

# Review of Outcomes for clients who use Methamphetamine

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Final report

30 July 2014

Prepared for: Higher Ground



Judy Oakden Consultancy • Research Evaluation Consultancy  
The Knowledge Institute • Julian King & Associates



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Prepared for: Higher Ground

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## Executive summary

This report presents data analysis and evaluation of methamphetamine (MA) treatment outcomes at Higher Ground, based on analysis of service data.

The study includes 155 clients discharged between December 2011-March 2014 who had used MA and had been in treatment longer than 30 days.

The study found that:

- 55% of clients who used MA completed the programme<sup>1</sup>
- 63% of clients who used MA showed reliable or clinically significant improvements in PTSD scores between admission and discharge
- 82% of those who had a high PTSD score on admission (44+) had made clinically significant improvements in PTSD scores by discharge
- On average, clients had severe depression, severe anxiety and moderate stress as indicated by DASS scores on first presentation, and all three emotional states had reduced to normal levels by discharge
- Among those who had DASS scores in the 'severe' or 'extremely severe' ranges on first presentation, two-thirds were in the normal range and 85-90% were in the normal to moderate range on discharge
- Post-discharge, among those clients with follow up DASS scores recorded, mean scores remained within the normal range, indicating sustained recovery
- Of those clients able to be followed up at 3, 6, 9 and 12 months post discharge, 94% were abstinent from amphetamines at 3 months and 87% were abstinent at 12 months.

Overall these results, when benchmarked against agreed criteria informed by literature, indicate that Higher Ground is highly effective in working with methamphetamine clients.

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<sup>1</sup> Early discharge should not be regarded as failure, as early discharge can be therapeutically important and clients are encouraged to return when they are ready.

## 1 Introduction

Higher Ground Drug Rehabilitation Trust engaged Julian King & Associates to review service data on methamphetamine (MA) treatment outcomes from its residential programmes. This report presents findings from the review.

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### Higher Ground residential programme

Higher Ground provides abstinence based treatment, within a Therapeutic Community for adult New Zealanders. Its rehabilitation programmes are based on Narcotics Anonymous 12-step recovery principles. The programmes are based on the belief that spiritual dimensions of honesty, open mindedness, willingness, faith, hope, respect and generosity are the foundations of healing. Higher Ground emphasises that clients need to take individual responsibility for their recovery.

Higher Ground has an 8-bed contract through the Prime Ministers' Methamphetamine Strategy, as well as accepting methamphetamine clients into other funded beds in the wider programme. Overall, approximately 45-50% of clients have methamphetamine dependency, with the remainder predominantly having alcohol dependency.

Average length of methamphetamine dependency of Higher Ground clients is 10 years.<sup>2</sup>

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### Clients who used methamphetamine

The study includes 155 clients discharged between December 2011-March 2014. These clients were selected on the basis that they had been in treatment longer than 30 days and:

- had MA recorded as drug of choice on first presentation to Higher Ground;<sup>3</sup>
- indicated MA as a substance of concern on first presentation;
- used MA in the 28 days prior to admission; or
- indicated MA as a substance of concern to them on admission.

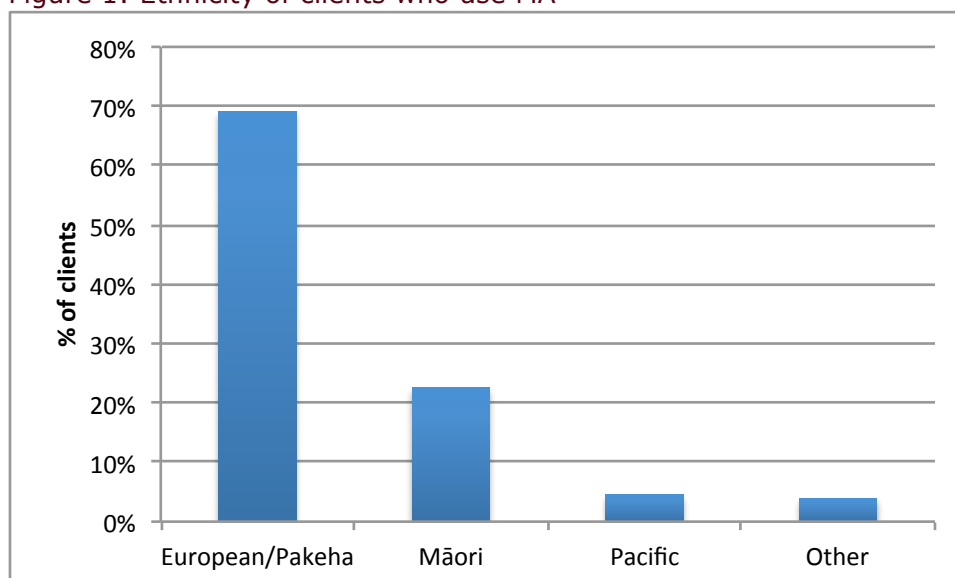
57% percent of these clients were male and 43% female. The majority (69%) were European/Pakeha while 23% were Māori, 5% Pacific and 3% other ethnicities (Figure 1).

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<sup>2</sup> Based on 2011-13 data for all clients whose drug of choice was methamphetamine.

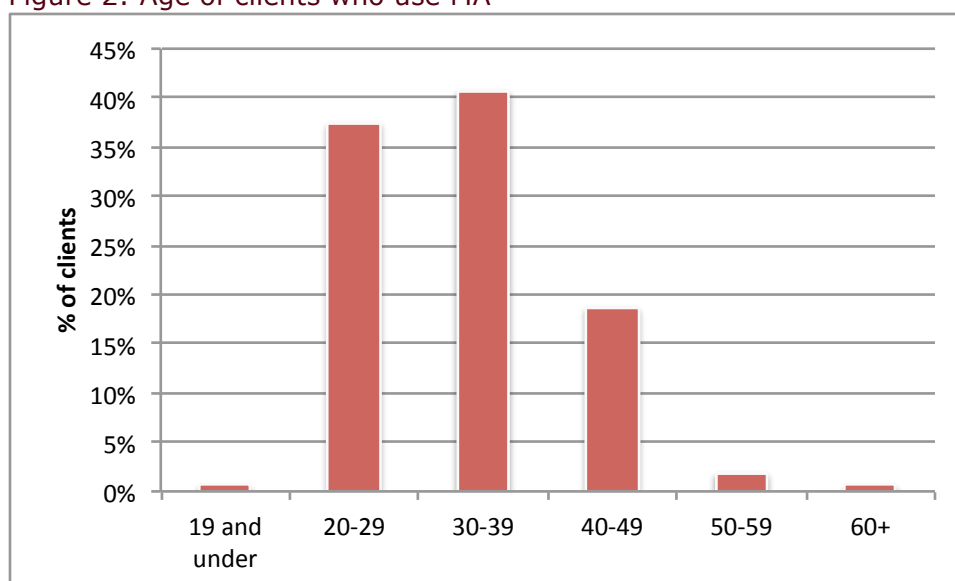
<sup>3</sup> Some clients may have identified more than one drug of choice. However, only the primary drug of choice was recorded in the data.

Figure 1: Ethnicity of clients who use MA



Most clients were in their 20s (37%) or 30s (41%) as shown in Figure 2.

Figure 2: Age of clients who use MA



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## Review scope and methods

An evaluative review of outcomes data was undertaken for the 155 clients who used methamphetamine. The review was carried out in three stages:

- A rapid literature scan was conducted seeking published evidence or standards for recovery outcomes for clients who use MA
- A workshop was conducted with programme leaders to develop performance criteria
- Using data provided by Higher Ground, MA outcomes were evaluated against the performance criteria.

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## Performance criteria

Evaluation is the systematic determination of the quality, value or importance of something (e.g., an initiative, programme, project, organisation, etc), underpinned by analysis of evidence.

Evaluation differs from research in that it seeks to determine *how good* something is. Accordingly, the practice of evaluation requires engagement with values. While scientific and social research aims to be “as values-free as possible” (Gluckman, cited in Hubbard, 2012), evaluation uses values and facts together: values are used to make sense of factual evidence for a particular context. In the process of conducting an evaluation, research methods are used to underpin the collection of evaluative evidence.

Good evaluation practice requires an explicit basis for making evaluative judgments. An evaluation framework should specify performance criteria so that evaluative judgements are made transparently and on an agreed basis.

The following performance criteria were developed with reference to the literature and in consultation with Higher Ground service leaders. They have been used as a guide to evaluative judgments in this report.

Table 1: Performance criteria for methamphetamine recovery outcomes

MA recovery outcomes will be judged as...	If the following criteria are met...
Highly effective	<p>55% of clients complete the programme (including WSA<sup>4</sup> and transfers)</p> <p>40% of clients with high PTSD scores on admission show clinically significant shifts at discharge</p> <p>40% of clients with severe or extremely severe DASS scores on admission show clinically significant shifts at discharge</p> <p>75% of those who can be followed up are not using MA at 3 months, and 50% are not using MA at 12 months.<sup>5</sup></p>
Consolidating effectiveness	<p>45% of clients complete the programme (including WSA and transfers)</p> <p>30% of clients with high PTSD scores on admission show clinically significant shifts at discharge</p> <p>30% of clients with severe or extremely severe DASS scores on admission show clinically significant shifts at discharge</p> <p>50% of those who can be followed up are not using MA at 3 months, and 25% are not using MA at 12 months.</p>
Developing effectiveness	<p>35% of clients complete the programme (including WSA and transfers)</p> <p>20% of clients with high PTSD scores on admission show clinically significant shifts at discharge</p> <p>20% of clients with severe or extremely severe DASS scores on admission show clinically significant shifts at discharge.</p>
Acceptable	<p>25% of clients complete the programme (including WSA and transfers)</p> <p>10% of clients with high PTSD scores on admission show clinically significant shifts at discharge</p> <p>10% of clients with severe or extremely severe DASS scores on admission show clinically significant shifts at discharge.</p>
Ineffective	None of the above criteria are met.

<sup>4</sup> WSA means discharged With Staff Approval (i.e., completed)

<sup>5</sup> Clients may not necessarily be abstinent from all substances, but need to be abstinent from MA to meet this criterion.



## 2 Literature scan

A rapid literature scan was conducted seeking published evidence or standards for recovery outcomes for clients who use MA. The literature scan found no specific data on MA recovery in therapeutic communities (TCs) that would directly provide an appropriate benchmark for evaluating outcomes from the Higher Ground residential programme.

Moreover, comparing results of different programmes is problematic because TCs vary, treatment approaches vary, and the chronic and relapsing nature of MA dependence means individual recovery pathways vary (Bahr et al, 2012; De Leon, 2010; McKetin et al, 2010).

However, the literature does indicate a range of outcomes from research on TCs and other programmes that can be used as a general guide in developing performance criteria.

### *Effectiveness of therapeutic communities and adjunct therapies*

The Higher Ground residential programme incorporates evidence-based models and practices that are supported by the literature.

For example, there is good evidence that TCs are effective in reducing substance dependency and use, as well as psychosocial functioning, attitudes and behaviour (De Leon, 2010), though a Cochrane review concluded that it is not clear whether they are more effective than other residential treatment or that one type of TC is better than another (Smith et al, 2006).

Evidence indicates that psychosocial approaches including cognitive behavioural therapy (CBT), relapse prevention and contingency management are among the most effective treatments for MA abuse and dependence (BJA, n.d.; Lee et al, 2007; Rawson et al, 2002).

Using a combination of interventions, such as motivational interviewing techniques in conjunction with CBT interventions seems to be more effective than interventions applied individually (Lee et al, 2007).

Similarly, treatments together with 12-step programmes are found to have additive effects (Fiorentine et al, 2000). Although not evidenced for MA users specifically, work with alcohol and cocaine-dependent people indicates that involvement in 12-step self-help groups, both attending meetings and engaging in 12-step activities, is associated with reduced substance use and improved outcomes (Donovan & Wells, 2007).

The Matrix Model, which incorporates cognitive behavioral therapy, positive reinforcement, family involvement, 12-step programs, motivational interviews, and urine testing, has been shown to decrease MA and other drug use as well as improve psychosocial functioning and mental health when compared to various, more traditional counselling approaches (BJA, n.d.).

### *Outcome Measures for evaluation of MA treatment programmes*

The Bureau of Justice Assistance identifies a number of outcome measures that are appropriate for use when evaluating MA treatment programmes, but does not suggest benchmarks for these (BJA, n.d.). Relevant examples include:

- Abstinence rates (measured by urinalysis testing)
- Percent decrease in psychiatric problems
- Percent decrease in medical problems
- Change in family relationships
- Percentage of MA negative urine samples
- Number of days without MA use
- Percentage completing MA treatment
- Percentage asked to discontinue treatment (mostly for disciplinary reasons)
- Percentage employed after treatment
- Percentage arrested/convicted
- Frequency of committing crimes (while in treatment).

### *Methamphetamine Treatment Evaluation Study*

The Methamphetamine Treatment Evaluation Study (MATES) offers a potential point of comparison based on a range of community-based drug treatment services for clients who used MA in Sydney and Brisbane (Cogger et al, 2008; McKetin et al, 2010). MATES was a prospective longitudinal study with a non-treatment quasi comparison group. Follow up was conducted 3, 12 and 36 months post treatment (McKetin et al, 2009; 2010; 2012).

MA users in the MATES study who entered community-based drug treatment services showed large reductions in their drug use and related problems. These improvements included a significant reduction in MA use days and dependence, as well as psychotic symptoms, hostility, anxiety disorders, crime and HIV risk behaviour (McKetin et al, 2009).

The greatest impact was for abstinence. In the Brisbane study, for example, 61% of clients followed up remained abstinent at 3 and 12 months. Reductions were also seen in depression, social phobia, panic disorder, psychosis and hostility (Cogger et al, 2008).

MA treatment entrants showed sustained reductions in MA use and related harms after drug treatment, but these positive outcomes were largely due to ongoing treatment exposure. Similarly, reductions in MA use and related harms in the treatment group were greater than in the

comparison group at three years post-treatment, but these effects were largely attributable to treatment re-entry (McKetin et al, 2010).

Long-term treatment success was more common with longer treatment duration and the more intensive treatment modalities of counselling and residential rehabilitation (compared to detoxification). Participants who did poorly were using MA more often prior to treatment entry, injecting the drug, and were more likely to be experiencing psychotic symptoms and high levels of psychological distress (McKetin et al, 2010).

Particularly poor outcomes were observed for heavier injecting MA users and those with psychotic symptoms and high levels of psychological distress on entry to treatment. On the other hand, around one-third of MA users recovered without further drug treatment (Ibid).

### *Completion rates for TC programmes*

Positive outcomes following treatment relate to successfully completing the goals of all TC programme stages, not simply meeting the planned duration of treatment. However, people who complete the planned duration of treatment reveal the best outcomes (De Leon, 2000).

A review of international literature on TCs by Vanderplasschen et al (2014) indicates that completion rates have varied between 9-75%, with midpoint completion rates around 30% (Guydish et al, 1998; Nemes et al, 1999; Nuttbrock et al, 1998; McCusker et al, 1997; McCusker et al, 1996; Coombs, 1981; Ravndal and Vaglum, 1998; Ogborne and Melotte, 1977).

These studies predominantly covered 12-month TC programmes but included a few 3 and 6 month programmes as well as some that were longer than 12 months. Completion rates were highest in the short-term programmes. The two highest completion rates (56% and 75%) were for 3-month TCs (McCusker et al, 1996; Coombs, 1981).

None of these studies covered MA users specifically, but indicate TC completion rates for illicit drug users generally.

### *Abstinence post-exit from TC programmes*

TC literature reviewed by Vanderplasschen et al (2014) indicates abstinence rates of between 16-85% at 3-6 months follow up, with midpoint abstinence rates of around 70% (Nuttbrock et al, 1998; Martin et al, 1999; Nielsen et al, 1996; Greenwood et al, 2001; McCusker et al, 1995; Hartmann et al, 1997).

At 12 months follow up, abstinence rates ranged from 25-73%, with midpoint abstinence rates around 50% (Sullivan et al, 2007; Greenwood et al, 2001; Bale et al, 1980; Coombs, 1981; McCusker et al, 1995).

In general, the longer individuals remain in treatment, the more likely their recovery and rehabilitative goals are achieved (Bell et al, 1996; De Leon, 2010; Inciardi et al, 2004; Welsh, 2007; Welsh & McGrain, 2008).

This implies that abstinence rates following completion of shorter programme durations might be expected to lie at the lower end of the range.

None of these studies covered MA users specifically, but indicate abstinence rates for illicit drug users generally, after exit from a TC programme.

### *TC impacts on psychological symptoms*

A number of studies have found that TCs are effective in reducing psychological symptoms including depression, anxiety and stress, among others (Prendergast et al, 2004; Guydish et al, 1999; French et al, 1999; Nuttbrock et al, 1998; all cited in Vanderplasschen et al, 2014). However, the range of assessment tools used in these studies did not offer directly comparable or transferrable benchmarks for Higher Ground.

Studies that included DASS scores following treatment generally showed mean DASS scores in the normal to moderate range with midpoints in the high-normal to low-mild range (Blatch, 2013; Crawford and Henry, 2003; Lovibond and Lovibond, 1995; Nicholas et al, 2008; all cited in Blatch et al, 2013).

### 3 Results

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#### Programme completion

Of the 155 methamphetamine clients in the study:

- 79 (51%) were discharged with staff approval (WSA, i.e., completed)
- 40 (26%) were discharged at staff request (ASR)
- 30 (19%) were discharged against staff advice (ASA)
- 6 (4%) were transferred.

Both WSA and transfers may be regarded as successful completions (i.e., 55% of clients who use MA completed the programme). Neither ASR nor ASA discharges should be regarded as “failures” as early discharge is regarded as a therapeutically important feature of the programme design and clients are encouraged to return when they are ready to resume the programme.

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#### PTSD scores

The PCL-5 is a 20-item self-report measure that assesses the 20 DSM-5 symptoms of post-traumatic stress disorder (PTSD). It can be scored in different ways including a total symptom severity score, cluster severity scores or diagnostically using cut-points, though the latter have not yet been validated (Weathers et al, n.d.).

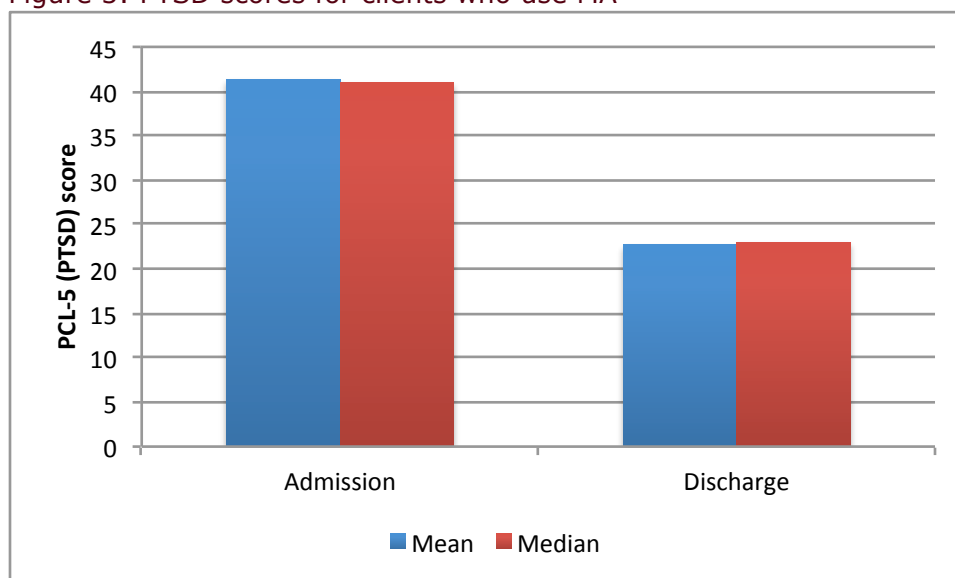
A total symptom severity score, ranging from 0-80, can be obtained by summing the scores for each of the 20 items. Evidence for the PCL for DSM-IV suggested that a 5-10 point change represented a reliable change (i.e., change not due to chance; indicating that a client has responded to treatment) and a 10-20 point change represents clinically significant change (Ibid).

#### *Average PTSD scores at admission and discharge*

Median and mean PTSD scores are shown in Figure 3. PTSD scores were collected at admission and discharge only; only clients who completed PTSD questionnaires for both time periods were included in this analysis (n=133).

The results show an 18-point change in the mean and median PTSD scores, suggesting that the average improvement for this client group was clinically significant.

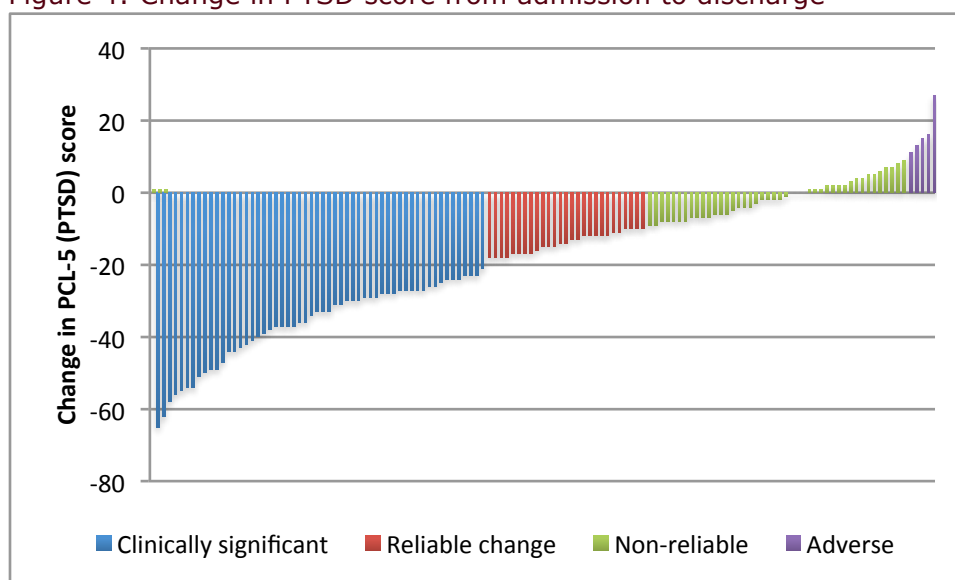
Figure 3: PTSD scores for clients who use MA



### Change in PTSD score

Figure 4 provides analysis of individual changes in clients' PTSD scores between admission and discharge. For example, the greatest change shown is a 65-point reduction from admission to discharge. Overall, 43% were clinically significant improvements and another 20% were reliable improvements but below the threshold of clinical significance. The remaining 37% were predominantly minor changes as well as a few scores that worsened.<sup>6</sup>

Figure 4: Change in PTSD score from admission to discharge



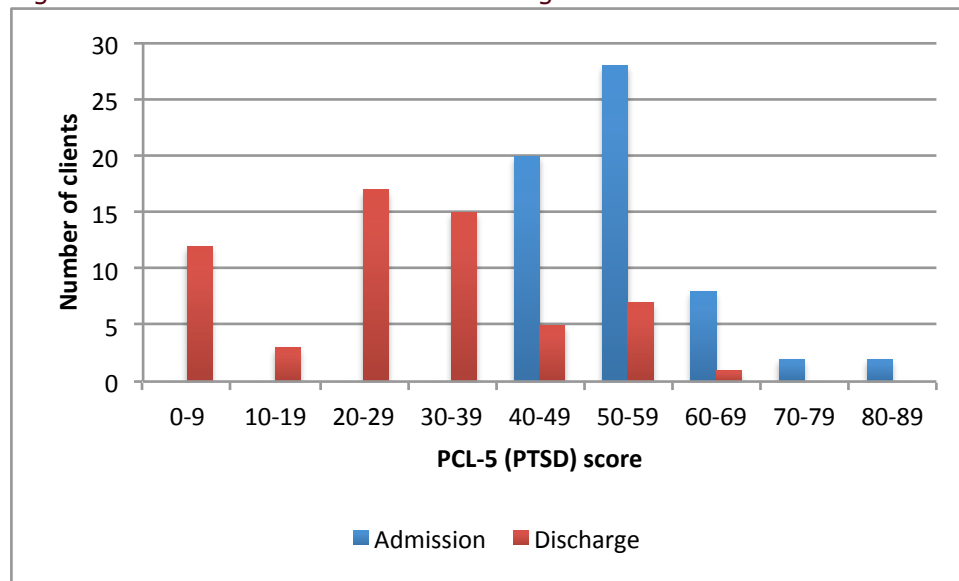
<sup>6</sup> The available data may under-represent the full improvement as it only shows the shift in PTSD score from admission to discharge. Pre-admission intervention means PTSD scores may have already undergone some reduction before the admission assessments are done.

### *Change in PTSD score for people with high scores on admission*

Sub-group analysis was conducted for clients who had a PTSD score of 44 or more on entry, suggested as an appropriate cut point in civilian substance abuse residential programmes (NCPTSD, 2010).

Of these clients (N=60), 82% had PTSD scores under 44 on discharge (Figure 5), indicating substantial improvements for the vast majority of clients.

Figure 5: PTSD scores for clients scoring 44+ on admission



### **DASS comparison scores**

The Depression Anxiety and Stress Scale (DASS) is a 42 item questionnaire which includes three self-report scales to measure the negative emotional states of depression, anxiety and stress. Scores for each emotional state are calculated by summing the relevant item scores. Scores are interpreted using the cut-points set out in Table 2 (ACPD MH, n.d).

Table 2: Cut-points for DASS scale

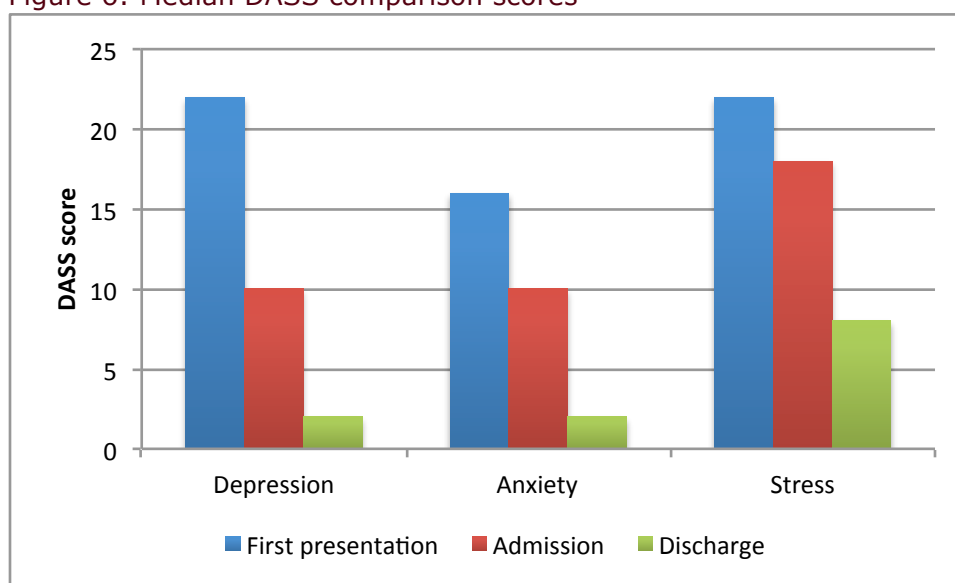
	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely severe	28+	20+	34+

Source: Lovibond & Lovibond, 1995, cited in ACPDMH, n.d.

### *Average DASS scores on first presentation, admission and discharge*

Figure 6 shows median DASS comparison scores, and Figure 8 shows mean scores. Together, these graphs indicate that *on average*, clients on first presentation had severe depression, severe anxiety and moderate stress. With pre-admission work these had already begun to reduce by the time of the admission assessment. On all three scores clients' emotional states had reduced to within the normal range by discharge.

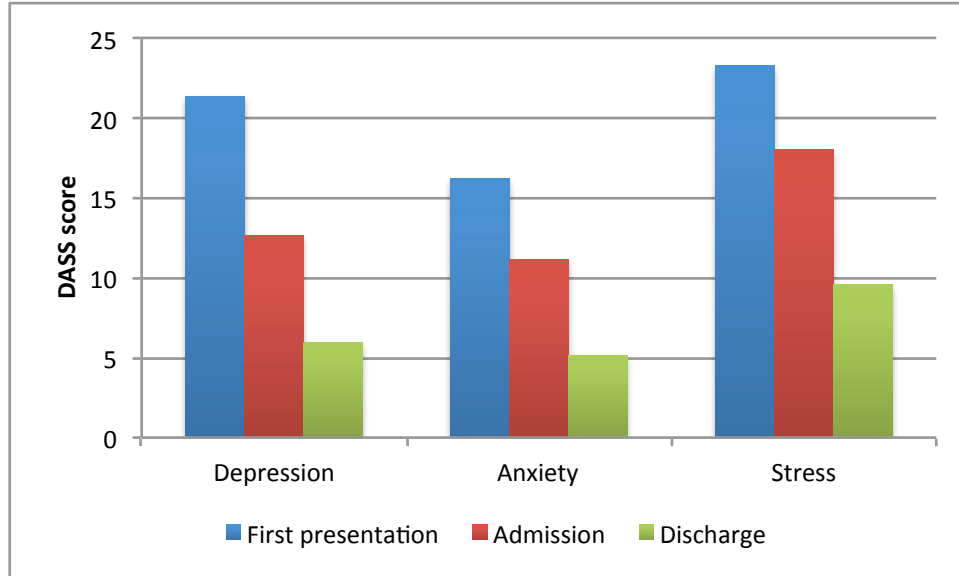
Figure 6: Median DASS comparison scores



N=106 on first presentation and 155 at admission and discharge



Figure 7: Mean DASS comparison scores for methamphetamine clients

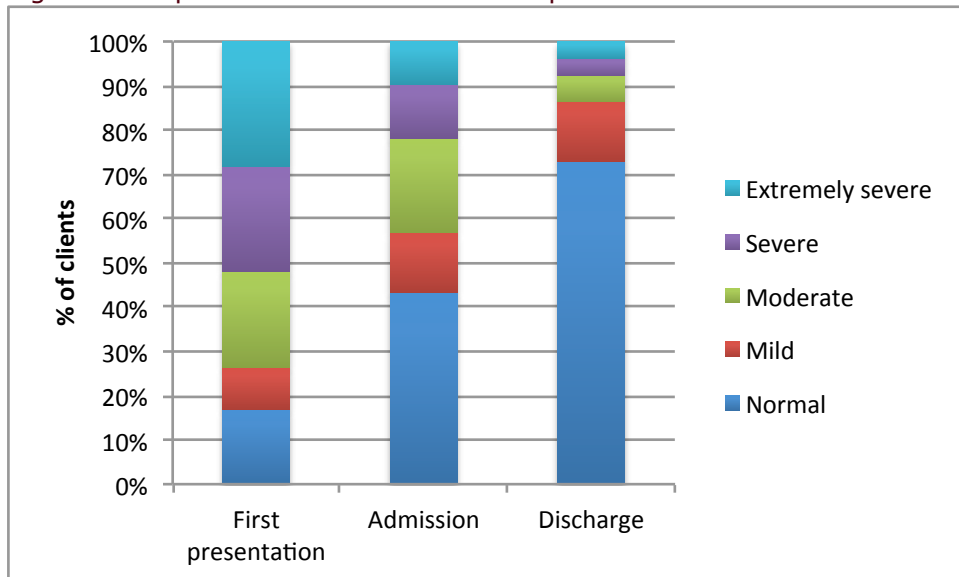


N=106 on first presentation and 155 at admission and discharge

### *Changes in level of severity over time*

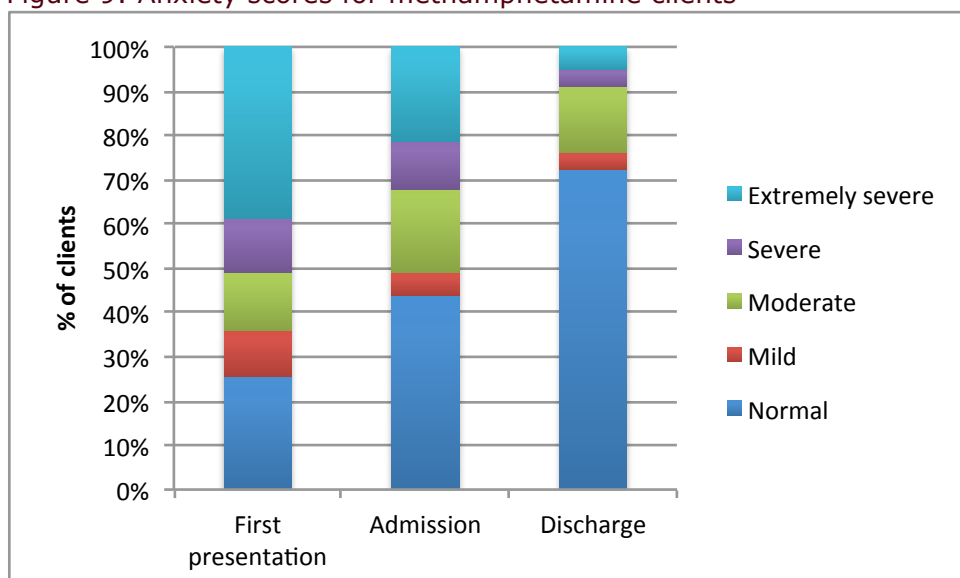
The following three graphs show the improvements in DASS scores among methamphetamine clients for depression (Figure 8), anxiety (Figure 9) and stress (Figure 10).

Figure 8: Depression scores for methamphetamine clients



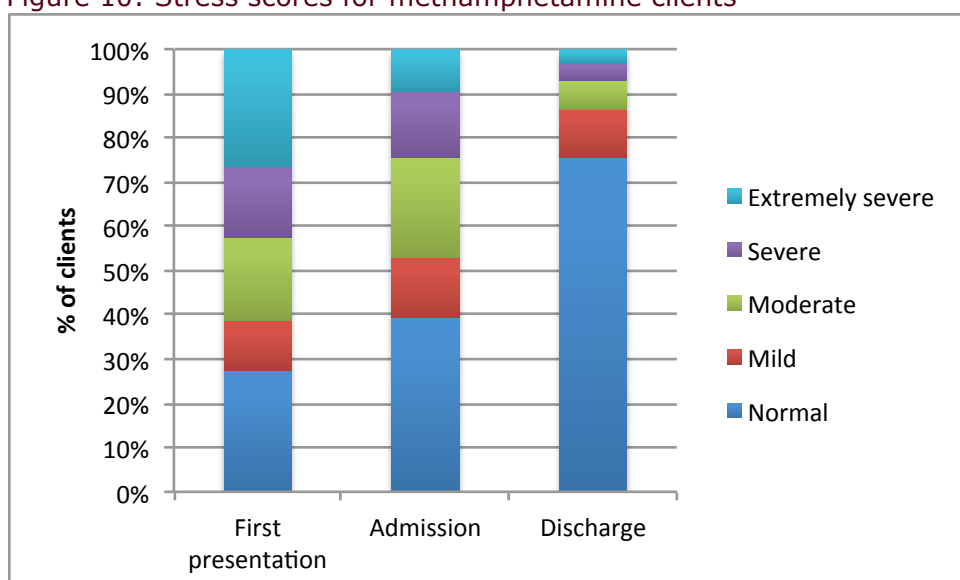
N=106 on first presentation and 155 at admission and discharge

Figure 9: Anxiety scores for methamphetamine clients



N=106 on first presentation and 155 at admission and discharge

Figure 10: Stress scores for methamphetamine clients

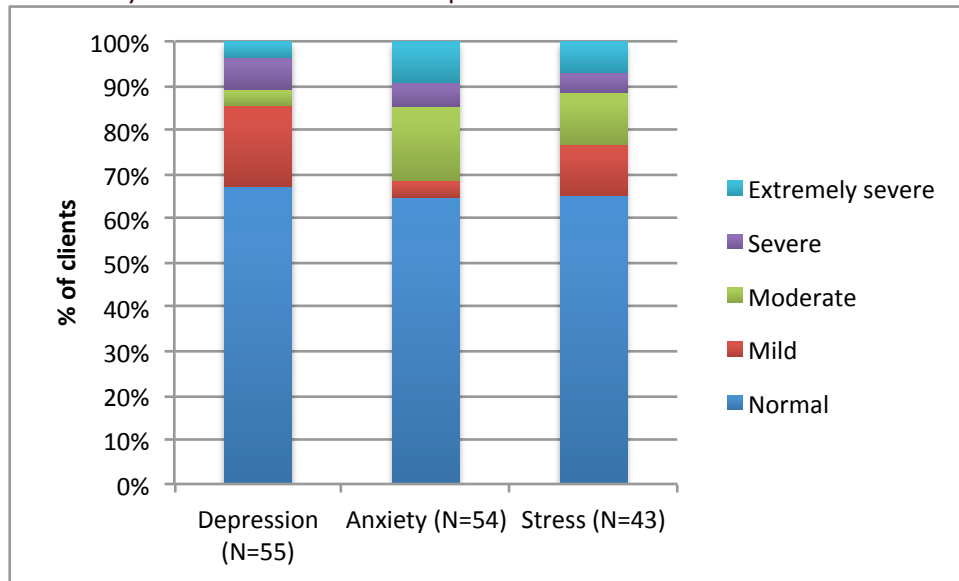


N=106 on first presentation and 155 at admission and discharge

### *Change in DASS score for people with high scores on first presentation*

Sub-group analysis was conducted for those clients who had DASS scores in the 'severe' or 'extremely severe' ranges on first presentation. At discharge, two-thirds were within the normal range and 85-90% were in the normal to moderate range of DASS scores (Figure 11).

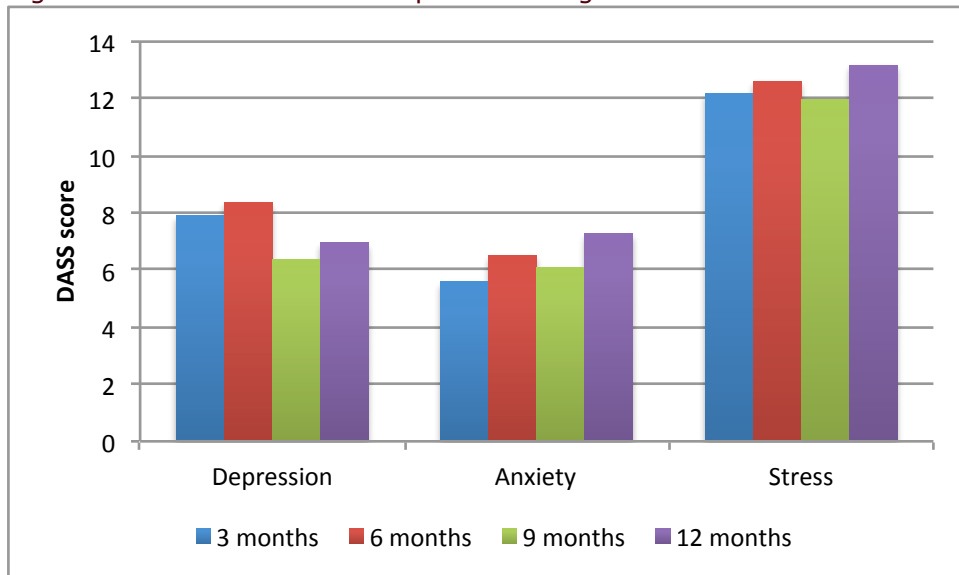
Figure 11: Range of DASS scores on discharge for clients with severe or extremely severe scores on first presentation



#### Average DASS scores post discharge

Post-discharge, among those clients with follow up DASS scores recorded at 3, 6, 9 and 12 months (N=78), average scores remained within the normal range, indicating sustained recovery (Figure 12).

Figure 12: Mean DASS scores post discharge



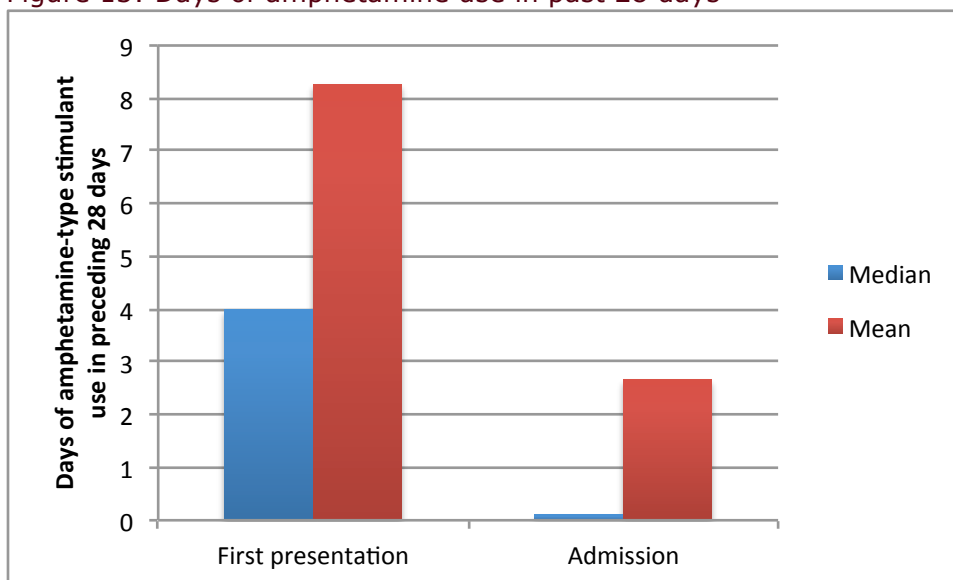
## ADOM and abstinence post-discharge

The alcohol and drug outcome measure (ADOM) is a brief outcome measure relevant to NZ AOD services. The questionnaire is designed for service users and clinicians to complete together and includes 11 questions on substance use and 7 questions on lifestyle change and wellbeing (Te Pou, 2009).

ADOM Question 4 asks, "In the past four weeks, on how many days did you use amphetamine-type stimulants, e.g., methamphetamine, speed, methylphenidate (Rubifen)?"

Average days of amphetamine use in the 28 days preceding first presentation and admission are shown in Figure 13.

Figure 13: Days of amphetamine use in past 28 days



At the time of admission, 58% of clients said they had not used amphetamines in the preceding 28 days.

Abstinence from amphetamine-type stimulants post-discharge was indicated by responses to Q4 at 3, 6, 9 and 12 months. Figure 14 shows the results of this post-discharge follow up.

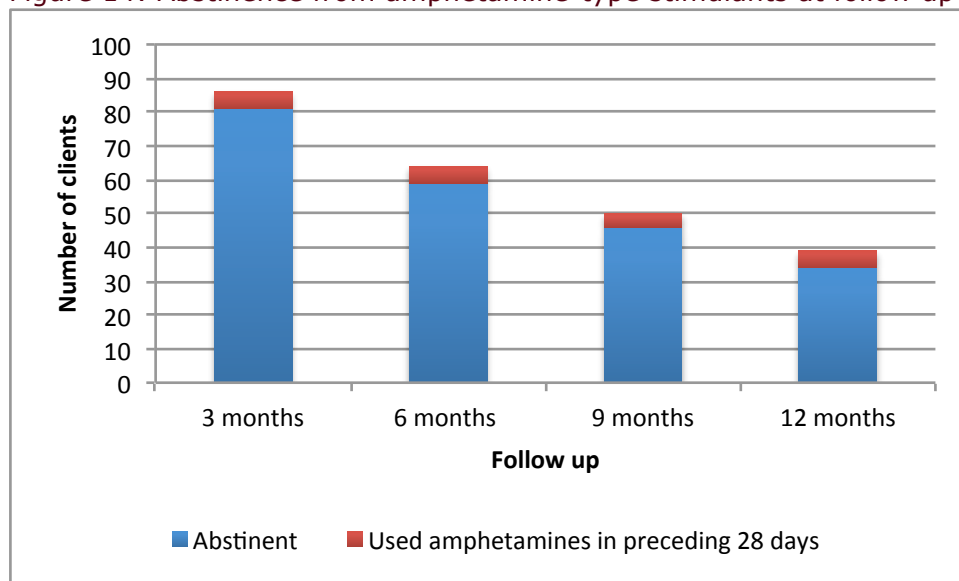
At 3-month follow up, 86 former clients were able to be contacted (55% of those included in the study). Of these, 81 reported that they had been abstinent from amphetamines in the last 28 days (94% of those contacted).

At 6-month follow up, 64 clients were able to be contacted (41% of the study group) and 59 were abstinent (92% of those contacted).

At 9-month follow up, 50 clients were able to be contacted (32% of the study group) and 46 were abstinent (92% of those contacted).

At 12-month follow up, 39 clients were able to be contacted (25% of the study group) and 34 were abstinent (87% of those contacted).

Figure 14: Abstinence from amphetamine-type stimulants at follow up



## 4 Evaluative conclusions

The outcomes at discharge and post-discharge meet the criteria for “highly effective” as defined in the evaluative rubric (Table 1).

### *Programme completion*

Of the 155 clients in the study, 79 were discharged with staff approval and 6 were transferred to another service. Therefore, 55% of clients are regarded as having completed the programme. This meets the threshold for “highly effective”.

### *Clinically significant shifts in PTSD and DASS scores between admission and discharge*

Out of 60 clients who had a high PTSD score of 44 or more on entry (suggested as an appropriate cut point in civilian substance abuse residential programmes), 49 (82%) had PTSD scores below 44 on discharge.

Out of 55 clients who had a DASS depression score of 21 or more (i.e., severe or extremely severe) on first presentation, 47 (85%) were in the normal to mild range on discharge.

Out of 54 clients who had a DASS anxiety score of 15 or more (i.e., severe or extremely severe) on first presentation, 37 (69%) were in the normal to moderate range on discharge.

Out of 43 clients who had a DASS stress score of 26 or more (i.e., severe or extremely severe) on first presentation, 33 (77%) were in the normal to moderate range on discharge.

These results exceed the criteria for “highly effective”.

### *Abstinence at 3 and 12 months post discharge*

Of those clients who were able to be followed up at 3 and 12 months, 94% and 87% respectively had been abstinent from methamphetamine use in the preceding 28 days. This result exceeds the criteria for “highly effective”.

### *Conclusion*

Overall these results, when benchmarked against agreed criteria informed by international literature, indicate that Higher Ground is highly effective in working with methamphetamine clients.

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