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

THE IOWA CONSORTIUM FOR SUBSTANCE ABUSE RESEARCH AND EVALUATION

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Culturally Competent Treatment Project: Length of Stay and Comparison Group Outcomes Annual Cumulative Report 2017

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

EXECUTIVE SUMMARY

Admission and discharge data between December 18, 2006 and June 13, 2017 were analyzed to compare the Culturally Competent Treatment Project (Cultural Competency Project) with other treatment programs in the state. In this analysis, 1,115 clients in the Cultural Competency Project were compared to 16,843 minority clients admitted during the same period who were from other agencies in Iowa.

Clients in the Cultural Competency Project stayed in treatment a month longer than clients in the Comparison Group. While the five different agencies offering Cultural Competency programs varied among themselves, all showed significantly longer lengths of stay than the Comparison Group. Benefits of the project did not seem to stem from demographic or substance use differences between the two groups.

Overall, there was little evidence that the Cultural Competency Project increased the number of successful treatment completions. There is a trend over time towards lower rates of successful completion in the Cultural Competency Project.

Recommendations

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

- Agencies should review their criteria and attempt to form a consensus of definitions for successful discharges.
- Agencies should stem the trend towards lower success rates over time.
- 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.
- Cultural Competency Project agencies should review potential factors that contributed to individual programs' differences in outcomes.

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BACKGROUND

Project Overview

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, five different agencies have been involved. Currently, there are three agencies under this project: Area Substance Abuse Council, Jackson Recovery Centers, and Seasons Center. 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: 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 report compares length of stay and successful completion rates between clients in the Cultural Competency Project and a Statewide Comparison Group. The data are cumulative for the life of the project.

Sample

Evaluators included 1,125 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 13, 2017. 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 1,125 clients in the Cultural Competency Project, six were listed in a methadone program. These six were dropped since they are likely to have very long lengths of stay. Additionally, four clients were excluded from the analysis based on age. This resulted in a final group of 1,115 clients.

A Statewide 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 13, 2017) dates found for the Cultural Competency Project clients. This resulted in a pool of 15,890 minority clients. The Comparison Group was further restricted to represent the age range of Cultural Competency Project clients, 15 to 73 years of age. This resulted in 542 exclusions. Clients admitted who were methadone maintenance recipients (n = 86) or for detoxification only (n = 124) also were excluded. An additional eight clients had incorrect discharge dates (e.g., discharge date were coded as before the admission date). Clients could meet the exclusion criteria for more than one reason. These criteria reduced the number to 16,843 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 did not differ on racial/ethnic composition.[1] There were slightly more males in the Cultural Competency Project group than in the Comparison Group.

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

	Comparison Group (n = 16,843)	Cultural Competency (n = 1,115)
Mean Age at Admission (years)[a]	29.7 (SD = 11.6)	33.5 (SD = 11.7)
Race/Ethnicity[b]		
African American	59.7%	57.6%
Hispanic	40.3%	42.4%
Sex[c]		
Male	77.8%	82.7%
Female	22.2%	17.3%

[a] $p < 0.0001$, Mann-Whitney $z = 11.41$.
[b] $p = 0.160$, $\chi^2 = 1.97$, df = 1.
[c] $p < 0.0001$, $\chi^2 = 14.52$, df = 1.

[1] Given the sample drawn to conduct comparison analyses, there were no Asians in the Cultural Competency Group.

Table 2 contrasts the Comparison Group with the Cultural Competency Project group on their substance use and treatment referral information. 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, and barbiturates. These were collapsed into the Other/Miscellaneous group. Alcohol was the most frequently cited for the Cultural Competency group. Clients in the Comparison Group reported marijuana most frequently as their primary substance at admission. 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.

Table 2. Comparison of Substance Used and Referral Source

	Comparison Group (n = 16,843)	Cultural Competency (n = 1,115)
Primary Substance at Admission[a]		
None	0.1%	0.5%
Alcohol	41.5%	52.0%
Cocaine/Crack	6.8%	9.4%
Marijuana	42.4%	31.6%
Other/Miscellaneous	9.3%	6.5%
Referral Source[b]		
Self	10.1%	13.1%
Health Care Provider	4.0%	2.9%
Substance Abuse Provider	7.1%	2.4%
Other Individual	4.0%	1.4%
OWI	15.2%	20.4%
Criminal Justice	47.0%	38.9%
Civil Commitment	1.2%	1.1%
Other Community	2.3%	12.6%
Miscellaneous	9.2%	7.4%

[a] $p < 0.0001$, $\chi^2 = 99.66$, df = 4.
[b] $p < 0.0001$, $\chi^2 = 474.18$, df = 8.

Referral sources also differed between Cultural Competency and Comparison groups. The category "Other Community" referral was much more frequently noted in the Cultural Competency Project Group 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 (37.9%) compared to the Statewide Comparison Group (27.3%).

Interestingly, the Cultural Competency Project group was:

- More often “Employed full time” (37.9% versus 27.3%), "Looking for work" (29.8% versus 26.2%) and less often “Not in the labor force” (21.2% versus 35.6%) than the Comparison Group.
- Less often single (58.4%) compared to the Comparison Group (66.7%).
- Much less often living with their parents, 16.2% versus 25.2% in the Comparison Group.
- Less often living in jail or prison: Only 3.1% listed prison or jail as their living arrangement, while 7.6% 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 59.3% of the Cultural Competency Project group, while it was the first for 67.7% of the Comparison Group. All of these effects were 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 there were more males than the Comparison Group. Clients in the Cultural Competency group were more often employed full time or looking for work than clients in the Comparison Group. In addition, the two groups differed in their living arrangements and referral sources, with the Cultural Competency group less likely to be in jail or prison or living with their parents, and less likely to have been referred by the criminal justice system. The current admission for substance use disorders was the first admission less often in the Cultural Competency group than in the Comparison Group.

Comparison of Discharge Status

Of the 1,115 Cultural Competency Project clients in this analysis group, 6.4% were still in treatment as of June 13, 2017. In the Comparison Group, 5.0 % 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)[a]	Comparison Group (n = 16,843)	Cultural Competency (n = 1,115)
Successful	51.6%	52.2%
Neutral	9.5%	7.9%
Unsuccessful	34.0%	33.5%
Still in Treatment	5.0%	6.4%
Discharge (Discharged Clients)[b]	(n = 16,008)	(n = 1,044)
Successful	54.3%	55.8%
Neutral	10.0%	8.4 %
Unsuccessful	35.7%	35.8%

[a] Not significant: p = 0.069, χ^2 =7.08, df = 3.
[b] Not significant: p = 0.250, χ^2 = 2.78, df = 2.

The Cultural Competency Project group had significantly more clients still in treatment than the Statewide Comparison Group (z = 2.069, p < 0.05), although the difference was only 1.4 percentage points.

Overall, these data offered no evidence for a difference in Successful discharges between the two groups. 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 three of the agencies had more successful discharges in the Cultural Competency Group than the Comparison Group.

The Cultural Competency Project group differed from the Comparison group on several factors (e.g., age, sex, employment, and treatment history). These factors also can affect the success rates. Consequently, we conducted analyses that are more sophisticated controlling for employment status,

the number of previous substance abuse treatment admissions, referral source, and sex. Using this method (logistic regression), there was no statistically significant[2] benefit for the Cultural Competency group when controlling for other factors.

When looking at the five Cultural Competency agencies, there was considerable variability in the successful completion rates. The percentages in the five programs (excluding those still in treatment) were 32.2%, 43.1%, 57.9%, 69.5%, and 71.1%. Two programs had significantly more successful discharges and two had significantly fewer successful discharges when contrasted with the Comparison Group.[3] The agency with the lowest percent successful completions only has 46 completed clients. The agency with the significantly lower rate is no longer involved with the Culturally Competent Substance Abuse Treatment Project.

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 shows the differences for the various discharge categories.

Table 4. Detailed Client Discharges for Discharged Clients

	Comparison Group (n = 16,008)	Cultural Competency (n = 1,044)
Discharge (Discharged Clients)[a]		
Treatment Plan Completed	44.0%	39.0%
Treatment Plan Substantially Completed	10.3%	16.8%
Referred Outside	3.1%	1.1%
Program Decision Due to Lack of Progress/Compliance	7.2%	2.0%
Client Left	28.5%	33.8%
Incarcerated	4.2%	5.5%
Death	0.1%	0.2%
Other	2.3%	1.6%
Managed Care Decision	0.3%	0.1%

[a] $p < 0.0001$, $\chi^2 = 112.17$, df = 8.

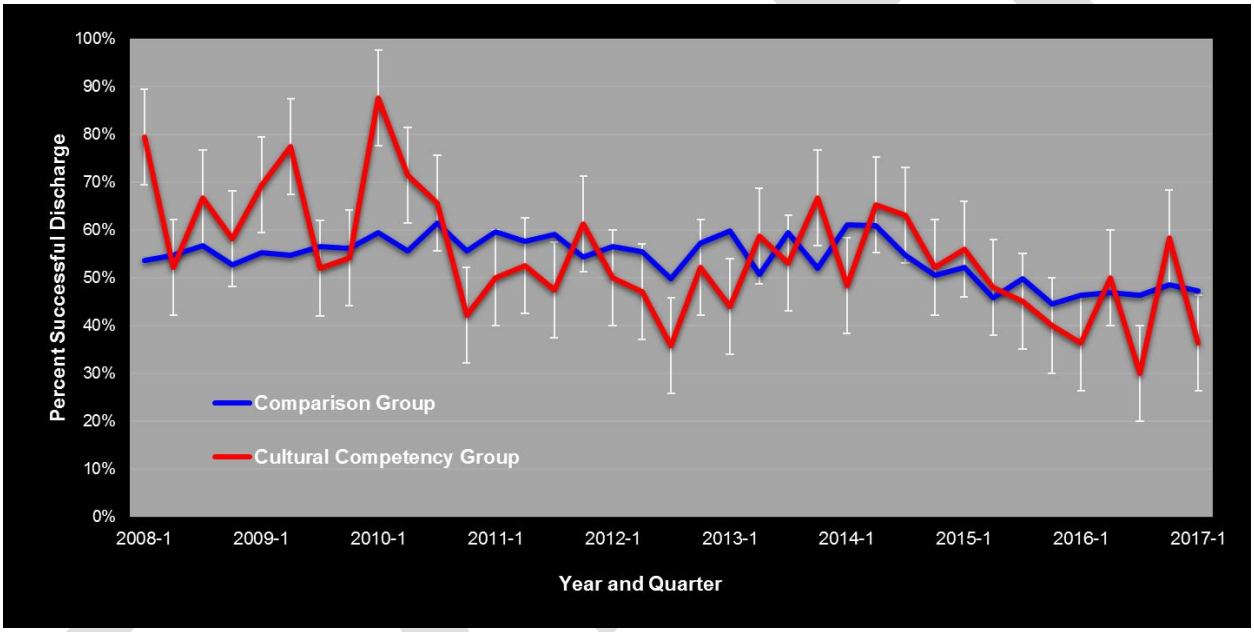
Fewer clients in the Cultural Competency Project group completed the treatment plan but more "substantially completed" the plan compared to those clients in the Comparison Group. Both of these completion categories are considered successful and the difference between the two canceled out. While fewer 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

[2] Wald $\chi^2 = 2.09$, df = 1, p = 0.148.
[3] Using specific agency contrasts with logistic regression predicting successful discharge.

fewer clients in the Cultural Competency group were referred outside the agency than Comparison Group clients. Other categories of completion were comparable between the two groups.

Figure 1 shows success rates for each (calendar) annual quarter beginning in 2008 to the last quarter of 2015. The beginning and ending quarters were omitted because of a longer length of stay in the Cultural Competency group (see next section) and because of low numbers in the first year of the project. Figure 1 also shows 95% confidence bands around the Cultural Competency values. Since the confidence bands usually cross the Comparison Group's rates, these again suggest no statistically significant benefit to the Cultural Competency program. Furthermore, there is a statistically significant downward trend in the successful completion rates in the Cultural Competency program.[4] There was no such trend in the statewide Comparison Group's rates.

Figure 1. Percent of Successful Discharges over Grant Duration



Summary

Overall, successful discharges were no more likely in the Cultural Competency Project group than in the Comparison Group. However, when more sophisticated methods were used, there was marginal support for a slightly increased success rate in the Cultural Competency 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 substantially better successful completion rates than the Comparison Group. Finally, the success rates in the Cultural Competency group appear to be declining over time.

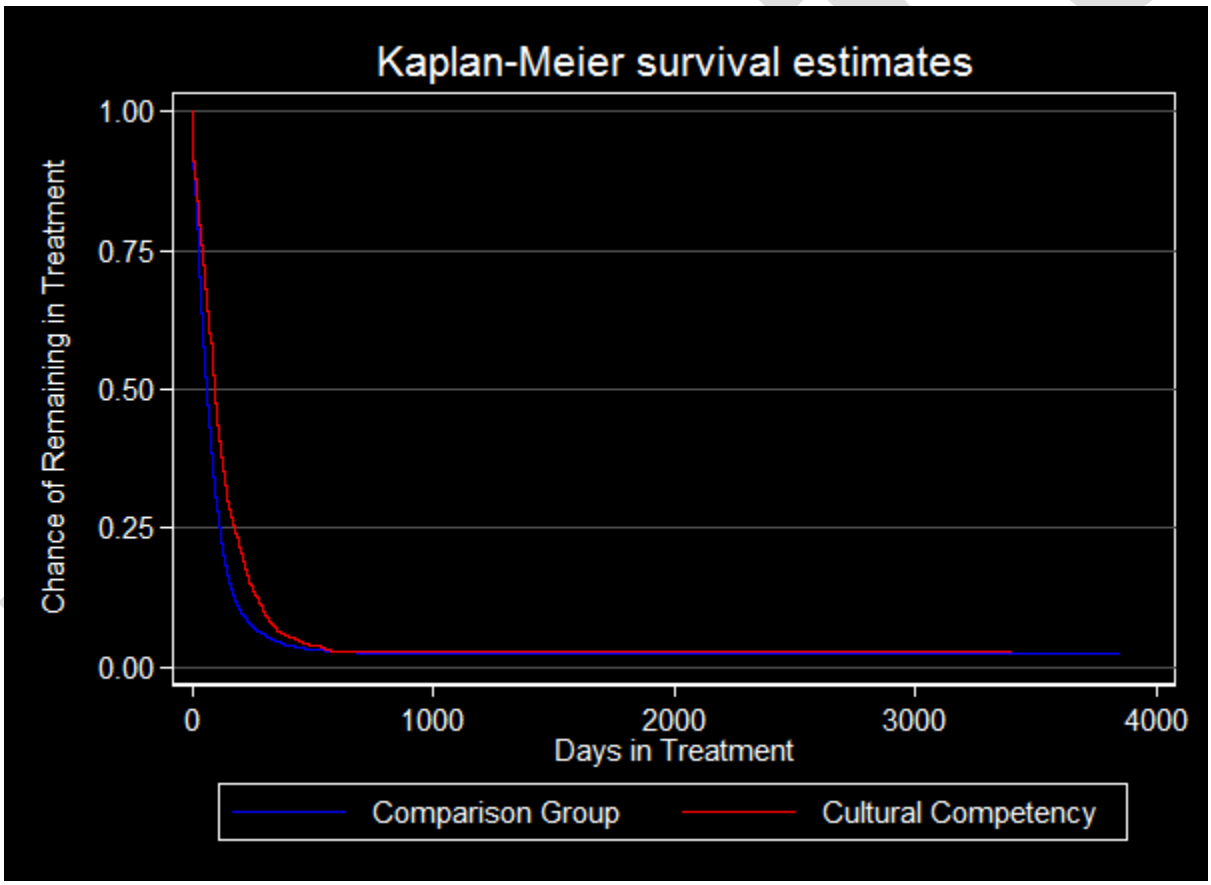
[4] Kendall's tau = -0.35, $p < 0.01$; Jonckheere-Terpstra $z = -2.74$, $p < 0.01$

Length of Stay

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 (i.e., 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 95 days (95% confidence interval: 91 - 100) 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 2.

Figure 2. Length of Stay for the Comparison and Cultural Competency Groups



Note: Log-rank chi-square = 108.00, df = 1, p < 0.0001

In Figure 2, the red line represents the proportion of the 1,115 Cultural Competency Project clients ending treatment over time and the blue line represents the same information for the 16,843 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 overall 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 = 16,008)	Cultural Competency (n = 1,044)
Discharge		
Successful***	78	119
Neutral***	37	70
Unsuccessful*	36	43
Detailed Discharge		
Treatment Plan Completed***	78	127
Treatment Plan Substantially Completed***	78	105
Referred Outside*	30	74
Program Decision Due to Lack of Progress/Compliance**	43	75
Client Left	35	43
Incarcerated	57	71
Death	43	76
Other	8	22
Managed Care Decision	19	No data

Note: Log-rank χ^2 * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

There is a significant difference in the median length of stay for unsuccessful discharges for the Cultural Competency group compared to the Statewide Comparison Group.[5] When the discharges are broken down into detail, there is a 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 (43 versus 76 days); however there have

[5] Log rank $\chi^2 = 4.64$, df = 1, $p < 0.05$.

been only two deaths in the Cultural Competency group and the difference in number of days is not significant.

Length of Stay and Agency

To assess whether the significant increase in length of stay was consistent for all five of the Cultural Competency programs, the survival analysis was repeated five times. Each analysis contrasted the clients from each Cultural Competency agency to the Statewide Comparison Group. All of the five individual program analyses showed significant increases in length of stay.

Furthermore, an additional analysis compared the five agencies among themselves. The agencies did differ among themselves in length of stay[6]. One program had a median length of stay of four and one-half months (137 days), while the next longest program had a median length of stay of four months (120 days). The third longest stay was approximately three months (91 days), and the shortest median stay approached three months (83 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 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.[7] Thus, the preliminary differences in the two groups did not seem to generate the observed treatment stay advantage offered by the Cultural Competency Project.

[6] Log-rank $\chi^2 = 42.76$, df = 4, $p < 0.0001$
[7] Wald $z = 11.18$, $p < 0.001$

CONCLUSION

The Cultural Competency Project clients, as a group, were contrasted with a Statewide Comparison Group of 16,843 minority clients. This was a cumulative analysis including admissions from December 18, 2006 through June 13, 2017. Clients in the Cultural Competency Project stayed in treatment more than a month (33 days) longer then the Statewide Comparison Group clients. Despite the longer lengths of stay, clients in the Cultural Competency Project overall were not more likely to have a successful discharge. Using more sophisticated methods (controlling for specific variables), there was still no evidence for an improved successful discharge rate. There was also marked variability in the successful discharge rates among Cultural Competency Project agencies. Analyses of the success rates over time suggest a decline in successful discharges for this project. These overall findings did not seem affected by demographic or substance use differences between the two groups.

Suggestions

- Agencies should review their criteria and attempt to form a consensus of definitions for successful discharges.
- Agencies should stem the trend towards lower success rates over time.
- 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.
- Cultural Competency Project agencies should review potential factors that contributed to individual programs' differences in outcomes.