



# Culturally Competent Treatment Project: Length of Stay and Comparison Group Outcomes

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

**Annual Cumulative Report  
December 18, 2006 – June 30, 2014  
August, 2014**

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**CONSORTIUM**  
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**Culturally Competent Treatment Project:  
Length of Stay and Comparison Group Outcomes  
Annual Cumulative Report 2014**

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<http://iconsortium.subst-abuse.uiowa.edu/>

## EXECUTIVE SUMMARY

Admission and discharge data between December 18, 2006 and June 30, 2014, were analyzed to compare the Cultural Competency Project with other treatment programs in the state. In this analysis, 882 clients in the Cultural Competency Project were compared to 12,545 minority clients admitted during the same period who were from other agencies in Iowa.

Overall, there was no evidence that the Cultural Competency Project increased the number of successful completions of treatment. However, clients in the Cultural Competency Project stayed in treatment a month longer than clients in the Comparison Group.

While the four different agencies offering Cultural Competency Projects varied among themselves, all showed significantly longer length of stay compared to the Comparison Group.

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

### **Recommendations**

In order to generalize the improvement in length of stay to increases in successful treatment completion:

- Agencies should review their criteria for successful discharges;
- Treatment plans should be reviewed to assure they are culturally sensitive.
- Longer term follow-up of Cultural Competency clients (e.g., 6-months after discharge) would assess whether the longer length of stay translates into lower substance use, fewer arrests, successful employment, and improved quality of life.
- Agencies should review potential factors that contributed to individual programs' differences in outcome.

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## BACKGROUND

### Project Overview

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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 successfully passed 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 Area Substance Abuse Council and Jackson Recovery Centers. 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 (Cultural Competency Project) 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: programmatic lessons learned, community involvement, and outcomes; and
- train substance abuse treatment staff to work more effectively with their 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 comparing length of stay and discharge success between clients in the Cultural Competency Project and Statewide Comparison Group.

### Sample

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Evaluators included 889 unique clients in the Cultural Competency Project for consideration in this analysis. These clients had admission data submitted to the state Central Data Repository between December 18, 2006 and June 30, 2014. 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 came into the program more than once within the period, only their first admission was included. Of the 889 clients in the Cultural Competency Project, 7 were listed in a methadone program. These 7 were dropped since they are likely to have very long lengths of stay. This resulted in a final group of 882 clients.

A Comparison Group of minority clients was drawn from the state's electronic data systems and included all minority admissions statewide, except those clients and agencies with present or previous involvement in the Cultural Competency Project. If an agency admitted a Cultural Competency Project 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 excluded in order to avoid contagion in the Comparison Group.

To improve comparability, minority clients were selected for the Comparison Group (Black or Hispanic) with an admission date between the earliest (December 18, 2006) and latest (June 30, 2014) dates found for the Cultural Competency Project clients. This resulted in a pool of 13,097 minority clients. The Comparison Group was further restricted to represent the age range of Cultural Competency Project clients, 17 to 73 years of age. This resulted in 412 exclusions. Clients admitted who were methadone maintenance recipients ( $n = 31$ ) or for detoxification only ( $n = 110$ ) also were excluded. An additional 3 clients had incorrect discharge dates. Some clients met the exclusion criteria for more than one reason. These criteria reduced the number to 12,545 Comparison Group 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 Project clients to the Comparison Group on basic demographics and substance use variables. Comparisons are shown in Table 1 and Table 2. The Cultural Competency Project clients were approximately four years older than the Statewide Comparison Group. The two groups also differed in the racial/ethnic and sex composition, with more males and more African American/Blacks in the Cultural Competency Project group than in the Comparison Group.

**Table 1. Comparison of Age, Race/Ethnicity, and Sex**

	Comparison Group (n = 12,545)	Cultural Competency (n = 882)
<b>Mean Age at Admission (years)<sup>1</sup></b>	33.8 (SD = 11.5)	34.0 (SD = 11.3)
<b>Race/Ethnicity<sup>2</sup></b>		
African American	61.7%	67.8%
Hispanic	38.3%	32.2%
<b>Sex<sup>3</sup></b>		
Male	78.4%	83.3%
Female	21.6%	16.7%

<sup>1</sup> p < 0.001, Mann-Whitney z = 11.46.

<sup>2</sup> p < 0.001,  $\chi^2 = 13.07$ , df = 1.

<sup>3</sup> p < 0.007,  $\chi^2 = 12.06$ , df = 1.

Table 2 contrasts the Comparison Group with the Cultural Competency Project group on their substance use and treatment referral information.



**Table 2. Comparison of Substance Used and Referral Source**

Comparison Group (n = 12,545)		Cultural Competency (n = 882)
<b>Primary Substance at Admission<sup>1</sup></b>		
None	0.1%	0.6%
Alcohol	43.2%	51.4%
Cocaine/Crack	7.9%	11.9%
Marijuana	41.7%	32.2%
Other/Miscellaneous	7.2%	4.0%
<b>Referral Source<sup>2</sup></b>		
Self	9.1%	13.0%
Health Care Provider	4.0%	2.4%
Substance Abuse Provider	7.5%	2.7%
Other Individual	2.2%	1.4%
OWI	15.0%	7.7%
Criminal Justice	47.0%	37.4%
Civil Commitment	1.2%	1.4%
Other Community	2.4%	18.5%
In-Community	9.1%	5.9%

<sup>1</sup> p < 0.001,  $\chi^2 = 80.91$ , df = 4.

<sup>2</sup> p < 0.001,  $\chi^2 = 717.79$ , 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 Project 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 in both groups. Cocaine/crack was slightly more frequently cited and marijuana was much less frequently mentioned in the Cultural Competency Project 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. There was also a considerably lower frequency of Criminal Justice referrals in the Cultural Competency Project group than in the Comparison Group. Referral 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 Project group.

There were other notable differences between the two groups at admission. The Cultural Competency Project group was more frequently employed full time (34.5%) compared to the Statewide Comparison Group (25.8%).

Interestingly, the Cultural Competency Project group was:

- More often "Looking for work" (32.5% versus 26.0%) and less often "Not in the labor force" (22.2% versus 37.7%) than the Comparison Group.
- Less often single (59.6%) compared to the Comparison Group (65.4%).
- Much less often living with their parents, 13.9% versus 25.5% in the Comparison Group.
- More often living with a significant other (with or without children) or other adults than the Comparison Group (51.2% versus 39.0%).
- Only 3.3% listed prison or jail as their living arrangement, while 9% of the Comparison Group listed prison or jail as their current living status.

This admission was the first admission (within the last 10 years) for 57.7% of the Cultural Competency Project group, while it was the first for 65.6% of the Comparison Group. All of these effects were highly statistically significant.

## Summary

Despite selecting the Comparison Group to have the same age range as the Cultural Competency Project group, these groups differed. Those in the Cultural Competency group were on average, older and had more males than the Comparison Group. The Cultural Competency group also differed by having more full-time employment and more often looking for work. The two groups differed in their living arrangements, as well. The current admission for substance use disorders was the first admission more often in the Cultural Competency group than in the Comparison Group.



## Comparison of Discharge Status

Of the 882 Cultural Competency Project clients in this analysis group, 6.8% were still in treatment as of June 30, 2014. In the Comparison Group, 5.1% 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 consisted of the codes: Referred Outside, Incarceration, Death, Other, and Managed Care Decision. The top half of Table 3 shows the discharge conditions including a category "Client Still in Treatment," while the bottom half of Table 3 only considers clients who were discharged from treatment.

**Table 3. Client Discharges in the Comparison and Cultural Competency Groups**

Discharge (All Clients) <sup>1</sup>	Comparison Group (n = 12,545)	Cultural Competency (n = 882)
Successful	52.8%	52.3%
Neutral	9.5%	8.2%
Unsuccessful	32.7%	32.8%
Still in Treatment	6.8%	6.8%
Discharge (Discharged Clients) <sup>2</sup>	(n = 11,910)	(n = 882)
Successful	59.6%	56.1%
Neutral	10.3%	8.8%
Unsuccessful	34.4%	35.2%

<sup>1</sup> Not significant: t: p > 0.1,  $\chi^2 = 6.44$ , df = 3.

<sup>2</sup> Not significant: t: < .5,  $\chi^2 = 1.27$ , df = 2.

The Cultural Competency Project group had significantly but only slightly more clients still in treatment than the Statewide Comparison Group ( $z = 2.26$ ,  $p < 0.025$ ). This reflects the relatively newer establishment of this program compared to the Comparison Group.

Overall, these data offered no evidence for a difference in Successful, Neutral, or Unsuccessful discharges between the two groups. The difference was only half of one percent in favor of the Comparison Group (95% confidence interval -3.94% - +2.88%). 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 in either of the groups and that there is no particular advantage for the Cultural Competency group with regard to successful discharges. There were, however, agency differences and two of the agencies had more successful Cultural Competency outcomes than the Comparison Group.

When looking at the four Cultural Competency agencies, there was considerable variability in the successful completion rates. The percentages in the four programs (excluding those still in treatment)



were 39.6%, 56.1%, 69.0%, and 70.4%. Two programs had significantly more successful discharges and one had significantly fewer successful discharges when contrasted with the Comparison Group.

Significant differences between the Cultural Competency and Comparison Groups also emerged when the discharge status was broken down to more specific reasons for leaving treatment.

**Table 4. Detailed Client Discharges for Discharged Clients**

	Comparison Group (n = 11,910)	Cultural Competency (n = 822)
Discharge (Discharged Clients) <sup>1</sup>		
Treatment Plan Completed	44.5%	36.9%
Treatment Plan Substantially Completed	11.2%	19.2%
Referred Outside	3.0%	0.5%
Program Decision Due to Lack of Progress/Compliance	7.9%	2.7%
Client Left	20.5%	32.5%
Incarcerated	2.2%	5.2%
Death	0.1%	0.0%
Other	2.4%	2.4%
Managed Care Decision	0.2%	0.1%

<sup>1</sup> p < 0.001,  $\chi^2 = 120.46$ , df = 8.

Fewer clients in the Cultural Competency Project group completed the treatment plan but more "substantially completed" the plan compared to those clients in the Comparison Group. Both of these completion categories are considered successful and the difference between the two canceled out. While fewer Cultural Competency clients were terminated by the treatment agency because of a lack of compliance than Comparison Group clients, more Cultural Competency clients left treatment. Slightly fewer clients in the Cultural Competency group were referred outside the agency than Comparison clients. Other categories of completion were comparable between the two groups.

## Summary

Overall, successful discharges were no more likely in the Cultural Competency group than in the Comparison Group. The two groups did differ in the reasons for unsuccessful discharges. Clients in the Cultural Competency group tended to leave treatment on their own more than the Comparison Group, but clients in the Comparison Group tended to be terminated more due to lack of progress/compliance. Those two differences canceled out when both are considered as unsuccessful completions. In addition, some agencies in the Cultural Competency Project had better successful completion rates than the Comparison Group.



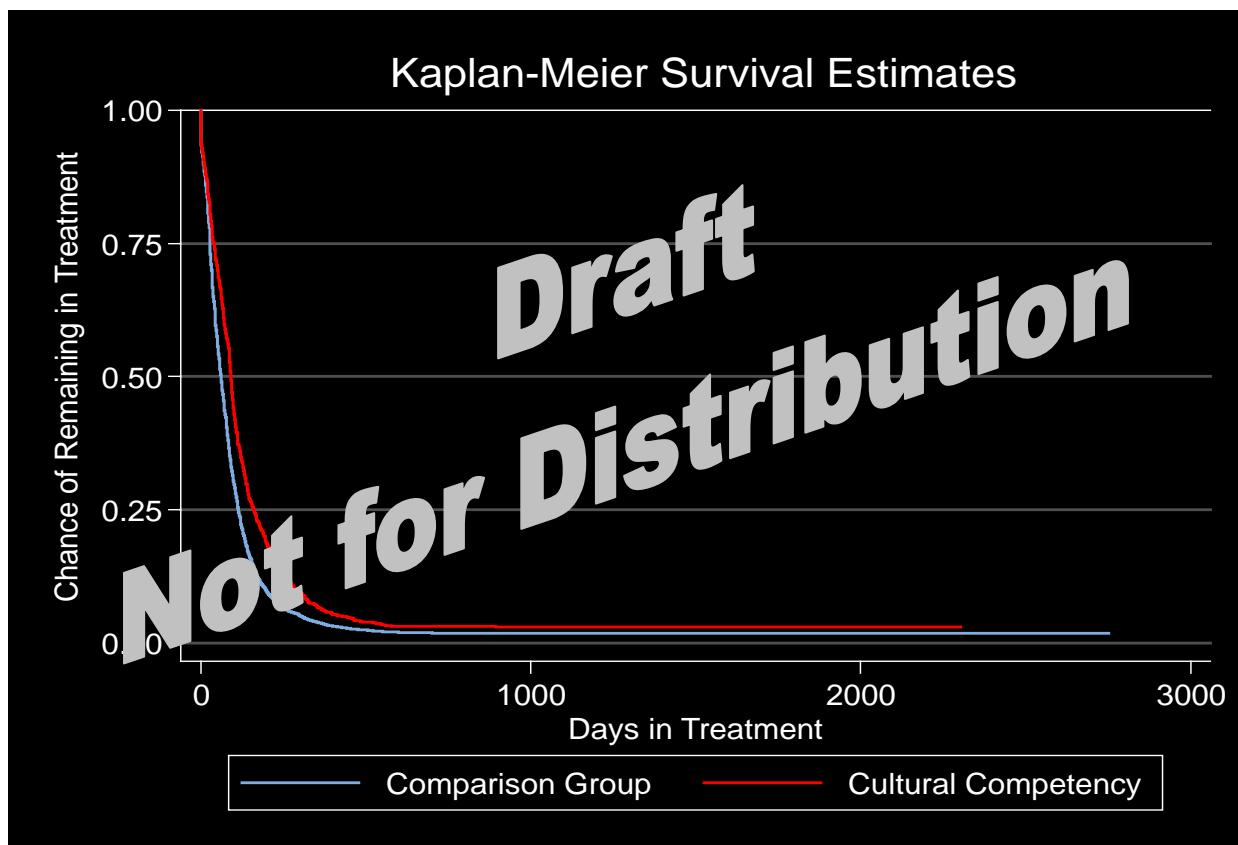
## **Length of Stay**

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This section presents several analyses 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 may have differed for the two groups. In general, methods were used that made the fewest statistical assumptions and most conservative assessments (e.g., the log-rank test).

Clients in the Cultural Competency Project group stayed in treatment significantly longer than clients in the Comparison Group. The median length of stay for clients in the Cultural Competency group was 92 days (95% confidence interval: 88 - 95) while the median length of stay for clients in the Comparison Group was 62 days (95% confidence interval: 60 - 63). This represents a statistically significant advantage for treatment retention in the Cultural Competency group. 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 1.

**Figure 1. Length of Stay for the Comparison and Cultural Competency Groups**



Note: Log-rank chi-square = 74.65, df = 1, p < 0.0001

In Figure 1, the red line represents the proportion of the 882 Cultural Competency Project clients ending treatment over time and the blue line represents the same information for the 12,545 Comparison Group 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. The offset becomes more pronounced up until about one year (365 days) of treatment. Thus, clients in the Cultural Competency Project have longer lengths of stay.



## Length of Stay and Discharge Status

The benefit of the Cultural Competency Project appears only in the length of stay for those clients with successful or neutral discharges. To assess whether the significant increase in length of stay was consistent for 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 appear in Table 5. Only successful and neutral discharged clients showed a significantly increased length of stay in the Cultural Competency Project.

**Table 5. Median Length of Stay by Type of Discharge in Days**

	Comparison Group (n = 11,910)	Cultural Competency (n = 822)
<b>Discharge</b>		
Successful***	78	107
Neutral*	36	70
Unsuccessful	36	43
<b>Detailed Discharge</b>		
Treatment Plan Completed***	71	116
Treatment Plan Substantially Completed**	77	9
Referred Outside	29	67
Program Decision Due to Lack of Progress/Compliance	43	75
Client Left	34	37
Inpatient	62	77
Death	31	76
Other	7	22
Managed Care Decision	15	No Data

Note: Log-rank chi-square \* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001

While the median length of stay for unsuccessful discharges appears longer in the Cultural Competency group compared to the Statewide Comparison Group, this difference was not statistically significant. However, when the discharges are broken down into detail, there is a clear difference in "Program Decision Due to Lack of Progress/Compliance". Clients are discharged for this reason much earlier in the Comparison Group than in the Cultural Competency group. Death as a reason may appear different (31 versus 76 days); however there have been only 4 deaths in the Cultural Competency group and the difference is not significant.



## **Length of Stay and Agency**

To assess whether the significant increase in length of stay was consistent for all four of the Cultural Competency programs, the survival analyses was repeated 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 = 42.11, df = 3, p <0.0001). One program had a median length of stay of nearly 9 months (285 days), while another program had a median length of stay of approximately 7.5 months (228 days). The third longest stay was approximately 6.5 months (197 days), and the shortest median agency was over 4 months (132 days).

## **Length of Stay Controlling for Other Potential Factors**

The Cultural Competency group differed from the Statewide Comparison Group on several demographic and clinical variables. From previous analyses (Tables 1 and 2), it can be 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, employment status, living arrangement, and age.

To assure that these differences did not artificially produce the favorable increase in length of stay, methods were used 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 Project 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 = 10.86, p < 0.001). In turn, a measure of the effect size indicating an advantage for clients in the Cultural Competency Project became even stronger once the background differences were considered in the analysis (i.e., the hazard ratio decreased to 0.66 from 0.73 once the background differences were included in the model indicating a larger effect). Thus, the preliminary differences in the two groups did not generate the observed advantage offered by the Cultural Competency Projects. If anything, the background differences may have tended to mask the advantage afforded by the Cultural Competency Project.



## CONCLUSION

The Cultural Competency Project, as a group, was contrasted with a Statewide Comparison Group of 12,545 minority clients. This was a cumulative analysis including admissions from December 18, 2006 through June 30, 2014. Clients in the Cultural Competency Project stayed in treatment more than a month (30 days) longer than the Comparison Group clients. Despite the longer lengths of stay, clients in the Cultural Competency Project were not more likely to have a successful discharge. The overall findings did not seem affected by demographic or substance use differences between the two groups.

### Suggestions

- Agencies should review their criteria for successful discharges.
- Treatment plans should be reviewed to assure they are culturally sensitive.
- Longer term follow-up of Cultural Competency clients (e.g., 6-months after discharge) would assess whether the longer length of stay translates into lower substance use, fewer arrests, successful employment, and improved quality of life.
- Agencies should review potential factors that contributed to individual programs' differences in outcomes.

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