**Selective Review of Substance Use Treatment Outcome Literature**

**Overview of Document**

The current document highlights several findings from the empirical literature on substance use treatment outcomes. The substance use treatment outcome literature is vast and includes empirical studies that vary widely in terms of their relevance to the Recovery Unplugged treatment model. To help prune the literature accordingly, we relied on review articles and books (meant to provide integrative summaries of the larger literature). These review materials were supplemented with individual studies considered more relevant to Recovery Unplugged. Below, we highlight several conclusions that will provide relevant context for our data collection efforts and ultimate interpretation of results. These general conclusions give rise to a set of recommendations that are presented at the end of the document.

**General Conclusions**

*Residential treatment remains a viable treatment option*

Although the vast majority of current substance use treatments are delivered in an outpatient setting (approximately 81%, National Survey of Substance Abuse Treatment Services—2011 data), a recent review of evidence supports the continued use of residential treatments (e.g., Reif et al. 2014).

* Historically, 75% of clients receiving residential treatment for substance use continue to the point of discharge (SAMHSA, 1997, cited in McLellan et al. 2005).
* We can use this as a benchmark for Recovery Unplugged clientele.

*Chronic substance use should be treated in a manner similar to other chronic health conditions*

The field is beginning to embrace the idea that chronic substance use should be treated like other chronic health conditions (e.g., diabetes) (Kelly & White, 2011; McLellan et al. 2005). At a macro level, McLellan et al. (2005) argue that across treatment modalities and drugs of abuse, approximately 50 to 60% of individuals begin using within six-months of receiving treatment. Data related to long-term outcomes (10 to 30 year post-treatment data) suggest persistent drug involvement and related consequences for a non-trivial percentage of individuals. As such, although any individual treatment episode is important in its own right, the field is beginning to think more in terms of treatment careers (similar to the concept of substance use careers). This shift in perspective has some implications for the goals of index treatment episodes (e.g., a 45-day residential treatment stay) and for service extension beyond the index episode (e.g., the aftercare segment following residential stay).

Below, we highlight some relevant data—paying particular attention to substance-related abstinence and mortality over an extended period of time following treatment. We organize data around substance of abuse (e.g., alcohol, cocaine, and heroin) and some other relevant factors (e.g., length of follow-up). Perhaps two general conclusions are worth highlighting in advance: (1) follow-up data for heroin-dependent younger individuals (adolescents and young adults) suggest that approximately 30% report complete abstinence at 12-month follow-up; (2) long-term follow-up data for heroin-dependent individuals suggest persistent involvement and high mortality rates (e.g., at least 1/3 of participants tested positive for heroin at 20-year follow-up, and approximately 27% of participants were deceased by 20-year follow-up).

*Alcohol-related*. A study examined 10-year post treatment alcohol, quality of life, and mortality data for a sample of randomly selected patients admitted to an inpatient alcohol treatment facility between 1973 and 1974 (Cross et al. 1990).

* At 10-year follow-up, 61% of surviving individuals were classified as fully or stably remitted – in terms of their alcohol use.
* If deceased individuals are considered in estimates, the percentage lowers to 53%.
* The conditional probability of being deceased at the 10-year follow-up was .358 if the individual was classified as chronic or intermittent in their alcohol use in the follow-up period.
* The conditional probability of being deceased at the 10-year follow-up was .095 if the individual was classified as fully or stably remitted.
* These data indicate that the odds of being deceased was 5.3 times higher among individuals with persistent alcohol-related symptoms.
* The average age of deceased individuals with chronic alcohol problems was 52, compared with 64 (for individuals without chronic problems).

*Cocaine-related sample (United States-US)*. A study examined 1 and 5-year outcomes for 708 individuals in the DATOS data file that were classified as cocaine-dependent at the time of treatment entry (Simpson et al. 2002). Average participant age at study entry was 33 (64% male, 56% African American).

* At 1-year follow-up, 21% of sample endorsed weekly cocaine use.
* At 5-year follow-up, 25% of sample endorsed weekly cocaine use.

*Heroin-related young adult sample (US)*. Of all the studies identified and reviewed, perhaps the sample closest to the clientele at Recovery Unplugged was a sample of young adults receiving inpatient treatment at Hazelton. Study authors examined in-treatment and 1-year post-treatment outcomes for young adults (ages 18-24, 74% male, 95% Caucasian) classified as opiate dependent (25% of sample), opiate misusers (20% of sample), or non-use (55% of sample) (Schuman-Oliver et al. 2014).

* The three groups showed similar in-treatment gains on therapeutic targets (e.g., coping skills).
* The opiate dependent group showed significant in-treatment reductions on psychiatric symptoms.
* 42.5% of opiate dependent group reported complete abstinence at 6-month follow-up.
* Approximately 1/3 of this group attended additional residential treatment during the follow-up window, suggesting the need for additional treatment.
* 28.8% of opiate dependent group reported complete abstinence at 12-month follow-up.

*Heroin-related adolescent sample (US)*. A small-scale study of adolescents receiving short-term residential treatment for heroin / opiate use reported very similar estimates of 12-month abstinence as those reported above by Schuman-Oliver and colleagues (Branson et al. 2012).

* If individuals who failed to complete the 12-month assessment were added to the non-abstinent group, 32% of sample was classified as abstinent at the 12-month assessment (compared to 28.8% of young adults).
* These adolescent data further suggest that youth classified as non-abstinent and abstinent at the 12-month follow-up were reliably differentiated in terms of percentage of days of use by the 3-month follow-up assessment.
* Percentage of usage days was over 40% in the relapse group and under 20% in the group that achieved abstinence by 12-month follow-up.

*Heroin-related (US)*. A study examined 33 year follow-up data for an ethnically diverse sample of male heroin users admitted to the California Civil Addict Program (CAP) between 1962 and 1964 (Hser et al. 2001). CAP was a compulsory drug treatment program for narcotic-dependent criminal offenders. Average age at treatment admission was 25 (*SD* = 3.9).

* At the 10-year follow-up, 31% of sample tested positive for opiates based on urinalysis.
* The percentage of people who refused the urinalysis was 8.2 and the percentage of incarcerated individuals (whose urine could not be tested) was 23.5.
* Consequently, the 31% is a conservative estimate.
* At the 20-year follow-up, 32% of sample tested positive for opiates.
* The percentage of people who refused the urinalysis was 7.9 and the percentage of incarcerated individuals (whose urine could not be tested) was 19.2.
* At the 30-year follow-up, 21% of sample tested positive for opiates.
* The percentage of people who refused the urinalysis was 9.5 and the percentage of incarcerated individuals (whose urine could not be tested) was 14.
* At the 10-year follow-up, 13.8% of sample was deceased.
* Average age of living participants at 10-year follow-up was 36.8 (*SD*=5.4).
* At the 20-year follow-up, 27.7% of sample was deceased.
* Average age of living participants at 20-year follow-up was 47.6 (*SD*=5.1).
* At the 30-year follow-up, 48.9% of sample was deceased.
* Average age of living participants at 30-year follow-up was 57.4 (*SD*=4.0).

*Methadone-related Amsterdam sample*. An Amsterdam-based study examined 20-year follow-up data for individuals attending low-threshold methadone programs (average age: 32.1; percentage male: 68.4; percentage Western European: 80.2) (Termoshuizen et al. 2004).

* Only 27% of living individuals were classified as abstinent from illicit drugs or methadone for at least four continuous months, 20 years after substance use initiation.
* Similarly, 27% of drug users were deceased within 20 years of substance use initiation.
* Estimate is nearly identical to estimate based on US sample.
* For half of those deceased, death was unrelated to HIV status.

*Implications for treatment delivery and monitoring of outcomes*

* *Focus on engagement*. Treatment should retain individuals for a time sufficient to receive therapeutic dose because data from the 70s through the 90s suggest treatment length is associated with positive outcomes (Hser et al. 1997).
* The Recovery Unplugged commitment to client engagement and retention is important and consistent with empirical literature.
* *Make treatment matter*. Prior successful treatments (that produce abstinence for 3 or more months) increase odds of subsequent treatment initiation in a treatment seeking sample (Hser et al. 1997).
* A possible implication of these data is that giving client’s a positive experience during treatment—an outcome widely reported by Recovery Unplugged clients—could increase odds of clients seeking additional treatment after a relapse, which could ultimately shorten time lag to sustained abstinence.
* Recovery Unplugged should monitor treatment fidelity continuously.
* Recovery Unplugged should monitor client engagement continuously and troubleshoot problems as they arise. (This can be accomplished by adapting a system similar to McLellan’s concurrent recovery monitoring systems that would be more appropriate for residential care.)
* *Plan for transitions – standard professional treatment*. Treatments should link individuals with after-care services.
* Recovery Unplugged offers aftercare and should continue to do so and continue to make sure clients have care in place upon leaving residential treatment.
* *Plan for transitions – innovations related to professional treatment*.
* Observations suggest that Recovery Unplugged stays engaged with clients upon discharge (e.g., clients will text clinicians).
* Recovery Unplugged should formalize the various ways they remain in contact with former residents and monitor such contacts systematically. This can be accomplished by creating a form of “recovery check-up.”
* *Plan for transitions – community-based non-professional care*. Treatments should seek to provide a meaningful link between clients and 12-step organizations.
* Recovery Unplugged provides daily exposure to 12-step organizations while individuals are in residential treatment.
* Recovery Unplugged should monitor client’s experiences with 12-step organizations and trouble shoot problems while client remain in professional treatment.
* *Monitor clinician-related activities*. It is interesting to note that although outcomes do not often differ markedly by type of intervention delivered, outcomes can vary markedly by clinician (Miller & Moyers, 2014) (so treatment providers should seek to cultivate certain characteristics in clinicians). Clinician empathy and the working alliance created between clinician and client can be powerful predictors of therapeutic gains.

References

Beutler, L.E. (2001). Comparisons among quality assurance systems: From outcome assessment to clinical utility. *Journal of Consulting and Clinical Psychology, 69*, 197-204.

Branson, C. E., Clemmey, P., Harrell, P., Subramaniam, G., & Fishman, M. (2012). Polysubstance use and heroin relapse among adolescents following residential treatment. *Journal of Child and Adolescent Substance Abuse, 21*, 204-221. doi: 10.1080/1067828X.2012.689803

Brown, B.S., O’Grady, K., Batties, R.J., & Farrell, E.V. (2004). Factors associated with treatment outcomes in an aftercare population. *The American Journal on Addiction, 13*, 477-460. doi: 10.1080=10550490490512780

Chorpita, B.F. & Daleiden, E.F. (2014). Structuring the collaboration of science and service in pursuit of a shared vision. *Journal of Clinical Child & Adolescent Psychology, 43*(2), 323-338. doi: 10.1080/15374416.2013.828297

Collins, L., Murphy, S. A., & Bierman, K.A. (2004). A conceptual framework for adaptive preventative interventions. *Prevention Science, 5*, 185-196.

Cross, G.M., Morgan, C.W., Mooney, A.J., Martin, C.A., & Rafter, J.A. (1990). Alcoholism treatment: A ten-year follow-up study. *Alcoholism: Clinical and Experimental Research, 14*(2), 169-173.

Dennis, M. L., Foss, M. A., & Scott, C. K. (2007). An eight-year perspective on the relationship between the duration of abstinence and other aspects of recovery. *Evaluation Review, 31*(6), 585-612. doi: 10.1177/0193841X07307771

Garland, A.F., Hurlburt, M.S., Brookman-Frazee, L., Taylor, R.M., & Accurso, E.C. (2010). Methodological challenges of characterizing usual care psychotherapeutic practice. *Administration and Policy in Mental Health, 37*, 208-220. doi: 10.1007/s10488-009-0237-8

Garland, A.F., Haine-Schlagel, R.H., Brookman-Frazee, L., Baker-Ericzen, M., Trask, E., & Fawley-King, K. (2013). Improving community-based mental health care for children: Translating knowledge into action. *Administration and Policy in Mental Health, 40*, 6-22. doi: 10.1007/s10488-012-0450-8

Greenfield, B. L., Venner, K. L., Kelly, J. F., Slaymaker, V., & Bryan, A. D. (2012). The impact of depression on abstinence self-efficacy and substance use outcomes among emerging adults in residential treatment.*Psychology of Addictive Behaviors, 26*(2), 246-254. doi: 10.1037/a0026917

Hser, Y. (2007). Predicting long-term stable recovery from heroin addiction. *Journal of Addictive Diseases, 26*(1), 51-60. doi: 10.1300/J069v26n01\_07

Hser, Y., Anglin, M.D., Grella, C., Longshore, D., & Prendergast, M.L. (1997). Drug treatment careers: A conceptual framework and existing research findings. *Journal of Substance Abuse Treatment, 14*(6), 543-58.

Hser, Y., Hoffman, V., Grella, C.E., & Anglin, D. (2001). A 33-year follow-up of narcotics addicts. *Archives of General Psychiatry, 58*(5), 503-508. doi: 10.1001/archpsyc.58.5.503

Hser, Y., Huang, D., Chou, C., & Anglin, M. D. (2007). Trajectories of heroin addiction: Growth mixture modeling results based on a 33-year follow-up study.*Evaluation Review, 31*(6), 548-563. doi: 10.1177/0193841X07307315

Hser, Y., Stark, M. E., Paredes, A., Huang, D., Anglin, M. D., & Rawson, R. (2006). A 12-year follow-up of a treated cocaine-dependent sample.*Journal of Substance Abuse Treatment, 30*(3), 219-226. doi: 10.1016/j.jsat.2005.12.007

Hubbard, R. L., Craddock, S. G., Flynn, P. M., Anderson, J., & Etheridge, R. M. (1997). Overview of 1-year follow-up outcomes in the drug abuse treatment outcome study (DATOS).*Psychology of Addictive Behaviors, 11*(4), 261-278. doi: 10.1037/0893-164X.11.4.261

Hubbard, R. L., Marsden, M. E., Rachal, J. V., Harwood, H. J., Cavanaugh, E. R., & Ginzburg, H. M. (1989). *Drug abuse treatment: A national study of effectiveness.* Chapel Hill, NC: University of North Carolina Press.

Jaycox, L. H., Marshall, G. N., & Morral, A. R. (2002). Phoenix Academy at Lake View Terrace, California: Clinical manual and program description of an adolescent therapeutic community. Bloomington, IL: Chestnut Health Systems.

Kelly, J. F., Stout, R. L., & Slaymaker, V. (2013). Emerging adults’ treatment outcomes in relation to 12-step mutual-help attendance and active involvement. *Drug and Alcohol Dependence, 129*(1-2), 151-157. doi: 10.1016/j.drugalcdep.2012.10.0

Kelly, J. F., Urbanoski, K. A., Hoeppner, B. B., & Slaymaker, V. (2012). “Ready, willing, and (not) able” to change: Young adults’ response to residential treatment.*Drug and Alcohol Dependence, 121*(3), 224-230. doi: 10.1016/j.drugalcdep.2011.09.0

Kelly, J.F. & White, W.L. (2011). *Addiction recovery management: Theory, research, and practice*. Totowa, NJ: Humana Press.

Laffaye, C., McKellar, J.D., Ilgen, M.A., & Moos, R.H. (2008). Predictors of 4-year outcome of community residential treatment for patients with substance use disorders*. Addiction, 103*(4), 671-680.

Luborsky, L., McLellan, A. T., Diguer, L., Woody, G., & Seligman, D. A. (1997). The psychotherapist matters: Comparison of outcomes across twenty-two therapists and seven patient samples.*Clinical Psychology: Science and Practice, 4*(1), 53-65.

McKay, J.R. (2005). Is there a case for extended interventions for alcohol and drug use disorders? *Addiction, 100*, 1594-1610. doi:10.1111/j.1360-0443.2005.01208.x

Miller, W. R., & Moyers, T. B. (2014). The forest and the trees: Relational and specific factors in addiction treatment. *Addiction*, 110, 401-413.

Morral, A. R., McCaffrey, D. F., Ridgeway, G., Mukherji, A., & Beighley, C. (Eds.). (2006). *The relative effectiveness of 10 adolescent substance abuse treatment programs in the United States*. Pittsburgh, PA: RAND Corporation.

Reif, S., George, P., Braude, L., Dougherty, R. H., Daniels, A. S., Ghose, S. S., & Delphin-Rittmon, M. (2014). Residential treatment for individuals with substance use disorders: Assessing the evidence.*Psychiatric Services, 65*(3), 301-312.

Schuman-Olivier, Z., Greene, M. C., Bergman, B. G., & Kelly, J. F. (2014). Is residential treatment effective for opioid use disorders? A longitudinal comparison of treatment outcomes among opioid dependent, opioid misusing, and non-opioid using emerging adults with substance use disorder.*Drug and Alcohol Dependence, 144*, 178-185. doi: 10.1016/j.drugalcdep.2014.09.009

Simpson, D.D., Joe, G.W., & Broome, K.M. (2002). A national 5-year follow-up of treatment outcomes for cocaine dependence. *Archives of General Psychiatry, 59*, 538-544.

Termorshuizen, F., Krol, A., Prins, M., & van Ameijden, E. (2004). Long-term outcome of chronic drug use: The Amsterdam cohort study among drug users. *American Journal of Epidemiology, 161*(3), 271-279. doi: 10.1093/aje/kwi035

Valle, S. K. (1981). Interpersonal functioning of alcoholism counselors and treatment outcome. *J Stud Alcohol*, 42, 783-90.