

**THE IOWA
CONSORTIUM**
FOR SUBSTANCE ABUSE RESEARCH AND EVALUATION

CULTURALLY COMPETENT TREATMENT PROJECT: LENGTH OF STAY ANALYSIS AND COMPARISON GROUP OUTCOMES

DECEMBER 18, 2006 – JUNE 30, 2012

**IOWA CONSORTIUM FOR SUBSTANCE ABUSE RESEARCH AND EVALUATION
UNIVERSITY OF IOWA**

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**STEPHAN ARNDT, PHD
DIRECTOR**

**KRISTIN WHITE, MA
PROGRAM EVALUATOR**

**MOLLY GUARD, MA
ASSOCIATE DIRECTOR**

EXECUTIVE SUMMARY

Summary

Using data for admissions and discharges between December 18, 2006 and June 30, 2012, 662 clients in the Cultural Competency program were compared to 8,784 minority clients admitted during the same period who were from different agencies.

There was no evidence that the Cultural Competency program increased the number of successful completions of treatment, although more clients in the Cultural Competency program were still in treatment compared to the Statewide Comparison group.

Clients in the Cultural Competency program stayed in treatment approximately 35 days longer than clients in the Statewide Comparison group.

Even clients who terminated treatment early (i.e., unsuccessful discharge) stayed longer when in the Cultural Competency program.

While the four different agencies offering Cultural Competency programs varied among themselves, three out of the four showed significant improvements in length of stay compared to the Comparison group.

Benefits of the program did not seem to stem from demographic or substance use differences between the two groups.

Recommendations

Increase attempts to include women in the program.

Investigate reasons for clients leaving with unsuccessful discharges despite their longer lengths of stay.



TABLE OF CONTENTS

Background.....	1
Sample.....	1
Results.....	2
Preliminary Analyses.....	2
Table 1. Basic Demographic and Clinical Make up of the Comparison and Cultural Competency Group.....	3
Comparison of Discharge Status.....	4
Table 2. Client Discharges in the Comparison and Cultural Competency Groups	5
Figure 1. Differing Patterns of Admission in the Cultural Competency and Comparison Groups.....	6
Survival Analysis for Length of Stay	6
Figure 2. Length of Stay Survival Analysis for All Clients in the Cultural Competency and Statewide Comparison Groups	7
Table 3. Median days in Treatment for the Cultural Competency and Comparison Groups by Type of Discharge.....	8
Conclusion	9

BACKGROUND

In 2007, The Iowa Department of Public Health (IDPH) received an appropriation from the general fund of the Iowa Legislature (House File 909a) to provide culturally competent substance abuse treatment. Initially, three agencies were selected through a competitive process to provide services under the Culturally Competent Substance Abuse Treatment Project. Since the first clients entered into the program, four different agencies have been involved. Currently, there are two agencies under this project. The Iowa Consortium for Substance Abuse Research and Evaluation (Consortium) conducts the evaluation of the project.

The objectives of the Culturally Competent Substance Abuse Treatment Project (CCTP) are to:

- increase substance abuse treatment options for racially and ethnically diverse populations;
- provide best practices or tried treatment methods and document program outcomes so that Iowa treatment providers may adopt culturally competent treatment methods;
- identify barriers to participants accessing treatment and work with community wrap-around services to assist clients with barriers so that they may participate in and complete treatment services;
- maintain contact with and support services for clients for six months;
- document and provide program outcomes by working with the Iowa Consortium for Substance Abuse Research and Evaluation;
- disseminate information about the project including but not limited to: programming, lessons learned, community involvement, and outcomes; and
- train substance abuse treatment staff to work more effectively with the target populations.

Evaluation documents of the study's goals can be found in the annual reports on the IDPH (<http://www.idph.state.ia.us/>) and the Consortium (<http://iconsortium.subst-abuse.uiowa.edu/>) websites.

This is a cumulative analysis contrasting length of stay and discharge success between clients in the Cultural Competency program and a Statewide Comparison group.

Sample

Evaluators included 667 clients in the Cultural Competency project for consideration in this analysis. These clients had admission data submitted to the state (Substance Abuse Reporting System [SARS], ISMART, or the Central Data Repository) between December 18, 2006 and June 30, 2012. All clients belonged to a minority race or ethnicity. If a client indicated his or her race as African American/Black or African American/Black and another race he/she was regarded as African American/Black. If a client indicated any other race and listed his/her ethnicity as any Hispanic or Latino group, he/she was regarded as Hispanic/Latino. If clients were admitted more than once into the program, only one of their admissions was randomly included. Of the 667 clients in the Cultural Competency project, 5 were listed in a methadone program. These 5 were dropped since they are likely to have very long lengths of stay. This resulted in a final group of 662 clients.

A Comparison group of minority clients was drawn from the state's electronic systems and included all minority admissions statewide, except those clients and agencies ever involved in the Cultural Competency project. If an agency admitted a Cultural Competency program client during the study period, that admission was excluded from the Comparison sample and the client remained in the Cultural Competency sample. Agencies involved in the Cultural Competency project were not considered in order to avoid any dilution in the Comparison group. To improve comparability, we selected those minority clients in the Comparison group (Black or Hispanic) with an admission date between the earliest (December 18, 2006) and latest (June 30, 2012) dates found for the Cultural Competency clients. This resulted in a pool of 9,967 minority clients. The Comparison group was further restricted to represent the age range of Cultural Competency clients, 17 to 73 years of age. This resulted in 1,057 exclusions. Clients admitted who were methadone clients (n = 31) or for detoxification only (n = 91) were excluded. An additional 6 clients had incorrect discharge dates. Two clients met the exclusion criteria for more than one reason. These criteria provided information on 8,784 Comparison client admissions. For every admission record, the relevant databases were searched for a corresponding discharge record.

RESULTS

Preliminary Analyses

Preliminary analyses compared the sample of Cultural Competency clients to the Comparison group on basic demographics and substance use variables. Comparisons are shown in Table 1. The Cultural Competency clients were approximately 2.5 years older than the statewide Comparison group. The two groups also differed in the racial/ethnic and sex composition, with slightly more males and more African American/Blacks in the Cultural Competency group than in the Comparison group.

Table 1. Basic Demographic and Clinical Make-up of the Comparison and Cultural Competency Group

	Comparison Group (n = 8,784)	Cultural Competency (n = 662)
Mean Age at Admission (years)¹	31.4 (sd = 11.1)	34.0 (sd = 11.1)
Race/Ethnicity %²		
African American	63.2	72.2
Hispanic	36.8	27.8
Sex %³		
Male	78.5	82.6
Female	21.5	17.4
Primary Substance, Admission %⁴		
None	< 0.1	0.3
Alcohol	46.6	49.5
Cocaine/Crack	9.8	14.2
Marijuana	36.7	32.8
Other/ Miscellaneous	6.8	3.2
Referral Source %⁵		
Self	9.3	11.9
Health Care Provider	4.1	2.4
Substance Abuse Provider	7.3	2.9
Other Individual	4.4	1.4
OWI	16.2	16.3
Criminal Justice	33.1	32.2
Civil Commitment	1.1	1.2
Other Community	2.04	24.0
Miscellaneous	22.4	7.7

¹ p < 0.001, Mann-Whitney z = 6.39.

² p < 0.001, $\chi^2 = 21.86$, df = 1.

³ p < 0.005, $\chi^2 = 5.86$, df = 1.

⁴ p < 0.001, $\chi^2 = 31.15$, df = 4.

⁵ p < 0.001, $\chi^2 = 933.8$, df = 8.



There were statistically significant differences between the groups in the primary substance reported. Many types of primary substance at admission appeared too infrequently in the Cultural Competency group to allow for a statistical comparison, e.g., heroin, opiates and synthetics, PCP, hallucinogens, methamphetamine or other stimulants, barbiturates. These were collapsed into the Other/Miscellaneous group. Alcohol was the most frequently cited substance, with both groups reporting alcohol as the primary substance nearly 50 percent of the time. Cocaine/crack was more frequently mentioned in the Cultural Competency group than in the Comparison group.

Referral sources also differed between Cultural Competency and Comparison groups. The category "Other Community" referral was much more frequently noted in the Cultural Competency than in the statewide Comparison group. Sources in the miscellaneous category when broken down (e.g., community mental health, school, employer/EAP, state probation) were consistently more frequent in the statewide Comparison group than in the Cultural Competency group.

There were several other notable differences between the two groups at admission. The Cultural Competency group more frequently listed their occupation as "None" (47.3%) compared to the statewide Comparison group (44.7%). Interestingly, the Cultural Competency group was more often looking for work (32.7% versus 27.4%) and less often "Not in the labor force" (24.8% versus 33.1%) than the Comparison group. This admission was the first admission for 55.1% of the Cultural Competency group, while it was the first for 62.0% of the Comparison group.

Comparison of Discharge Status

Of the 662 Cultural Competency clients in this analysis group, 9.1% were still in treatment as of June 30, 2012. In the Comparison group, only 5.3% were still in treatment. Discharge status was collapsed into three categories. A "Successful" category was selected when discharge status was coded as Completed Treatment - Treatment Plan Completed or Completed Treatment - Treatment Plan Substantially Completed. An "Unsuccessful" category was selected when discharge status was coded as Program Decision Due to Lack of Progress/Compliance or Client Left before Completing Treatment. A "Neutral" category was made that consisted of the codes: Referred Outside, Incarceration, Death, Other, and Managed Care Decision. The top half of Table 2 shows the discharge conditions including a category "Client Still in Treatment," while the bottom half of Table 2 only considers clients who have been discharged from treatment.

Table 2. Client Discharges in the Comparison and Cultural Competency Groups

Discharge (All Clients) %¹	Comparison Group (n = 8,784)	Cultural Competency (n = 662)
Successful	53.2	53.2
Neutral	9.1	8.2
Unsuccessful	32.5	29.6
Still in Treatment	5.3	9.1
Discharge (Discharged Clients) %²	(n = 8,322)	(n = 602)
Successful	56.1	58.5
Neutral	9.6	9.0
Unsuccessful	34.3	32.6

¹ $p < 0.0004$, $\chi^2 = 18.25$, $df = 3$.

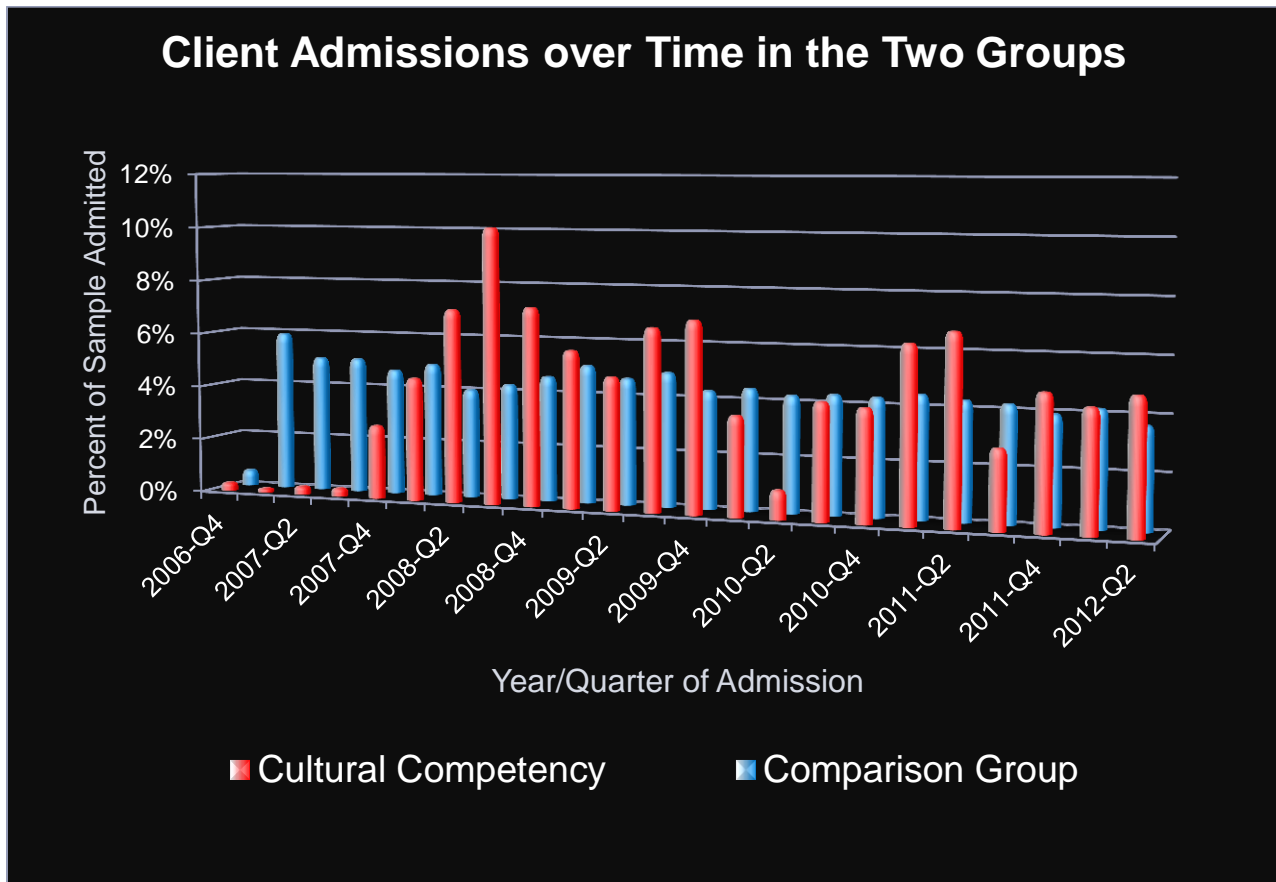
² $p > 0.539$, $\chi^2 = 1.24$, $df = 2$.

The Cultural Competency group had significantly more clients still in treatment when compared to the statewide Comparison group, almost double the percentage ($z = 4.1$, $p < 0.001$). Removing clients still in treatment and considering only discharged clients, there was no significant difference between the two groups, suggesting that as people leave treatment, successful completions have occurred at about the same frequency.

There was considerable variability in the successful completion rates among the Cultural Competency programs. The percents in the four programs (excluding those still in treatment) were 42.7%, 54.7%, 69.5%, and 70.2%. Two programs had significantly more successful discharges and one had significantly fewer discharges when contrasted with the Comparison group. The program with the fewest successful discharges also had the highest percent of clients who were still in treatment (20.4%).

It could be that many of the clients still in treatment have a higher chance of successful completion. Consequently, a later follow up of these data may indicate more successful completions yet to come in the Cultural Competency group. To complicate matters, there are also significant differences in the pattern of admission dates as shown in Figure 1. The Cultural Competency group has more sporadic admission dates and more admissions later in the analysis time window ($p < 0.0001$, Mann-Whitney $z = 6.39$) whereas the Comparison group admissions appear more evenly spread out over the entire period. This, of course, reflects the relative youth of the Cultural Competency program.

Figure 1. Differing Patterns of Admission in the Cultural Competency and Comparison Groups

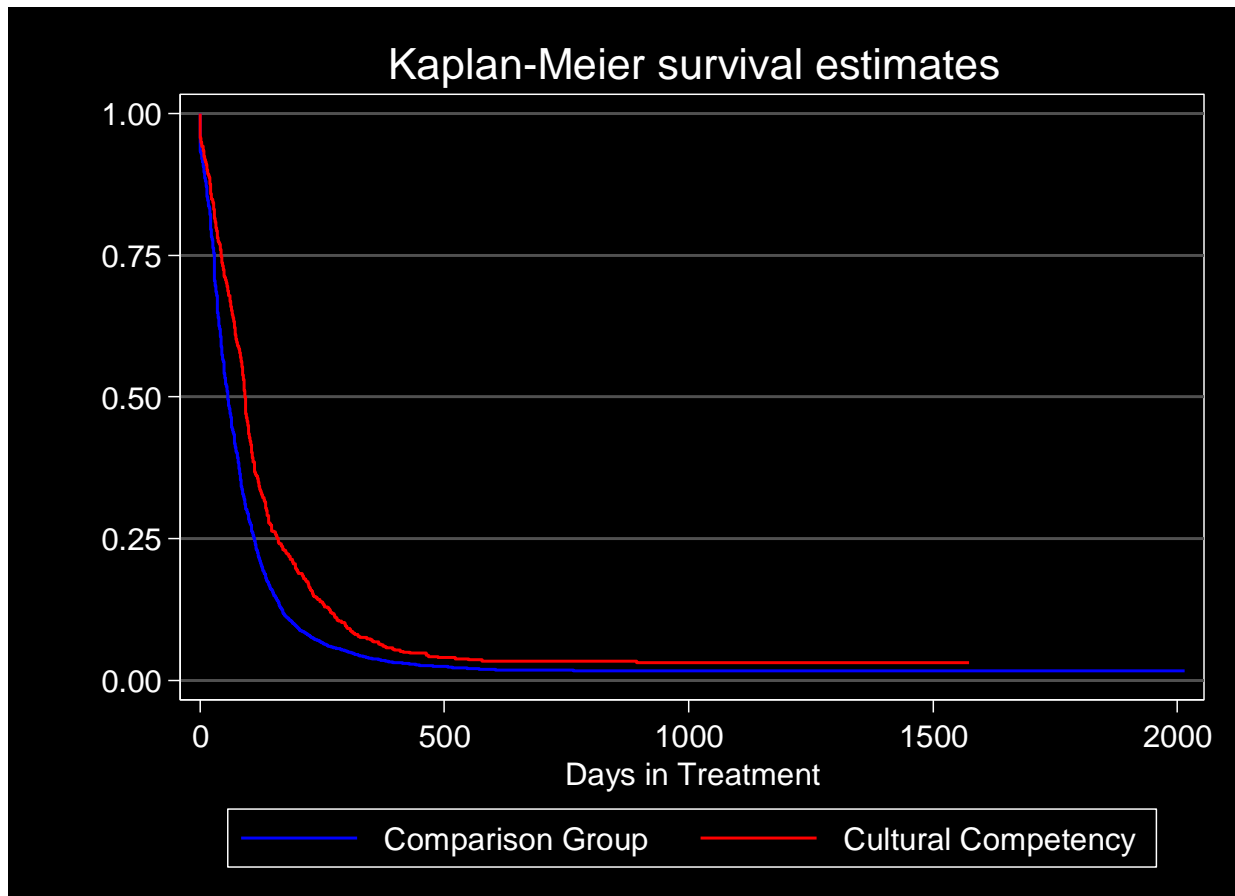


Survival Analysis for Length of Stay

Several analyses are presented regarding length of stay. Survival analyses are used to account for the fact that some clients have not yet completed treatment and that the admission times have differed for the two groups. In general, we used methods that made the fewest statistical assumptions and most conservative assessments (e.g., the log-rank test).

Clients in the Cultural Competency group stayed in treatment significantly longer than those in the statewide Comparison group. The median length of stay for clients in the Cultural Competency group was 92 days (95% confidence interval: -88 - 97) while the median length of stay for clients in the Comparison group was 57 days (95% confidence interval: -56 - 59). This represents a statistically significant difference. The clients in the Cultural Competency group clearly stay longer than the clients in the Comparison Group. The survivor (i.e., staying in treatment) curves from the analysis are shown in Figure 2.

Figure 2. Length of Stay Survival Analysis for All Clients in the Cultural Competency and Statewide Comparison Groups



Note: Log-rank $\chi^2 = 73.1$, $df = 1$, $p < 0.0001$.

In Figure 2, the red line represents the proportion of the 662 Cultural Competency clients ending treatment over time and the blue line represents the same information for the 8,784 Comparison clients. The curve for the Cultural Competency group is clearly supporting longer lengths of stay (the red line is offset to the right of the blue line) with an immediately obvious effect early in the program which becomes even more pronounced up until about one year (365 days) of treatment. Thus, clients in the Cultural Competency Program have longer lengths of stay.

Does the benefit of the Cultural Competency program extend to all clients regardless of their discharge status?

To verify that this significant increase in length of stay was consistent for all clients regardless of their discharge status, we repeated the survival analysis for those clients who had successful, neutral, and unsuccessful completions to treatment. The median days in treatment are shown in Table 3. Only successfully discharged clients showed a significantly increased length of stay in the Cultural Competency group. While the median length of stay for neutral and unsuccessful discharges appears longer in the Cultural Competency group compared to the statewide Comparison group, these differences were not statistically significant. The neutral group has a very small sample size.

Table 3. Median days in Treatment for the Cultural Competency and Comparison Groups by Type of Discharge

	Comparison Group	Cultural Competency
Discharge Reason	Median	Median
Successful ¹	71 days	105 days
Neutral ²	36 days	69 days
Unsuccessful ³	33 days	43 days

¹ Log-rank test = 63.7, df = 1, p < 0.001.

² Log-rank test = 2.1, df = 1, p < 0.16.

³ Log-rank test = 2.72, df = 1, p < 0.10.

Did all of the Cultural Competency project sites show a benefit of the program when compared to the statewide Comparison group?

To verify that the significant increase in length of stay was consistent for all four of the Cultural Competency programs, we repeated the survival analyses four times. Each analysis contrasted the clients from each Cultural Competency agency to the statewide Comparison group. All of the four individual program analyses showed significant increases in length of stay.

Furthermore, an additional analysis compared the four agencies among themselves. The agencies did differ among themselves in length of stay (log-rank test = 48.7, df = 3, p < 0.0001). Three of the programs had lengths of stay of at or nearly 3 months (medians were 81, 83, and 90 days), while one program had a median length of stay of 160 days.

Could the background differences in the statewide Comparison group have made it only look like the Cultural Competency Group had greater lengths of stay?

The Cultural Competency group differed from the statewide Comparison group on several demographic and clinical variables. From our previous analyses (Table 1), we noted that the Cultural Competency group diverged from the Comparison group in the percent of males, race/ethnic breakdown, primary substance of abuse, referral source, and age.

To assure that these differences did not artificially produce the favorable increase in length of stay, we used methods to statistically control for the possible confounders (Cox proportional hazards regression). While these background variables may affect the length of stay, the differences did not account for the longer lengths of stay seen in the Cultural Competency group. Clients in the Cultural Competency group remained significantly longer in treatment than those in the Comparison group once the other effects were removed (Wald z = 9.05, p < 0.0001). In truth, the measure of the effect size indicating an advantage for clients in the Cultural Competency program became even stronger once the background differences were considered in the analysis (i.e., the hazard ratio decreased to 0.66 from 0.70 once the background differences were included in the model). Thus, the preliminary differences in the two groups did not generate the observed advantage offered by the Cultural Competency Programs. If anything, the background differences may have tended to mask the advantage.

CONCLUSION

The Cultural Competency programs, as a group, were contrasted with a statewide Comparison group of 6,970 minority clients. This was a cumulative analysis including admissions from December 18, 2006 through June 30, 2012. Clients in the Cultural Competency Programs had longer lengths of stay than the Comparison clients, by 35 days. Despite the longer lengths of stay, clients in the Cultural Competency Programs were not significantly more likely to have successful discharges. However, more of the Cultural Competency clients remain in treatment at the end of this study period. Consequently, they may add to the percent of successful completions. These findings were consistent across all of the programs and did not seem to be affected by demographic or substance use differences in the comparison group.