer educators and other professionals to interpret BBV-TRAQ-SV scores according to observed patterns of specific risk behaviour.

Clinical interpretation of the BBV-TRAQ-SV would be further facilitated through a consideration of the *context* in which identified risk practices occurred. The BBV-TRAQ-SV therefore may be suitable for use in the clinical setting as a basis from which to explore identified client risk behaviours in more detail. Emerging evidence from studies of injecting drug use suggest that contextual factors may be the most important determinants of the extent to which individuals engage in risk practices (Hahn et al., 2002; Maher, Chant, Jalaludin, & Sargent, 2004; Rhodes, Stimson & Quirk, 1996; Smyth, Barry, & Keenan, 2005; Thorpe, Ouellet, Levy, Williams, & Monterroso, 2000, Wright, Tompkins & Jones, 2005). Interventions that aim to reduce the spread of BBVs among IDU should address the issue of risk and drug use context when revising and developing prevention strategies.

[6] The BBV-TRAQ-SV is currently being used by Queensland Health to pilot a computer based BBV risk education and surveillance program in NSP settings.

[4] Preliminary work has been conducted in using the BBV-TRAQ as a basis for developing a brief behavioural intervention for the purpose of reducing the prevalence of BBV risk behaviour amongst high risk groups (see Tucker, Fry, Lintzeris et al., 2004).

# 5.0 Mechanisms of Blood-to-Blood Transfer for BBV-TRAQ-SV Items

It is important that investigators intending to use the BBV-TRAQ-SV understand the posited mechanisms of risk for each risk practice item. Through familiarising themselves with the mechanisms of blood-to-blood transfer associated with each BBV-TRAQ-SV item, investigators may ensure that participant questions regarding the meaning of particular items are answered in a standard fashion.

There are a number of factors that determine the actual level of risk associated with any specific risk practice including: the serostatus of the person(s) with whom the respondent may be interacting; the relative viral characteristics of HCV, HBV and HIV, such that HCV is more 'infective' or easily transmitted than others (Gerberding, 1995); the immune status of the individual and other person(s) that may be present (e.g, viral load, co-infection with other BBV and/or sexually transmissible diseases, viral genotypes present); and the amount of blood present.

The following section discusses the mechanisms by which blood-to-blood transfer may occur between at least two individuals for each of the BBV-TRAQ-SV specific risk practice items. For the purposes of risk assessment using the BBV-TRAQ-SV, the focus adopted is upon observable risk practices.

## 5.1 Needle and Syringe Contamination

Section 1 of the BBV-TRAQ-SV asks questions about needle and syringe sharing behaviours – injecting with a used needle and syringe, sharing the contents of a needle and syringe, receiving an accidental needle-stick, and retrieving and using needles and syringes from sharps containers.

> ***Item 1a.*** ***In the last month, how many times have you injected with another person's used needle/syringe?***
>
> ***Item 1b.*** ***On those occasions, how often did you rinse it with a combination of full-strength bleach and water (ie. the 2x2x2 method) before you used it?***

This question asks respondents simply to nominate the amount of times they have *used another persons needle and syringe* ***after*** *that person has already used it to injected drugs (& if they had cleaned the needle/syringe (2x2x2) between use).*

Residual blood traces in a used needle/syringe can be transferred directly into the blood stream when it is re-used. The available evidence is equivocal regarding rinsing a used needle/syringe with bleach products to reduce the BBV risk associated with using it (Abdala, Crowe, Tolstov, & Heimer, 2004; Farzana et al., 2002; McGeorge, Crofts & Burrows, 1995). However, in circumstances where there are no sterile syringes available to people intending to inject drugs, the act of rinsing a used syringe prior to re-use is a more preferred prevention strategy than the use of syringes in a contaminated state.

> ***Item 2.*** ***In the last month, how many times have you injected with a needle/syringe after another person has already injected some of its contents?***

This question refers to users sharing the contents of a syringe (e.g, sharing a hit between them) and asks the respondent the amount of times they have *injected with a needle and syringe* ***after*** *another person has injected some of it's contents.*

Blood left over in the used needle/syringe can be transferred directly into the blood stream when it is used or shared between more than one person.

***Item 3.*** ***In the last month, how many times have you received an accidental needle-stick/prick from another person's used needle/syringe?***

This question asks respondents about the amount of times they have *received an accidental needle-stick from a used needle & syringe*.

Residual blood traces in a used needle/syringe can be transferred directly into the blood stream when it is used or when it punctures the skin.

***Item 4a.*** ***In the last month, how many times have you re-used a needle/syringe taken out of a shared disposal/sharps container?***

***Item 4b.*** ***On those occasions, how often did you rinse it only with full-strength bleach before you re-used it?***

This question asks respondents about the amount of times they have *reused a needle & syringe they have taken from a sharps container shared by others (i.e, contains needles/syringes used by others)*.

Residual blood traces in a used needle/syringe can be transferred directly into the blood stream when it is re-used. The available evidence is equivocal regarding rinsing a used needle/syringe with bleach products to reduce the BBV risk associated with using it (Abdala, Crowe, Tolstov, & Heimer, 2004; Farzana et al., 2002; McGeorge, Crofts & Burrows, 1995). However, in circumstances where there are no sterile syringes available to people intending to inject drugs, the act of rinsing a used syringe prior to re-use is a more preferred prevention strategy than the use of syringes in a contaminated state. Safe injecting messages and educational materials commonly advise IDU to at least rinse a used needle/syringe prior to re-use when sterile equipment is not available.

## 5.2 Other Injecting Equipment Sharing

Section 2 of the BBV-TRAQ-SV asks questions about the sharing of other injecting paraphernalia aside from needles and syringes – sharing *filters, spoons, water, drug mix or swabs/cloths*.

***Item 5.*** ***In the last month, how many times have you injected a drug that was filtered through another person's filter?***

This question asks respondents about the amount of times they have *injected a drug that was filtered through* ***another person's filter*** *(i.e,* ***the filter was not theirs*** *and therefore the respondent cannot guarantee that it had not been previously used).*

Traces of other people's blood may have contaminated the filter. This blood can be transferred into other needles/syringes when a used filter is re-used for a drug mix, and from there can be passed directly into the bloodstream when that same drug mix is subsequently injected. The sharing injecting equipment such as filters and spoons has been identified as an independent risk factor for HCV transmission among IDU (Hagan et al., 2001, Hagan et al., 2004; Hahn et al., 2002).

***Item 6a.*** ***In the last month, how many times have you injected a drug that was prepared in another person's used spoon or mixing container?***

***Item 6b.*** ***On those occasions how often did you clean the spoon or mixing container before using it?***

This question asks respondents about the amount of times they have *injected a drug that was prepared in* ***another person's used spoon or mixing container*** *(& if they had cleaned the spoon between use).*

Traces of other people's blood may have contaminated the spoon or mixing container during prior use. This blood can be transferred to other people via the contaminated drug mix when it is injected. It

is likely that the act of cleaning a potentially contaminated spoon or mixing container prior to re-use, will successfully reduce the transmission risk associated with using it in an uncleaned state. The sharing of injecting equipment such as filters and spoons has been identified as an independent risk factor for HCV transmission among IDU (Hagan et al., 2001; Hahn et al., 2002; Villano et al., 1997).

***Item 7.*** ***In the last month, how many times have you injected a drug prepared with water which had been used by another person?***

This question asks respondents about the amount of times they have *injected a drug that was prepared with* ***water previously used by another person*** (e.g, to rinse out their needle and syringe or draw out water for a drug mix).

Another person may have dipped a used needle/syringe into the water; either to rinse it out or draw out water for a drug mix. Traces of their blood could be passed to other people via the contaminated drug mix when it is subsequently injected.

***Item 8.*** ***In the last month, how many times have you injected a drug which had come into contact with another person's used needle/syringe?***

This question asks respondents about the amount of times they have *injected a drug that had come in contact with another person's used needle and syringe*, such as when they draw up part of shared drug mix, when backloading or when a used needle and syringe is used to add water to a mix.

Traces of blood may have been passed from a used needle/syringe to the drug mix (e.g, if an individual has drawn up part of a shared mix, or used their syringe to add water to the mix). These blood traces can be transferred to other people via the drug mix when it is subsequently injected.

***Item 9.*** ***In the last month, how many times have you wiped your own injection site with an object (eg. swab, tissue, hanky, towel, etc) which had been used by another person?***

This question asks respondents about the amount of times they have *wiped their injection site with a* ***swab or cloth previously used by another person to wipe their injection site***.

Any residual blood that may be on a previously used swab, tissue, handkerchief, towel, etc could be passed to a person's injecting site as it is applied to their injecting site before or after injection.

## 5.3 Second Person Contamination

Section 3 of the BBV-TRAQ-SV asks questions about the involvement of second persons in the drug preparation and injecting process – preparing drugs after assisting others to inject, injecting others who had already assisted others to inject, injecting with a needle and syringe previously handled by others, touching injection sites after assisting others to inject, and allowing others to touch injection sites.

***Item 10a.*** ***In the last month, how many times have you injected a drug that you prepared immediately after 'assisting' another person with their injection (eg. injecting them, holding their arm, handling their used needle/syringe; touching their injection site to feel for a vein, to wipe away blood, or to stop bleeding)?***

***Item 10b.*** ***On those occasions, how often did you wash your hands before preparing your mix?***

***Item 11a.*** ***In the last month, how many times have you injected a drug that was prepared by another person who had already injected or assisted in someone else's injection?***

***Item 11b.*** ***On those occasions, how often did the person preparing the mix wash their hands before preparing the mix?***

Questions 10 and 11 ask about *preparing drugs after assisting others to inject.* Question 10 asks respondents about the amount of times they have injected a drug that ***they*** *prepared after they assisted* someone else with their injection. Similarly question 11 asks about injecting drugs *prepared by* ***another person*** *after that person* assisted others to inject.

***Item 12a.*** ***In the last month, how many times have you been injected by another person who had already injected or assisted in someone else's injection?***

***Item 12b.*** ***On those occasions, how often did the person injecting you wash their hands before injecting you?***

This question asks respondents about the amount of times they have been *injected by someone who had previously assisted another person to inject (& if that person had washed their hands prior to injecting them).*

Traces of blood may contaminate the fingers and hands of anyone who assists another person in the process of injecting. These blood traces can in turn contaminate a new drug mix during preparation, and can then be passed directly into the blood-stream as the drug mix is subsequently injected. Blood traces on fingers and hands may also be passed onto other people when assistance is given by the contaminated individual during the injecting process (e.g, injecting someone; arm holding during injecting; handling a used syringe; touching injection sites to feel for a vein, to wipe away blood, or to stop bleeding). It is likely that the act of routine hand washing prior to drug preparation and injecting will successfully reduce the risk of cross contaminating such processes.

***Item 13a.*** ***In the last month, how many times have you injected with a needle/syringe which had been handled or touched by another person who had already injected?***

***Item 13b.*** ***On those occasions, how often did they wash their hands prior to handling the needle/syringe that you used?***

This question asks respondents about the amount of times they have been *injected with a needle and syringe that had previously been handled by another person who had already injected (& if that person had washed their hands before handling the needle/syringe).*

It is possible that traces of a person's blood may be present on their fingers and hands after they have injected. Objects or equipment which they subsequently handle or touch may become contaminated with their blood. The use of a syringe contaminated in this way may result in the transfer of blood to whoever uses that syringe. It is likely that the act of routine hand washing prior to any drug preparation and injecting will successfully reduce the risk of cross contaminating such processes.

***Item 14a.*** ***In the last month, how many times have you touched your own injection site (eg. to feel for a vein, to wipe away blood, or to stop bleeding) soon after 'assisting' another person with their injection (eg. injecting them, holding their arm, handling their use needle/syringe; touching their injection site to feel for a vein, to wipe away blood, or to stop bleeding)?***

***Item 14b.*** ***On those occasions, how often did you wash your hands before touching your own injection site?***

This question asks respondents about the amount of times they have *touched their own injection site (before or after injecting themselves) soon after assisting another person with their injection (& if the respondent had washed their hands before injecting themselves).*

Traces of other people's blood may contaminate the fingers and hands of anyone who assists in the process of injecting. These blood traces can be passed directly onto the assistant's own injection sites as they in turn engage in injecting drug use, and then use their contaminated fingers and hands to stop

bleeding, or wipe away their own blood. It is likely that the act of routine hand washing prior to drug preparation and injecting will successfully reduce the risk of cross contaminating such processes.

***Item 15a. In the last month, how many times has another person touched your injection site (eg. to feel for a vein, to wipe away blood, or to stop bleeding)?***

***Item 15b. On those occasions, how often did the person wash their hands before they touched your injection site?***

This question asks respondents about the amount of times *another person has touched their injection site (before or after injecting themselves) (& if the respondent had washed their hands before injecting themselves).*

Assisting someone else in the injecting process may result in the spread of traces of blood both to and from the assistant's fingers and hands, particularly if they have been injecting or helping someone else inject. These traces may be passed directly onto another person's injection site if the assistant uses their own hands to stop bleeding or wipe away any blood resulting from the injecting process. It is likely that the act of routine hand washing prior to drug preparation and injecting will successfully reduce the risk of cross contaminating such processes.

# 6.0 Characteristics of the ABRIDUS Sample

Data used to develop the weighted scoring system for the BBV-TRAQ and construct the BBV-TRAQ-SV was derived from the Australian Blood Borne Virus Risk and Injecting Drug Use Study (ABRIDUS; Dwyer et al., 2002) which collected BBV-TRAQ, self-report blood borne virus status, demographic and injecting drug use information from 450 IDU in Melbourne (n=150), Perth (n=150) and Sydney (n=150). To be eligible for recruitment, participants must have injected drugs at least once per month for the previous six months. Participants were recruited through posted advertisements, recruitment notices distributed in Needle and Syringe Programs and 'snowball' methods and were reimbursed $20 for their time and out-of-pocket expenses.

## 6.1 Demographics

Table A3 in Appendix 5 provides a summary of the demographic characteristics of the ABRIDUS sample.

The mean age of the sample was 27.9 years (*SD* = 8.13; *Range* 15-52), and 59% were male. Sixty-five percent of participants were unemployed, and 47% had previously been imprisoned. The average years of education was 12 years, with 40% having completed trade or technical courses and 17% having completed university or college courses. Twenty-eight percent of the sample had never received treatment for drug-related problems, whereas 34% were currently in treatment at the time of survey. Nearly one quarter (24%) of the sample were currently undertaking methadone maintenance programs.

The demographic characteristics of the ABRIDUS sample are similar to those reported in the original BBV-TRAQ scale development sample (Fry, Rumbold, & Lintzeris, 1998). The ABRIDUS sample was slightly more educated, contained fewer male respondents and fewer respondents who had ever been in prison.

## 6.2 Drug Use Details

Table A4 in Appendix 5 contains summary data on drug use for the ABRIDUS sample. Half of the sample (51%) indicated that the first drug type they had injected was amphetamines (i.e, speed), compared to 46% reporting that heroin was the first drug type they had ever injected. The mean age of first injecting drug use was 18.3 years (*SD* = 4.58, *Range* 9-43). More than half (52%) the sample reported that they never injected alone, most commonly with other users (88%). Less than half (48%) the sample reported that they always prepared their own injecting drugs and the majority of the sample (59%) reported that they always used their own injecting equipment. Two-thirds (66%) of the sample reported that they usually injected drugs in a private setting.

Table A5 in Appendix 6 presents a summary of self-reported HIV, HCV and HBV serostatus of the ABRIDUS participants. A large majority (88%) of the sample reported that they were not infected with HIV. Fifteen percent reported that they were infected with HBV, whereas just under half (46%) reported being infected with HCV. Only 11% of HCV positive individuals were aged between 15 and 20 years of age, whereas 53% were aged 31 years and over. Of the 41% of the sample who reported being HCV negative, the majority (56%) were aged between 15 and 25 years. Such findings highlight the importance of targeting BBV prevention and education programs for younger IDU or initiates to injecting.

# 7.0 Psychometric Properties of the BBV-TRAQ-SV

## 7.1 Factor Analysis

### *7.1.1 BBV-TRAQ-SV Structure*

The internal structure of the BBV-TRAQ-SV was assessed by submitting weighted scores on 18 items (those identified in the top two risk practice categories; 15 injecting related, 3 other skin penetration) to a principal components factor analysis with varimax rotation. Four, three and two factor solutions were rotated and inspected. The three factor rotated solution accounted for 46% of the variance and is presented in Table A9 Appendix 8.

There is some degree of cross-loadings of items across multiple factors, which is common for many factor analytic solutions. In determining the final factor structure, the *practical* significance (as well as statistical significance) of loadings was an important criterion. As such, the allocation of items to factors was made to satisfy intuitive logic, provided the item also loaded significantly on that factor (despite also loading on another). The only exception to this was item nine (sharing swab/cloth) which loaded solely on factor three but was placed within factor one to maintain the construct validity of the subscales.

Factor one consisted mostly of injecting risk practice items associated with the sharing of injecting equipment other than needles and syringes (i.e, filter, spoon, water, drug mix), and accounted for 19% of the variance. Factor two was made up predominantly of items related to the involvement of second persons in the preparation and injecting process and explained a further 16% of the variance. Factor three was made up mostly of items associated with the sharing of needles and syringes and contributed a further 11% to total variance. The fact that the sharing of swabs/cloths used to wipe injecting sites loaded with needle and syringe contamination (rather than with other injecting equipment) may be the result of the low prevalence (11%) of reporting such a practice. In this regard, the strength of the factor solution is acceptable given the inherently skewed nature of the responses on this and other items (i.e, heterogeneity of items scores within factors can limit the emergence of meaningful factor solutions).

Despite the cross-loading of some items, the strength of the chosen rotated solution is moderate with all factors making meaningful contributions to the total variance. The solution shows three separate factors that cluster together intuitively well.

Non-IDU-related items either did not load on any factor (non-professional piercing/tattooing), or did so marginally (razor sharing). Given the behaviours described in these items this result is expected, and in order to maintain the construct validity of an IDU-specific risk practice questionnaire these items were dropped from the BBV-TRAQ-SV.

The rotated factor solution reported was generally consistent with available evidence of injecting risk practices for HCV transmission (e.g, Carruthers, 1997; Hagan et al., 2001, 2004; Hahn et al., 2002; Villano et al., 1997), which have confirmed the theoretical plausibility and actual transmission events due to risk practices other than needle/syringe sharing.

Table 3 contains correlation results for the three BBV-TRAQ-SV risk practice sub-scales. These results show strong associations between sub-scales, with high scores on one sub-scale predictive of high scores on another.

***Table 3 - Inter-correlations between BBV-TRAQ-SV subscales***

| Short Version BBV-TRAQ-SV Sub-Scales | 1. | 2. | 3. |
|---|---|---|---|
| **1. Needle/Syringe** | ---- | .49 * | .41 * |
| **2. Other equipment** | | ---- | .56 * |
| **3. Second person** | | | ---- |

* p<.001

## 7.2 Reliability of the BBV-TRAQ-SV

### *7.2.1 Internal Reliability*

The BBV-TRAQ-SV demonstrated adequate internal reliability (Cronbach's alpha) for the total scale ($\alpha$ = .74) and the needle and syringe contamination ($\alpha$ = .60), second person contamination ($\alpha$ = .81) and sharing other equipment ($\alpha$ = .61) subscales.

### *7.2.2 Test-Retest Reliability*

Although the original BBV-TRAQ demonstrated adequate test-retest reliability (see Fry, Rumbold, & Lintzeris, 1998) at the time of writing this manual no test-retest data collection and analysis had yet been conducted for the BBV-TRAQ-SV.

## 7.3 Validity of the BBV-TRAQ-SV

Both collateral and construct validity of the original BBV-TRAQ were established during the original development of the scale (Fry, Rumbold, & Lintzeris, 1998).

### *7.3.1 Predictive Validation*

Predictive validity of the original BBV-TRAQ was not established during the scale development. This is perhaps the result of scale items not being weighted in terms of the relative risk of transmitting a BBV. Using expert key informant ratings of BBV-TRAQ items, the instrument now has a weighted scoring system that has shown promising predictive validity properties demonstrated by significantly different transmission risk scores obtained for self-report HCV positive and negative participants in the ABRIDUS study (Stoové & Fry, 2005). This BBV-TRAQ-SV used the highest risk category items identified by key experts to construct an injecting drug use-specific scale, and has also adopted a weighted scoring system (see sections 2.0 and 4.0).

Similar to the weighted full version of the BBV-TRAQ the BBV-TRAQ-SV total and some sub-scale scores were significantly different across self-report HCV status groups from the ABRIDUS sample. Table A6 and A7 in Appendix 7 show between group comparisons for BBV-TRAQ-SV scores. When comparing HCV positives versus others (negative, never tested/don't know), total scores ($t$ = 2.17, $p$ = .031) and other injecting equipment sharing scores ($t$ = 2.55, $p$ = .011) were significantly different between groups. Comparing all groups, one-way ANOVA results also revealed significant differences between HCV positives and negatives for total ($F$ = 3.93, $p$ = .020) and other injecting equipment sharing scores ($F$ = 4.30, $p$ = .014).

The finding that, out of the three sub-scales, it was the sharing of other injecting equipment that was able to distinguish between HCV positives and negatives has important implications for BBV

education among IDU. Such a result highlights the need for further emphasis of the broad range of putative risk practices for BBV transmission among IDU beyond simply the sharing of needles and syringes. One reason for the relatively small difference in the sharing of needle and syringe scores between HCV positive and negatives is the highly skewed nature of this data. Most (69%) participants in the ABRIDUS sample reported no (zero score) needle and syringe contamination in the previous month (see Table A2, Appendix 4).

Table A8 in Appendix 7 shows descriptive statistics for BBV-TRAQ-SV scores across self-report HCV status groups from the ABRIDUS sample. The substantial standard deviations relative to mean scores indicate a wide variation in the frequency of risk practices among IDU in this sample. In addition, the mean total and sub-scale scores for respondents that had never been tested or did not know their serostatus were consistently similar to the mean scores for people who were HCV positive. Given the promising predictive validity properties of the scale, such a result indicates that many of the respondents with unknown HCV serostatus should be strongly encouraged to seek testing for HCV.

# Appendix 1: All BBV-TRAQ items and median key informant ratings

***Table A 1 - BBV-TRAQ item categories and median key informant ratings of transmission risk***

| Short Version Item # | Original Item # | Description | Median Rating |
|---|---|---|---|
| **Category 5 (highest risk; median KE ratings 9-10)** | | | |
| 5 | a5 | In the last month, how many times have you injected a drug that was filtered through another person's filter? | 9 |
| 7 | a7 | In the last month, how many times have you injected a drug prepared with water which had been used by another person? | 9 |
| 8 | a8 | In the last month, how many times have you injected a drug which had come into contact with another person's used needle/syringe? | 9 |
| 1a | a13a | In the last month, how many times have you injected with another person's used needle/syringe?<br>*a13b On those occasions, how often did you rinse it with a combination of full-strength bleach and water (i.e, the '2x2x2' method) before you used it?* | 10 |
| 2 | a14 | In the last month, how many times have you injected with a needle/syringe after another person has already injected some of its contents? | 10 |
| 3 | a19 | In the last month, how many times have you received an accidental needle-stick/prick from another person's used needle/syringe? | 9 |
| 4a | a20a | In the last month, how many times have you re-used a needle/syringe taken out of a shared disposal/sharps container?<br>*a20b On those occasions, how often did you rinse it only with full-strength bleach before you re-used it?* | 10 |
| n/a | c2 | In the last month, how many times have you been tattooed by someone who was not a professional tattooist | 9 |
| n/a | c3 | In the last month, how many times have you been pierced by someone who was not a professional piercer | 10 |
| **Category 4 (median KE ratings 7-8)** | | | |
| 6a | a6a | In the last month, how many times have you injected a drug that was prepared in another person's used spoon or mixing container?<br>*a6b On those occasions, how often did you clean the spoon or mixing container before using it?* | 7 |
| 10a | a9a | In the last month, how many times have you injected a drug that you prepared immediately after 'assisting' another person with their injection (e.g, injecting them, holding their arm, handling used needle/syringe; touching their injection site to feel for a vein, to wipe blood away, or to stop bleeding)?<br>*a9b On those occasions, how often did you wash your hands before preparing your mix?* | 8 |
| 11a | a10a | In the last month, how many times have you injected a drug that was prepared by another person who had already injected or assisted someone else's injection?<br>*a10b On those occasions, how often did the* person preparing the mix wash their hands before preparing the mix? | 7 |
| 12a | a11a | In the last month, how many times have you been injected by another person who had already injected or assisted in someone else's injection?<br>*a11b On those occasions, how often did the person injecting you wash their hands before injecting you?* | Not rated |
| 13a | a12a | In the last month, how many times have you injected with a needle/syringe which had been handled or touched by another person who had already injected?<br>***a12b On those occasions, how often did they wash their hands prior to handling the needle/syringe that you used?*** | 7 |
| 14a | a15a | In the last month, how many times have you touched your own injection site (e.g, to feel for a vein, to wipe away blood, or to stop bleeding) soon after 'assisting' another person with their injection (e.g, injecting them, holding their arm, handling their use needle/syringe; touching their injection site to feel for a vein, to wipe away blood, or to stop bleeding)?<br>*a15b On those occasions, how often did you wash your hands before touching your own injection site?* | 8 |
| 15a | a16a | In the last month, how many times has another person touched your injection | 8 |

| | | | |
|---|---|---|---|
| | | site (e.g, to feel for a vein, to wipe away blood, or to stop bleeding)? *a16b On those occasions, how often did the person wash their hands before they touched your injection site?* | |
| 9 | a17 | In the last month, how many times have you wiped your own injection site with an object (e.g, swab, tissue, hanky, towel etc) which had been used by another person? | 8 |
| n/a | c4 | In the last month, how many times have you used another person's used razor | 7 |
| **Category 3 (median KE ratings 5-6)** | | | |
| n/a | a1 | In the last month, how many times handled another persons syringe at a time when you had cuts etc | 6 |
| n/a | a18 | In the last month, how many times have you used a tourniquet which had been used by another person | 6 |
| n/a | b2 | In the last month, how many times have you engaged in unprotected vaginal sex with another person during menstruation | 5 |
| n/a | c1 | In the last month, how many times have you come in contact with another person's blood (fights, slash-ups, accidents, blood nose etc) | 5 |
| **Category 2 (median KE ratings 3-4)** | | | |
| n/a | a2 | In the last month, how many times have you sucked or licked left-over drugs from spoon, mixing container used by another person | 3 |
| n/a | a3 | In the last month, how many times have you sucked or licked a filter used by another person | 3 |
| n/a | a4 | In the last month, how many times have you sucked or licked a plunger after using it in a mix used by another person | 2.5 |
| n/a | b3 | In the last month, how many times have you engaged in unprotected vaginal sex with another person without lubrication | 3 |
| n/a | b4 | In the last month, how many times have you engaged in unprotected anal sex with another person | 4 |
| n/a | c5 | In the last month, how many times have you used another person's toothbrush | 4 |
| n/a | c6 | In the last month, how many times have you used another person's personal hygiene equipment (nail file, nail scissors, brush etc) | 3 |
| **Category 1 (lowest risk; median KE ratings 1-2)** | | | |
| n/a | b1 | In the last month, how many times have you engaged in unprotected vaginal sex with another person | 1 |
| n/a | b5 | In the last month, how many times have you engaged in unprotected oral sex with another person | 1 |
| n/a | b6 | In the last month, how many times have you engaged in unprotected manual sex with another person during menstruation | 2 |
| n/a | b7 | In the last month, how many times have you engaged in unprotected manual sex with another person after injecting | 2 |
| n/a | b8 | In the last month, how many times have you engaged in unprotected manual sex with another person without lubrication | 1 |

# Appendix 2: SPSS syntax for BBV-TRAQ-SV recoding, weighting & score summation

```
** THIS SYNTAX IS TO BE USED WITH THE SV-BBV-TRAQ GENERIC SPREADSHEET
** WITH MATCHING VARIABLE NAMES (SEE SCREENSHOT FOLLOWING SYNTAX). RAW
SCORES ** FOR THE FIFTEEN RISK PRACTICE AND NINE PROTECTIVE PRACTICE ITEMS
SHOULD BE       ** ENTERED ON THIS SPREADSHEET (CODE MISSING AS '9'). SYNTAX WILL
RECODE FOR          ** PROTECTIVE PRACTICES, WEIGHT HIGH RISK ITEM SCORES & SUM
FOR SV-BBV-TRAQ         ** SUBSCALE & TOTAL SCORES


** SELECTING ONLY CASES WITH VALID SCORES FOR SV-BBV-TRAQ RISK PRACTICES.
USE ALL.
COMPUTE filter_$=(NVALID(one) & NVALID(two) & NVALID(three) & NVALID(four) &
  NVALID(five) & NVALID(six) & NVALID(seven) & NVALID(eight) & NVALID(nine) &
  NVALID(ten) & NVALID(eleven) & NVALID(twelve) & NVALID(thirteen) &
  NVALID(fourteen) & NVALID(fifteen) ).
VARIABLE LABEL filter_$ 'NVALID(one) & NVALID(two) & NVALID(three) &'+
 ' NVALID(four) & NVALID(five) & NVALID(six) & NVALID(seven) & NVAL...'+
 ' (FILTER)'.
VALUE LABELS filter_$  0 'Not Selected' 1 'Selected'.
FORMAT filter_$ (f1.0).
FILTER BY filter_$.
EXECUTE .


** RECODE RISK PRACTICES ACCORDING TO PROTECTIVE PRACTICE RESPONSES
DO IF (oneb = 4) .
RECODE one  (5=0)  (4=0)  (3=0)  (2=0)  (1=0)  .
END IF .
DO IF (fourb = 4) .
RECODE
  four  (5=0)  (4=0)  (3=0)  (2=0)  (1=0)  .
END IF .
DO IF (sixb = 4) .
RECODE
  six  (5=0)  (4=0)  (3=0)  (2=0)  (1=0)  .
END IF .
DO IF (tenb = 4) .
RECODE
  ten  (5=0)  (4=0)  (3=0)  (2=0)  (1=0)  .
END IF .
DO IF (elevenb = 4) .
RECODE
  eleven  (5=0)  (4=0)  (3=0)  (2=0)  (1=0)  .
END IF .
DO IF (twelveb = 4) .
RECODE
  twelve  (5=0)  (4=0)  (3=0)  (2=0)  (1=0)  .
END IF .
DO IF (thirteeb = 4) .
RECODE
  thirteen  (5=0)  (4=0)  (3=0)  (2=0)  (1=0)  .
END IF .
DO IF (fourteeb = 4) .
RECODE
```

```
  fourteen  (5=0)  (4=0)  (3=0)  (2=0)  (1=0)  .
END IF .
DO IF (fifteenb = 4) .
RECODE
  fifteen  (5=0)  (4=0)  (3=0)  (2=0)  (1=0)  .
END IF .
EXECUTE .


**WEIGHT CATEGORY 1 RISK FACTORS (items one thru five, seven, eight MULTIPLIED BY 5)
**CATEGORY 2 RISK FACTORS RENAMED TO BE CONSISTENT WITH ABOVE (items six, nine
thru fifteen UNCHANGED)
COMPUTE wone = one * 5 .
VARIABLE LABELS wone 'SV-BBV-TRAQ 1 weighted' .
COMPUTE wtwo = two * 5 .
VARIABLE LABELS wtwo 'SV-BBV-TRAQ 2 weighted' .
COMPUTE wthree = three * 5 .
VARIABLE LABELS wthree 'SV-BBV-TRAQ 3 weighted' .
COMPUTE wfour = four * 5 .
VARIABLE LABELS wfour 'SV-BBV-TRAQ 4 weighted' .
COMPUTE wfive = five * 5 .
VARIABLE LABELS wfive 'SV-BBV-TRAQ 5 weighted' .
COMPUTE wsix = six .
VARIABLE LABELS wsix 'SV-BBV-TRAQ 6 weighted' .
COMPUTE wseven = seven * 5 .
VARIABLE LABELS wseven 'SV-BBV-TRAQ 7 weighted' .
COMPUTE weight = eight * 5 .
VARIABLE LABELS weight 'SV-BBV-TRAQ 8 weighted' .
COMPUTE wnine = nine .
VARIABLE LABELS wnine 'SV-BBV-TRAQ 9 weighted' .
COMPUTE wten = ten .
VARIABLE LABELS wten 'SV-BBV-TRAQ 10 weighted' .
COMPUTE weleven = eleven .
VARIABLE LABELS weleven 'SV-BBV-TRAQ 11 weighted' .
COMPUTE wtwelve = twelve .
VARIABLE LABELS wtwelve 'SV-BBV-TRAQ 12 weighted' .
COMPUTE wthirtee = thirteen .
VARIABLE LABELS wthirtee 'SV-BBV-TRAQ 13 weighted' .
COMPUTE wfourtee = fourteen .
VARIABLE LABELS wfourtee 'SV-BBV-TRAQ 14 weighted' .
COMPUTE wfifteen = fifteen .
VARIABLE LABELS wfifteen 'SV-BBV-TRAQ 15 weighted' .
EXECUTE .


** SUM SV-BBV-TRAQ TOTAL AND SUBSCALE SCORES
COMPUTE need_syr = SUM(wone,wtwo,wthree,wfour) .
VARIABLE LABELS need_syr 'SV-BBV-TRAQ needle/syringe contamination' .
COMPUTE oth_equi = SUM(wfive,wsix,wseven,weight,wnine) .
VARIABLE LABELS oth_equi 'SV-BBV-TRAQ other injecting equipment contamination' .
COMPUTE sec_per = SUM(wten,weleven,wtwelve,wthirtee,wfourtee,wfifteen) .
VARIABLE LABELS sec_per 'SV-BBV-TRAQ second person contamination' .
COMPUTE svtotal = SUM(need_syr,oth_equi,sec_per) .
VARIABLE LABELS svtotal 'SV-BBV-TRAQ total' .
EXECUTE .
```

SV_BBV_TRAQ_generic_spreadsheet.sav - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Window Help

| | Name | Type | Width | Decimals | Label | Values | Missing | Columns | Align | Measure |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | id | Numeric | 4 | 0 | PARTICIPANT NUMBER | None | None | 5 | Right | Nominal |
| 2 | one | Numeric | 1 | 0 | SV-BBV-TRAQ 1 | {0, No times}... | 9 | 8 | Right | Ordinal |
| 3 | oneb | Numeric | 8 | 0 | SV-BBV-TRAQ 1b | {0, Never}... | 9 | 8 | Right | Ordinal |
| 4 | two | Numeric | 1 | 0 | SV-BBV-TRAQ 2 | {0, No times}... | 9 | 8 | Right | Ordinal |
| 5 | three | Numeric | 1 | 0 | SV-BBV-TRAQ 3 | {0, No times}... | 9 | 8 | Right | Ordinal |
| 6 | four | Numeric | 1 | 0 | SV-BBV-TRAQ 4 | {0, No times}... | 9 | 8 | Right | Ordinal |
| 7 | fourb | Numeric | 8 | 0 | SV-BBV-TRAQ 4b | {0, Never}... | 9 | 8 | Right | Ordinal |
| 8 | five | Numeric | 1 | 0 | SV-BBV-TRAQ 5 | {0, No times}... | 9 | 8 | Right | Ordinal |
| 9 | six | Numeric | 1 | 0 | SV-BBV-TRAQ 6 | {0, No times}... | 9 | 8 | Right | Ordinal |
| 10 | sixb | Numeric | 8 | 0 | SV-BBV-TRAQ 6b | {0, Never}... | 9 | 8 | Right | Ordinal |
| 11 | seven | Numeric | 1 | 0 | SV-BBV-TRAQ 7 | {0, No times}... | 9 | 8 | Right | Ordinal |
| 12 | eight | Numeric | 1 | 0 | SV-BBV-TRAQ 8 | {0, No times}... | 9 | 8 | Right | Ordinal |
| 13 | nine | Numeric | 1 | 0 | SV-BBV-TRAQ 9 | {0, No times}... | 9 | 8 | Right | Ordinal |
| 14 | ten | Numeric | 1 | 0 | SV-BBV-TRAQ 10 | {0, No times}... | 9 | 8 | Right | Ordinal |
| 15 | tenb | Numeric | 8 | 0 | SV-BBV-TRAQ 10b | {0, Never}... | 9 | 8 | Right | Ordinal |
| 16 | eleven | Numeric | 1 | 0 | SV-BBV-TRAQ 11 | {0, No times}... | 9 | 8 | Right | Ordinal |
| 17 | elevenb | Numeric | 8 | 0 | SV-BBV-TRAQ 11b | {0, Never}... | 9 | 8 | Right | Ordinal |
| 18 | twelve | Numeric | 1 | 0 | SV-BBV-TRAQ 12 | {0, No times}... | 9 | 8 | Right | Ordinal |
| 19 | twelveb | Numeric | 8 | 0 | SV-BBV-TRAQ 12b | {0, Never}... | 9 | 8 | Right | Ordinal |
| 20 | thirteen | Numeric | 1 | 0 | SV-BBV-TRAQ 13 | {0, No times}... | 9 | 8 | Right | Ordinal |
| 21 | thirteeb | Numeric | 8 | 0 | SV-BBV-TRAQ 13b | {0, Never}... | 9 | 8 | Right | Ordinal |
| 22 | fourteen | Numeric | 1 | 0 | SV-BBV-TRAQ 14 | {0, No times}... | 9 | 8 | Right | Ordinal |
| 23 | fourteeb | Numeric | 8 | 0 | SV-BBV-TRAQ 14b | {0, Never}... | 9 | 8 | Right | Ordinal |
| 24 | fifteen | Numeric | 1 | 0 | SV-BBV-TRAQ 15 | {0, No times}... | 9 | 8 | Right | Ordinal |
| 25 | fifteenb | Numeric | 8 | 0 | SV-BBV-TRAQ 15b | {0, Never}... | 9 | 8 | Right | Ordinal |
| 26 | | | | | | | | | | |
| 27 | | | | | | | | | | |
| 28 | | | | | | | | | | |
| 29 | | | | | | | | | | |
| 30 | | | | | | | | | | |

# Appendix 3: Blood Bourne Virus –Transmission Risk Assessment Questionnaire Short Version (BBV-TRAQ-SV)

## Instructions to participants

- Please consider the following questions carefully and answer each one as accurately and truthfully as you can. All questions refer to your behaviour in the past MONTH/4 weeks.
- Try and remember that the only correct answer is an accurate and honest answer.
- Remember that the information you provide will remain completely confidential.

Section A - Needle & Syringe Contamination

1a In the last month, how many times have you injected with another person's used needle/syringe?

No times | Once | Twice | 3-5 times | 6-10 times | More than 10 times

↓

**(Go to question 2)**

1b On those occasions, how often did you rinse it with a combination of full-strength bleach and water (i.e, the '2x2x2' method) before you used it?

Never | Rarely | Sometimes | Often | Every time

2 In the last month, how many times have you injected with a needle/syringe after another person has already injected some of its contents?

No times | Once | Twice | 3-5 times | 6-10 times | More than 10 times

3 In the last month, how many times have you received an accidental needle-stick/prick from another person's used needle/syringe?

No times | Once | Twice | 3-5 times | 6-10 times | More than 10 times

4a In the last month, how many times have you re-used a needle/syringe taken out of a shared disposal/sharps container?

No times | Once | Twice | 3-5 times | 6-10 times | More than 10 times

↓

**(Go to question 5)**

4b On those occasions, how often did you rinse it only with full-strength bleach before you re-used it?

Never | Rarely | Sometimes | Often | Every time

## Section B – Other Injecting Equipment Sharing

5 In the last month, how many times have you injected a drug that was filtered through another person's filter?

No times | Once | Twice | 3-5 times | 6-10 times | More than 10 times

6a In the last month, how many times have you injected a drug that was prepared in another person's used spoon or mixing container?

No times | Once | Twice | 3-5 times | 6-10 times | More than 10 times

↓

**(Go to question 7)**

6b On those occasions, how often did you clean the spoon or mixing container before using it?

Never | Rarely | Sometimes | Often | Every time

7 In the last month, how many times have you injected a drug prepared with water which had been used by another person?

No times | Once | Twice | 3-5 times | 6-10 times | More than 10 times

8 In the last month, how many times have you injected a drug which had come into contact with another person's used needle/syringe?

No times | Once | Twice | 3-5 times | 6-10 times | More than 10 times

9 In the last month, how many times have you wiped your own injection site with an object (e.g, swab, tissue, hanky, towel etc) which had been used by another person?

No times | Once | Twice | 3-5 times | 6-10 times | More than 10 times

## Section C – Second Person Contamination

10a In the last month, how many times have you injected a drug that you prepared immediately after 'assisting' another person with their injection (e.g, injecting them, holding their arm, handling used needle/syringe; touching their injection site to feel for a vein, to wipe blood away, or to stop bleeding)?

No times | Once | Twice | 3-5 times | 6-10 times | More than 10 times

↓

**(Go to question 11)**

10b On those occasions, how often did you wash your hands before preparing your mix?

Never | Rarely | Sometimes | Often | Every time

11a In the last month, how many times have you injected a drug that was prepared by another person who had already injected or assisted someone else's injection?

No times | Once | Twice | 3-5 times | 6-10 times | More than 10 times

↓

**(Go to question 12)**

11b On those occasions, how often did the person preparing the mix wash their hands before preparing the mix?

Never | Rarely | Sometimes | Often | Every time

12a In the last month, how many times have you been injected by another person who had already injected or assisted in someone else's injection?

No times | Once | Twice | 3-5 times | 6-10 times | More than 10 times

**(Go to question 13)**

12b On those occasions, how often did the person injecting you wash their hands before injecting you?

Never | Rarely | Sometimes | Often | Every time

13a In the last month, how many times have you injected with a needle/syringe which had been handled or touched by another person who had already injected?

No times | Once | Twice | 3-5 times | 6-10 times | More than 10 times

**(Go to question 14)**

13b On those occasions, how often did they wash their hands prior to handling the needle/syringe that you used?

Never | Rarely | Sometimes | Often | Every time

14a In the last month, how many times have you touched your own injection site (e.g, to feel for a vein, to wipe away blood, or to stop bleeding) soon after 'assisting' another person with their injection (e.g, injecting them, holding their arm, handling their use needle/syringe; touching their injection site to feel for a vein, to wipe away blood, or to stop bleeding)?

No times | Once | Twice | 3-5 times | 6-10 times | More than 10 times

14b On those occasions, how often did you wash your hands before touching your own injection site?

Never | Rarely | Sometimes | Often | Every time

15a In the last month, how many times has another person touched your injection site (e.g, to feel for a vein, to wipe away blood, or to stop bleeding)?

No times | Once | Twice | 3-5 times | 6-10 times | More than 10 times

↓

**(completed survey)**

15b On those occasions, how often did the person wash their hands before they touched your injection site?

Never | Rarely | Sometimes | Often | Every time

**END OF THE QUESTIONNAIRE**

***Please make sure that you have answered all relevant questions correctly***

***THANK YOU FOR YOUR TIME***

# Appendix 4: Preliminary analyses tables – BBV-TRAQ-SV

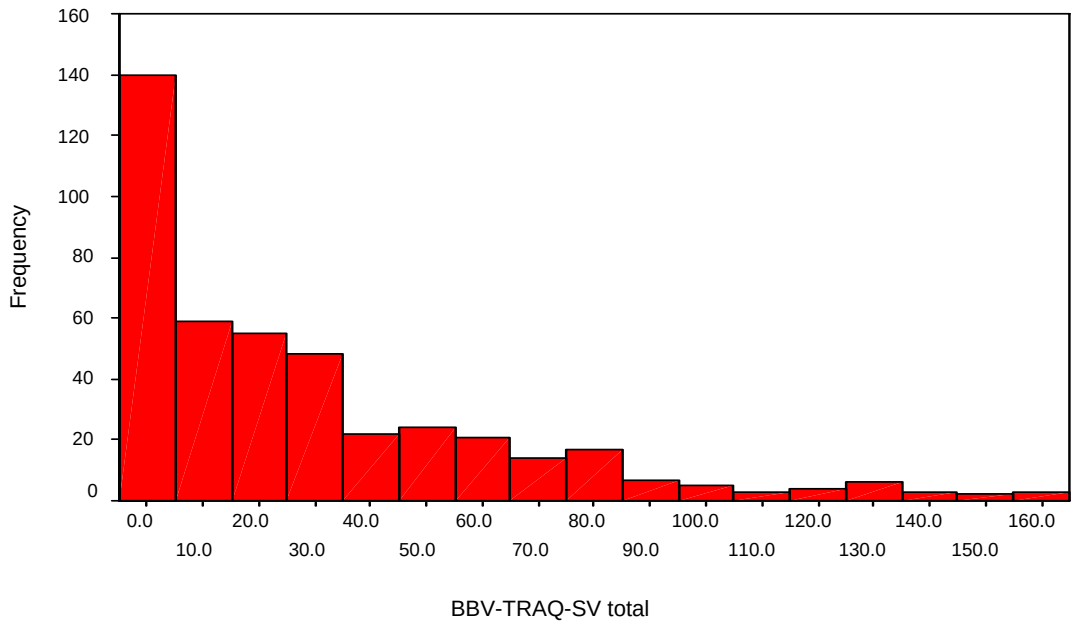


***Figure A 1 - Distribution of ABRIDUS sample BBV-TRAQ-SV total scores (N=433)***

***Table A 2 - Descriptive statistics for BBV-TRAQ-SV scores***

| Score | Mean | Median | Standard Error | Standard Deviation | Minimum (% of cases) | Maximum |
|---|---|---|---|---|---|---|
| Needle & syringe contamination | 5.66 | 0 | 0.59 | 12.22 | 0 (69) | 75 |
| Other injecting equipment | 17.82 | 10.00 | 1.06 | 22.09 | 0 (42) | 83 |
| Second person contamination | 5.19 | 3.00 | 0.33 | 6.79 | 0 (40) | 30 |
| Total Score | 28.66 | 17.00 | 1.66 | 34.53 | 0 (24) | 159 |

# Appendix 5: Characteristics of the ABRIDUS sample

***Table A 3 - Demographic characteristics of the ABRIDUS sample***

| Characteristics | | Number | Percent (%) |
|---|---|---|---|
| **AGE** | | | |
| Mean (SD) | 27.90 (8.13) | 450 | N/A |
| *Range* | 15-52 | | |
| **GENDER** | | | |
| Male | | 266 | 59 |
| **EMPLOYMENT** | | | |
| Unemployed | | 136 | 65 |
| **EDUCATION** | | | |
| Mean years of schooling (SD) | 12.32 (9.92) | N/A | N/A |
| Trade/technical course | | 176 | 40 |
| University/college course | | 74 | 17 |
| **ABORIGINAL/TORRES STRAIT ISLANDER** | | | |
| Aboriginal or Torres Strait Islander | | 53 | 12 |
| **ACCOMMODATION** | | | |
| Owner/occupied | | 63 | 14 |
| Rented house/flat | | 219 | 49 |
| No fixed address/other | | 84 | 20 |
| Boarding house | | 64 | 14 |
| Squat | | 18 | 4 |
| **LIVING ARRANGEMENTS** | | | |
| With friends/housemates | | 102 | 23 |
| Alone | | 83 | 18 |
| With parents | | 82 | 18 |
| With partner/spouse | | 72 | 16 |
| With partner/spouse with children | | 18 | 4 |
| Alone with children | | 18 | 4 |
| Other | | 75 | 17 |
| **PRISON HISTORY** | | 211 | 47 |
| **TREATMENT HISTORY** | | | |
| Currently in drug related treatment | | 153 | 34 |
| Never been in drug related treatment | | 128 | 28 |

For further ABRIDUS details refer to study final report (Dwyer, et al., 2002) available at http://www.turningpoint.org.au/library/lib_mono.htm

***Table A 4 - Drug use details and injecting history of the ABRIDUS sample***

| **AGE FIRST INJECTED** | | | |
|---|---|---|---|
| Mean (SD) | 18.32 (4.58) | | |
| Range | 9 - 43 | | |
| **Drug type** | **Ever injected (%)** | **Injected most in last month (%)** | **Drug of choice (%)** |
| Heroin | 96 | 72 | 66 |
| Methadone | 37 | 2 | 2 |
| Other opiates | 50 | 1 | <1 |
| Amphetamine | 88 | 21 | 13 |
| Cocaine | 57 | 3 | 2 |
| Hallucinogens | 22 | 0 | <1 |
| Ecstasy | 32 | 0 | 2 |
| Benzodiazepines | 36 | 0 | 0 |
| Steroids | 9 | 0 | 0 |
| Alcohol | 9 | 0 | 1 |
| Cannabis | N/A | N/A | 12 |
| Tobacco | N/A | N/A | 0 |

# Appendix 6: Self-reported serostatus of the ABRIDUS sample

***Table A 5 - Self-reported serostatus of the ABRIDUS sample***

| BBV Test Details | Number (n=449) | Percent (%) |
|---|---|---|
| **HEPATITIS B** | | |
| Vaccinated (full course) | 143 | 32 |
| HBV Negative | 167 | 37 |
| HBV Positive | 66 | 15 |
| Not aware of status | 73 | 16 |
| **HEPATITIS C** | | |
| HCV Negative | 183 | 41 |
| HCV Positive | 208 | 46 |
| Not aware of status | 58 | 13 |
| **HIV** | | |
| HIV Negative | 393 | 88 |
| HIV Positive | 7 | 2 |
| Not aware of status | 49 | 11 |

# Appendix 7: Predictive validity results

***Table A 6 - Comparison between self-report HCV status groups (HCV positive or others*) and BBV-TRAQ-SV total and subscale scores***

| Grouping and outcome variables | t | p-value | mean difference BBV positive and others[1] | 95% CI of the difference |
|---|---|---|---|---|
| HCV positive versus others[1] | | | | |
| Needle & syringe contamination | 1.18 | .240 | 1.42 | -0.96 – 3.80 |
| Other injecting equipment sharing | 2.55 | .011 | 5.53 | 1.27 – 9.78 |
| Second person contamination | 0.61 | .544 | 0.41 | -0.91 – 1.72 |
| Total Score | 2.17 | .031 | 7.35 | 0.69 – 14.02 |

[1] others combines testing negative, 'never tested' and 'not sure'

***Table A 7 - Comparisons between self-report HCV status groups (inclusive of 'never tested/not sure') and BBV-TRAQ-SV total and subscale scores***

| | F | p-value | mean difference HCV positive and negative | 95% CI of the difference |
|---|---|---|---|---|
| Needle & syringe contamination | 1.89 | .292 | 1.89 | -1.21 – 5.00 |
| Other injecting equipment sharing | 4.30 | .014 | 6.62 | 1.14 – 12.10 |
| Second person contamination | 3.19 | .042[1] | 1.01 | -0.69 – 2.72 |
| Total Score | 3.93 | .020 | 9.53 | 0.94 – 18.13 |

[1] significant difference was between anti-HCV negative and never tested/don't know group

***Table A 8 - Descriptive statistics for BBV-TRAQ-SV total and subscale scores by self-report HCV status groups***

| BBV-TRAQ-SV | Self-report HCV status | Mean | Standard deviation | Standard error | 95% CI for mean |
|---|---|---|---|---|---|
| Needle & syringe contamination | Positive | 6.49 | 13.24 | 0.97 | 4.58 – 8.39 |
| | Negative | 4.60 | 10.71 | 0.81 | 2.99 – 6.20 |
| | Never tested /don't know | 6.60 | 13.37 | 1.84 | 2.92 – 10.29 |
| Other equipment sharing | Positive | 20.86 | 23.18 | 1.69 | 17.53 – 24.20 |
| | Negative | 14.24 | 20.47 | 1.56 | 11.16 – 17.31 |
| | Never tested /don't know | 18.92 | 19.53 | 2.68 | 13.54 – 24.31 |
| Second person contamination | Positive | 5.44 | 6.87 | 0.50 | 4.45 – 6.43 |
| | Negative | 4.43 | 6.31 | 0.48 | 3.48 – 5.37 |
| | Never tested /don't know | 7.02 | 7.52 | 1.03 | 4.95 – 9.09 |
| Total | Positive | 32.79 | 35.85 | 2.62 | 27.63 – 37.95 |
| | Negative | 23.26 | 32.07 | 2.44 | 18.45 – 28.07 |
| | Never tested /don't know | 32.55 | 32.84 | 4.51 | 23.49 – 41.60 |

# Appendix 8: Factor loadings of the BBV-TRAQ-SV items[7]

***Table A 9 - Rotated (varimax) factor analysis solution for category 1 and 2[8] BBV-TRAQ-SV risk items***

| Risk Items | Factor 1 | Factor 2 | Factor 3 |
|---|---|---|---|
| injected with another person's used needle/syringe | 0.67 | | 0.34 |
| injected with a needle/syringe after another person has already injected some of its contents | | | 0.54 |
| received accidental needle-stick/prick from another person's used needle/syringe | | | 0.68 |
| re-used a needle/syringe taken out of a shared disposal/sharps container | 0.44 | | 0.48 |
| injected a drug that was filtered through another person's filter | 0.70 | | |
| injected a drug prepared in another person's used spoon or mixing container | 0.69 | | |
| injected a drug prepared with water which had been used by another person | 0.66 | | |
| injected a drug which had come into contact with another person's used needle/syringe | 0.75 | | |
| wiped your own injection site with an object which had been used by another person | | | 0.63 |
| injected a drug you prepared immediately after 'assisting' another person with their | 0.32 | 0.49 | 0.30 |
| injected a drug prepared by another person who had already injected or assisted someone else's injection | 0.43 | 0.67 | |
| injected by another person who had already injected or assisted in someone else's injection | | 0.83 | |
| injected with a needle/syringe which had been handled or touched by another person who had already injected | 0.58 | 0.53 | |
| touched your own injection site soon after 'assisting' another person with their injection | | 0.46 | 0.31 |
| another person touched your injection site | | 0.79 | |
| tattooed by an non-professional tattooist | | | |
| pierced by an non-professional piercer | | | |
| Used other person's razor | 0.30 | | |
| **Eigen values** | 5.32 | 1.57 | 1.36 |
| **Variance explained** | 19% | 16% | 11% |

[7] Including three other skin penetration items identified by expert key informant as carrying high risk of blood borne virus transmission.
[8] Category 4 and 5 for the full BBV-TRAQ scale, see Appendix 1.

# Appendix 9: BBV-TRAQ-SV glossary of terms

| DEFINITION OF BBV-TRAQ-SV TERMS | |
|---|---|
| ***Needle/syringe*** | Any equipment used to inject a drug or substance into the body (intravenous, intramuscular, sub-cutaneous), including 1ml variety needle/syringes, interchangeable needles (19 gauge, 23 gauge, 25 gauge, 27 gauge), home-made or altered needle/syringes, butterflies, and interchangeable barrels (2.5 ml, 5 ml, 10 ml or 12 ml) |
| ***Mixing container*** | Any object used for mixing a drug or substance prior to injection (including spoons, cans, bottle-tops, syringe wrappers, shot-glasses etc) |
| ***Filter*** | Any material used to filter a drug mix when drawing-up or loading into a needle/syringe (including swabs, cotton-wool, cotton-buds, tampons, cigarette filters, etc) |
| ***2x2x2 method*** | Suggested method of cleaning or disinfecting a used needle/syringe. It incorporates the following three steps:<br>1. Rinse out the needle/syringe at least twice with fresh cold water<br>2. Rinse out the needle/syringe at least twice with full-strength bleach (shaking each time for around 30 seconds)<br>3. Rinse out the needle/syringe again at least twice with fresh cold water |
| ***Full-strength bleach*** | Liquid bleach such as *Domestos* and *White King*, and bleach satchels available from needle/syringe exchanges |

## References

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## About Turning Point

Turning Point strives to promote and maximise the health and wellbeing of individuals and communities living with and affected by alcohol and other drug-related harms. We aspire to be a world leading service delivery and research and development centre. In working toward our goals we will ensure the safest possible environment in relation to alcohol and other drug problems today and into the future.

To achieve this, we are continually:

- creating thriving service delivery, research and development cultures that produce the best possible knowledge
- applying, using and translating this knowledge to promote change, build effective and rational policy, and demonstrate and contribute to world's best practice
- building our own and our communities' capacity through strategic relationships, partnerships and collaborations
- strengthening organisational capacity to provide the best environment for quality staff to achieve their potential

Since being established in 1994, Turning Point has led research and its translation into policy and practice at a local, national and international level. To best respond to emerging issues, Turning Point employs staff from a range of professional backgrounds and collaborates with organisations across the research, health, education and community services sectors.

The organisation integrates activities across a diverse range of specialist knowledge and professional practice. This unique combination enables Turning Point to translate evidence into action. Our work is essential to understanding the complexities of alcohol and drug use in our community and in developing effective approaches to prevent and treat dependence and other related harms.

Turning Point is formally affiliated with St Vincent's Hospital Melbourne and the University of Melbourne. Turning Point is part of the International Network of Drug Treatment and Rehabilitation Resource Centres for The United Nations Office of Drugs and Crime (UNODC) and is a member of the International Harm Reduction Association. The Centre is also a Registered Training Organisation and an accredited Higher Education Provider.