
ILLINOIS MIECHV STUDY BRIEF

Report of Participant Engagement and Attrition 2012-2013

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Introduction

One of most challenging issues confronted by many home visiting programs is to maintain levels of full participation to ensure that families receive the full complement of services and resources that have been demonstrated in efficacy and effectiveness trials. Research shows that home visiting agencies that fully implement their programs are likely to have better outcomes and impacts. If participants drop out prior to completing the recommended “duration”, or just drop out after only a few weeks or months, they are unlikely to derive the purported benefits reported in validated home visiting programs, and significant resources may be wasted.

Considering the importance and well documented results of premature loss of home visiting program participants, the evaluation team explored multiple characteristics related to retention and duration factors. The evaluation team, using the Visit Tracker (VT) Management Information System data, analyzed the dropout rates at the program, agency and community levels. This analysis was conducted to identify potential characteristics of dropouts and length of participation (duration) in the program. This was calculated by identifying the enrollment date of the family and the last date of their participation - exit date without completing the program. Participants were included in the analysis based on having valid enrollment and exit dates, while those remaining in the program crossing over years were considered censored*.

Methods

This study used Illinois MIECHV VT data. The study population included all Illinois MIECHV participants, except those receiving Doula services, enrolled before December 13, 2013. Ten participants with invalid enrollment and exit dates were excluded.

The data for the attrition study is based on VT reports that were used by the research team. Home visitors selected reasons for exiting from a drop down list that could be customized by each site. Reasons for exiting range from moving, losing track due to change in phone numbers, employment, etc. However, the reasons for leaving home visiting by the vast majority of participants (over 50%) are not recorded or are unclear (e.g., Other). Most importantly, the study did not make a distinction between reasons for dropping out or leaving the program since there is some confusion regarding dropping out, completing services and graduating. To that end, the state and home visiting sites must ensure this information is recorded consistently and with the same set of options to ensure an accurate understanding of attrition and retention.

Descriptive statistics with mean and median program duration and number of dropouts by subgroups of interest are initially presented. Dropout data is often skewed and traditional parametric statistical methods may not be suitable for such censored data. Therefore, survival analysis procedures were used to explore the relation between retention and covariates. Kaplan–Meier curves are basically a non-parametric way of examining participant retention and the curves show the probability of Illinois MIECHV participants remaining in the program as a

* Censored is term used to classify MIECHV program participants receiving services, but have not either dropped out or closed out of the program. In other words, they remain participants in the home visiting programs without completion, dropping out or closing out during the course of the program study year.

function of time. Differences in retention probabilities by covariate strata were examined with log-rank tests.

Cox proportional hazards regression, a semi-parametric method of survival analysis, was used to study the socio-demographic factors influencing the duration of MIECHV enrollees remaining in the program by age, race, ethnicity, education, marital status, and insurance status on participant attrition. Age was the only continuous variable included in the Cox regression model. All the categorical variables included were dichotomous except community. All the covariates were included as time-invariant covariates in the Cox regression models. For the purpose of this study, the dependent variable, dropping out, is defined as exiting the program on or before December 31, 2013.

Results

Descriptive statistics

Figure 1-A shows the monthly enrollments by the number of exits over the life of the project. This figure shows the steep increase in enrollment that began with the initial roll out of MIECHV, approximately April/May 2011, peaking in August 2012. Since that time, the number of enrollments has dropped significantly with a pattern of peaks and valleys that appears to fall short of the largest enrollment in July-August of 2012. Not surprisingly, the dropouts parallel the enrollments by approximately 50% at each time period. The largest number of dropouts occurred around the holiday seasons and the summer months, which has been observed and reported by the home visitors, CPRD evaluators and state MIECHV staff. Participant dropouts generally occur in the first few months of enrollment (2-4 months), as they closely followed peak periods of enrollments. This pattern suggests an intentional effort of the home visiting agencies working to enroll new participants.

Figure 1-B shows the overall program duration for all Illinois MIECHV participants. As seen in this figure, the distribution of program duration is highly skewed as a large number of dropouts occur in the first few months after enrollment. Therefore, median program duration was used for comparing retention and program duration of subgroups.

Tables 1-3 summarize participant attrition, program duration and number of home visits by 6 communities, 4 home visiting programs and 20 agencies respectively. After excluding those enlisted in Doula services, the study sample consisted of 823 Illinois MIECHV participants nested within 20 agencies.

About 48.24% (n=397) of Illinois MIECHV participants dropped out during this study period. Agency specific attrition ranges from a low of 25% to a high of 85%. While the mean program duration was 197 days, the median was only 165 days, about a month less. Median duration of the participants remaining in the MIECHV program ranged from 73 to 326 days for different agencies.

Descriptive statistics by participant demographics are included in Table 4. Among the communities, Cicero had the highest median program duration of 218 days and Macon had the

lowest median program duration of 97 days. In general, participants most likely to remain in a home visiting program were older (age 30 or above), non-White, Hispanics, less than a high school education, married, uninsured, participate in WIC, report low achievement by the parent or child, serve a disabled child or sibling, and participants without a history of abuse. These participant findings require further examination and understanding of how and why these factors appear to differentiate levels of participation and duration.

Kaplan–Meier curves (Figure-2 A-K) provide another way to visualize the probability of MIECHV participant characteristics related to remaining in the program as a function of time. Again, the steepest downward curve is for Macon County, reflecting the MIECHV community with the highest number of dropouts. Following the same pattern of statistical analysis using the Kaplan-Meier curves described above, participant characteristics indicating increased likelihood of remaining in the program include: mothers above age 30, non-Whites, Hispanics, high school graduates, married, uninsured, WIC participants, history of abuse, low achievement parent or child, and disabled child or sibling.

Cox regression

Results of Cox proportional hazards regression procedure used to model the hazard of dropping out of the program are reported in Table 5. In general, Hazard ratios greater than one indicate higher likelihood of dropping out and less than one indicates lower hazard or likelihood of dropping out. As with log rank tests, except for race and education, all other covariates were found to be significant in the unadjusted Cox regression models.

To determine whether participant characteristics may have had a confounding influence on these outcomes, an adjusted Cox regression was used to control other potential factors that may influence outcomes. For example, statistical differences between race and dropouts may be a function of having larger numbers of minority teens participating in the program, so when we control for race, it is the age that significantly contributes to the dropout factors, not necessarily the race of the participant. Therefore, the analysis was done using both unadjusted and adjusted (controlled for other characteristics) factors and their dropout from home visiting services.

When compared to Cicero, which was the reference group (community with lowest attrition rate), Macon, Rockford and Vermilion communities appear to have significantly higher hazard of dropping out as indicated by their higher hazard rates. However, in the adjusted model, only Englewood was found to have a significantly lower hazard of dropping out than Cicero (HR: 0.42, 95% CI: 0.23, 0.79).

After adjusting for all other variables in the model, the risk of dropping out seems to decrease by about 3% with every one year increase in age (HR: 0.97, 95% CI: 0.95, 0.99). While race was not found to be significant, non-Hispanic ethnicity was found to be associated with about 78% higher risk of dropping out (HR: 1.78, 95% CI: 1.16, 2.74).

Illinois MIECHV participants having less than high school education appear to have 36% higher risk of dropping out (HR: 1.36, 95% CI: 1.08, 1.71). This relationship was only marginally significant in the unadjusted model, but became highly significant in the adjusted model. Marital status other than being married and having insurance were associated with higher hazard of

dropping out in the unadjusted models. However, no statistically significant associations were observed in the adjusted model.

WIC participants (HR: 0.60, 95% CI: 0.47, 0.77) and those with history of abuse (HR: 0.60, 95% CI: 0.38, 0.95) had about 40% lower risk of dropping out when compared to their respective reference groups. Participants with low achievement (HR: 0.67, 95% CI: 0.47, 0.95) had about 33% lower hazard of dropping out. Participants with disabled child (HR: 0.68, 95% CI: 0.44, 1.05) seem to have a lower hazard of dropping out. While this relationship was statistically significant in the unadjusted model, it was only marginally significant in the adjusted model (p value=0.08).

Discussion

This study of participant attrition is important for understanding socio-demographic factors that may influence full participation of this high risk population with the greatest needs for MIECHV services. Unless attrition is addressed, it will be difficult to evaluate program impacts on family and community outcomes as attrition can adversely influence statistical power and may result in biased estimates. In addition to failure of service delivery to this high risk population, attrition can also induce sampling error (Seed, Juarez, & Alnatour, 2009).

This analysis found that the overall attrition rate of Illinois MIECHV participants is around 48% over this study period. This attrition is at the upper range of dropouts considering that previous studies report attrition rates between 6% and 60% for different home visiting models (Grant, 2000). Participants especially appeared to be at highest risk of dropping out in the initial months (2-4 months) after enrollment. Programs should pay special attention to retention of participants during this high risk period when participants evaluate the pros and cons of staying in the program.

The statistical significance observed in the unadjusted model with community could be due to differences in the demographic and socioeconomic composition. Compared to about 33% of variance in program duration that existed at the provider and program levels in the Healthy Families America study (Daro et al., 2003), approximately 16% of variance in program duration exist at the agency level in this study. This study couldn't examine reasons for high levels of attrition observed in some programs and communities. Considering that significant amounts of variation in the attrition exist between programs, future studies should identify factors operating at community, agency and home visitor levels, especially those that are modifiable, so that program administrators can address these issues. For example, home visiting staff turnover has been a problem in some programs and this issue likely impacts participant retention. Previous studies have shown that special training of home visitors and identification of specific needs of the participants and tailoring the programs to address these needs/concerns will help in retention (Ingoldsby, Baca, McClatchey, Luckey, et al, 2013; Ammerman, 2009). As mentioned in these studies, attrition should not be considered in isolation and one of the goals should be to train the home visitors to improve their family engagement skills.

This study's finding of higher risk of attrition in the younger participants is not surprising as the participants in this age group have education and employment issues, and as such are not yet

settled in life. Higher retention probability for Hispanics is an interesting finding and actually confirms results from previous studies on home visiting programs. Communities such as Cicero, where majority participants are Hispanic, have considerably lower attrition. Participants having less than high school education may not have stable jobs and that could be the reason for high attrition in this subgroup.

Previous studies on other home visiting programs have found that participants in need of multiple levels and types of social support stayed in the programs longer (Ammerman, 2009; Coatsworth, Duncan, Pantin, & Szapoczkik, 2006). By contrast, it should be noted that in this study, participants with lower attrition rates were found to include WIC participants, uninsured, history of abuse, low achievement of participant or child, and a disabled child or sibling. These high needs families appear to recognize the benefits and supports provided by home visiting and continue to engage in them. Further study of these high needs participants who remain longer in the home visiting programs also is an important area for investigation. This study will be repeated again later this year or early next year once the new wave of data are ready for analyses.

Finally, it should be noted that CPRD is currently conducting follow-up satisfaction surveys with home visiting participants that have dropped out of the four MIECHV programs. As you might image, finding and contacting these participants has been challenging; however, the preliminary results of those who have been willing to converse with the CPRD field staff, are almost all very positive regarding their home visitors and the information they received. Further analysis will be forthcoming at the completion of the study.

Limitations

The study has several limitations and therefore the results must be interpreted with caution. Most importantly, multiple factors that may influence dropouts and retention could not be analyzed ranging from participant personal and family needs, employment skills, family support, quality of home visiting services, and model fit. Also, home visitor and agency characteristics that can impact participant attrition were not considered. However, when the relevant data becomes available in the future, an attempt will be made to fit comprehensive multilevel models. Scarcity of data on some covariates may have affected the power to determine statistical significance for some associations. The results of this study are applicable only to Illinois MIECHV program participants and cannot be generalized to other home visiting programs.

Figure 1 A- Monthly Enrollment and Exit Trends

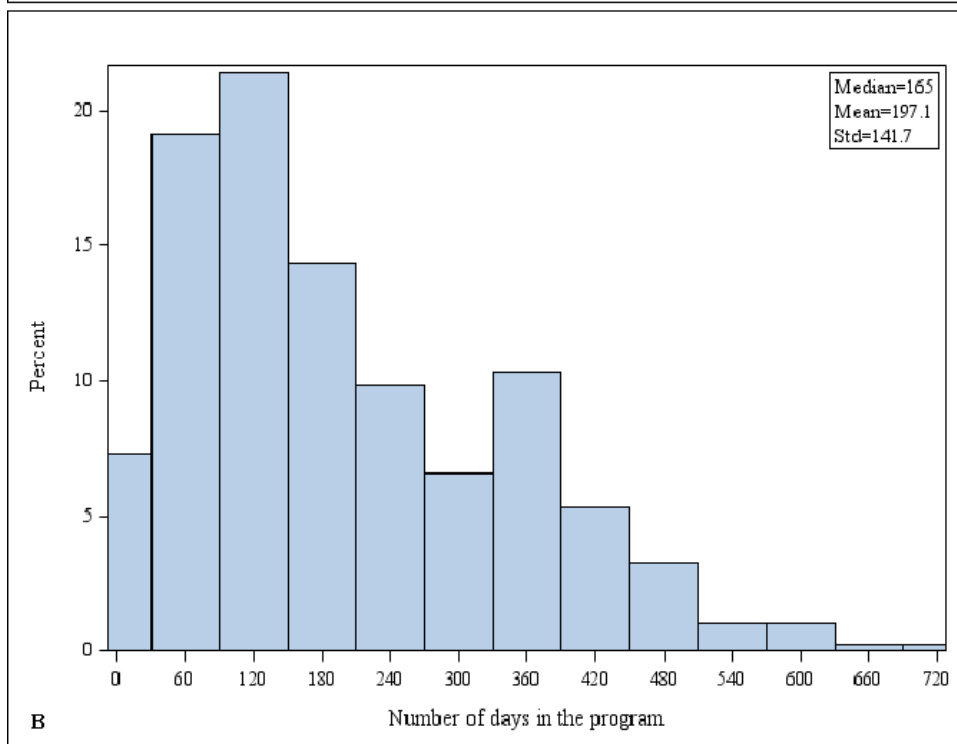
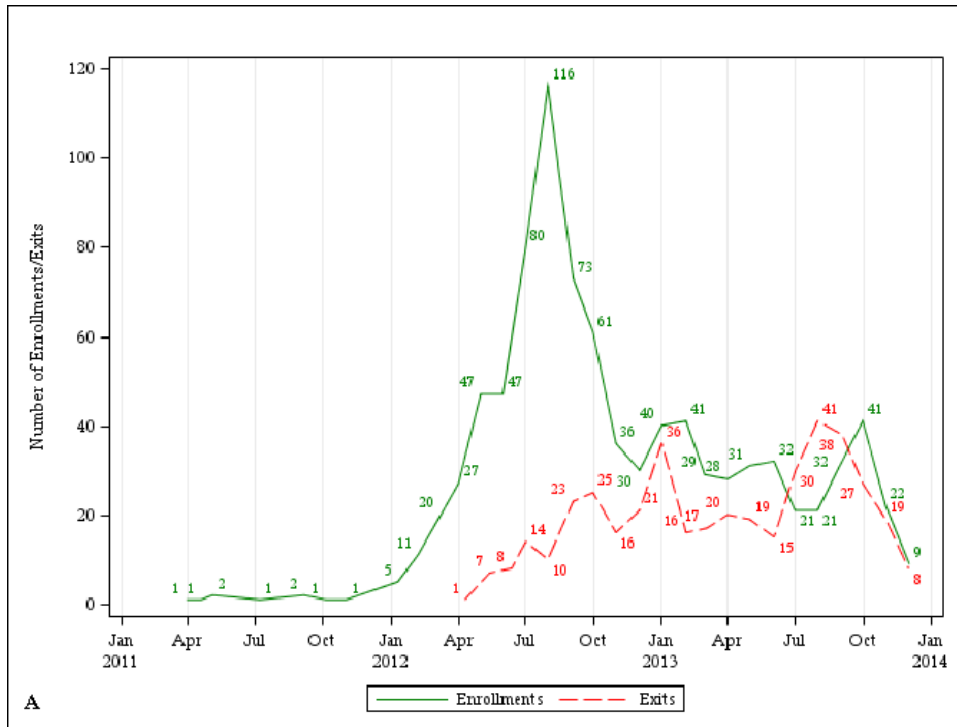


Figure 1 B - Distribution of Program Duration

Table 1
Illinois MIECHV Participant Attrition and Program Duration by Community

| | Enrollments | Dropouts | | | | Number of days in the program | | |
|-----------|-------------|----------|-------|-----|-------|-------------------------------|--------|--------|
| | | No | | Yes | | Median | Mean | Std. |
| | | n | % | n | % | | | |
| Illinois | 823 | 426 | 51.76 | 397 | 48.24 | 165.00 | 197.08 | 141.65 |
| Cicero | 187 | 118 | 63.10 | 69 | 36.90 | 218.00 | 230.59 | 131.00 |
| Elgin | 109 | 59 | 54.13 | 50 | 45.87 | 170.00 | 233.28 | 166.26 |
| Englewood | 162 | 102 | 62.96 | 60 | 37.04 | 189.00 | 210.13 | 117.97 |
| Macon | 112 | 34 | 30.36 | 78 | 69.64 | 97.00 | 145.51 | 140.15 |
| Rockford | 121 | 57 | 47.11 | 64 | 52.89 | 199.50 | 231.36 | 145.36 |
| Vermilion | 132 | 56 | 42.42 | 76 | 57.58 | 132.50 | 156.58 | 126.46 |

Table 2
Illinois MIECHV Participant Attrition and Program Duration by Program Model

| | Enrollments | Dropouts | | | | Number of days in the program | | |
|----------------------------|-------------|----------|-------|-----|-------|-------------------------------|--------|--------|
| | | No | | Yes | | Median | Mean | Std. |
| | | n | % | n | % | | | |
| *Early Head Start | 27 | 20 | 74.07 | 7 | 25.93 | 222.00 | 247.00 | 158.82 |
| Healthy Families IL. | 195 | 105 | 53.85 | 90 | 46.15 | 163.50 | 191.12 | 129.68 |
| **Nurse-Family Partnership | 20 | 5 | 25.00 | 15 | 75.00 | 188.00 | 233.87 | 161.09 |
| Parents As Teachers | 581 | 296 | 50.95 | 285 | 49.05 | 157.00 | 195.80 | 144.05 |

* Only 2 Early Head Start program sites
 ** Only 1 Nurse-Family Partnership program site

Table 3
Illinois MIECHV Participant Attrition and Program Duration by Agency

| | | Enrollments | Dropouts | | | | Number of days in the program | | |
|-----------|--|-------------|----------|--------|----|-------|-------------------------------|--------|--------|
| | | | n | % | n | % | Median | Mean | Std. |
| Cicero | Children's Center of Cicero-Berwyn | 86 | 48 | 55.81 | 38 | 44.19 | 214.50 | 220.58 | 132.35 |
| | Family Focus Nuestra Familia | 101 | 70 | 69.31 | 31 | 30.69 | 219.00 | 242.87 | 130.43 |
| Elgin | Elgin SD U-46 | 50 | 21 | 42.00 | 29 | 58.00 | 168.00 | 242.72 | 179.71 |
| | Family Focus Dupage | 20 | 20 | 100.00 | - | - | - | - | - |
| | Kane Co. HD | 20 | 5 | 25.00 | 15 | 75.00 | 188.00 | 233.87 | 161.09 |
| | VNA | 19 | 13 | 68.42 | 6 | 31.58 | 158.00 | 186.17 | 119.21 |
| | ChildServ | 64 | 46 | 71.88 | 18 | 28.13 | 175.00 | 203.89 | 102.38 |
| Englewood | Family Focus Englewood | 33 | 21 | 63.64 | 12 | 36.36 | 102.50 | 113.67 | 52.19 |
| | Henry Booth House | 38 | 23 | 60.53 | 15 | 39.47 | 176.00 | 216.80 | 147.93 |
| | Women's Treatment Center | 27 | 12 | 44.44 | 15 | 55.56 | 326.00 | 288.13 | 85.49 |
| | Decatur PS61 (Pershing) | 47 | 21 | 44.68 | 26 | 55.32 | 75.50 | 114.88 | 143.36 |
| Macon | Macon Co. Health Dept. | 31 | 8 | 25.81 | 23 | 74.19 | 118.00 | 169.65 | 138.07 |
| | Macon Resources | 34 | 5 | 14.71 | 29 | 85.29 | 118.00 | 153.83 | 138.79 |
| | City of Rockford Human Services | 27 | 20 | 74.07 | 7 | 25.93 | 222.00 | 247.00 | 158.82 |
| Rockford | Easter Seals Chicago | 39 | 14 | 35.90 | 25 | 64.10 | 206.00 | 221.92 | 124.90 |
| | La Voz Latina | 15 | 6 | 40.00 | 9 | 60.00 | 223.00 | 224.22 | 145.54 |
| | Rockford Public Schools 205 | 40 | 17 | 42.50 | 23 | 57.50 | 184.00 | 239.65 | 169.23 |
| | Center for Children's Services / Aunt Martha's | 66 | 29 | 43.94 | 37 | 56.06 | 148.00 | 192.27 | 149.53 |
| Vermilion | Danville District #118 | 32 | 14 | 43.75 | 18 | 56.25 | 73.00 | 92.28 | 77.21 |
| | East Central IL Community Action | 34 | 13 | 38.24 | 21 | 61.76 | 147.00 | 148.81 | 92.28 |

* About 16% of the variation in attrition exists between programs

Table 4
MIECHV Attrition Results by Community and Participant Characteristics

| Variable | Category | Total Enrollments | Censored | | Dropouts | | Median Survival in Days | Log Rank Test P-value |
|-------------------------------|-------------------------------|----------------------|----------|-------|----------|-------|-------------------------------|-----------------------------|
| | | | n | % | n | % | | |
| Community | Cicero | 187 | 118 | 63.10 | 69 | 36.90 | 218.00 | <.0001 |
| | Elgin | 109 | 59 | 54.13 | 50 | 45.87 | 170.00 | |
| | Englewood | 162 | 102 | 62.96 | 60 | 37.04 | 189.00 | |
| | Macon | 112 | 34 | 30.36 | 78 | 69.64 | 97.00 | |
| | Rockford | 121 | 57 | 47.11 | 64 | 52.89 | 199.50 | |
| | Vermilion | 132 | 56 | 42.42 | 76 | 57.58 | 132.50 | |
| Age (in years) | 10-17 | 60 | 26 | 43.33 | 34 | 56.67 | 177.50 | <.0001 |
| | 18-21 | 215 | 106 | 49.30 | 109 | 50.70 | 175.00 | |
| | 22-29 | 309 | 162 | 52.43 | 147 | 47.57 | 173.00 | |
| | 30+ | 203 | 131 | 64.53 | 72 | 35.47 | 184.50 | |
| Race | White | 260 | 126 | 48.46 | 134 | 51.54 | 146.50 | 0.152 |
| | Non-White | 560 | 300 | 53.57 | 260 | 46.43 | 174.00 | |
| Ethnicity | Hispanic | 295 | 186 | 63.05 | 109 | 36.95 | 209.00 | <.0001 |
| | Non-Hispanic | 528 | 240 | 45.45 | 288 | 54.55 | 144.50 | |
| Education | High School Diploma and above | 439 | 247 | 56.26 | 192 | 43.74 | 166.00 | 0.084 |
| | Less than High School | 346 | 173 | 50.00 | 173 | 50.00 | 192.00 | |
| Marital Status | Married | 234 | 144 | 61.54 | 90 | 38.46 | 189.50 | <.0001 |
| | Other | 574 | 281 | 48.95 | 293 | 51.05 | 161.00 | |
| Insurance | No | 146 | 101 | 69.18 | 45 | 30.82 | 217.00 | 0.002 |
| | Yes | 633 | 318 | 50.24 | 315 | 49.76 | 172.00 | |
| WIC participant | No | 207 | 97 | 46.86 | 110 | 53.14 | 174.00 | 0.001 |
| | Yes | 564 | 321 | 56.91 | 243 | 43.09 | 178.00 | |
| History of Abuse | No | 758 | 383 | 50.53 | 375 | 49.47 | 166.00 | 0.034 |
| | Yes | 65 | 43 | 66.15 | 22 | 33.85 | 131.00 | |
| Low achieving parent or child | No | 700 | 345 | 49.29 | 355 | 50.71 | 153.00 | 0.001 |
| | Yes | 123 | 81 | 65.85 | 42 | 34.15 | 207.50 | |
| Disabled child or sibling | No | 719 | 349 | 48.54 | 370 | 51.46 | 157.00 | <.0001 |
| | Yes | 104 | 77 | 74.04 | 27 | 25.96 | 247.00 | |

Figure 2

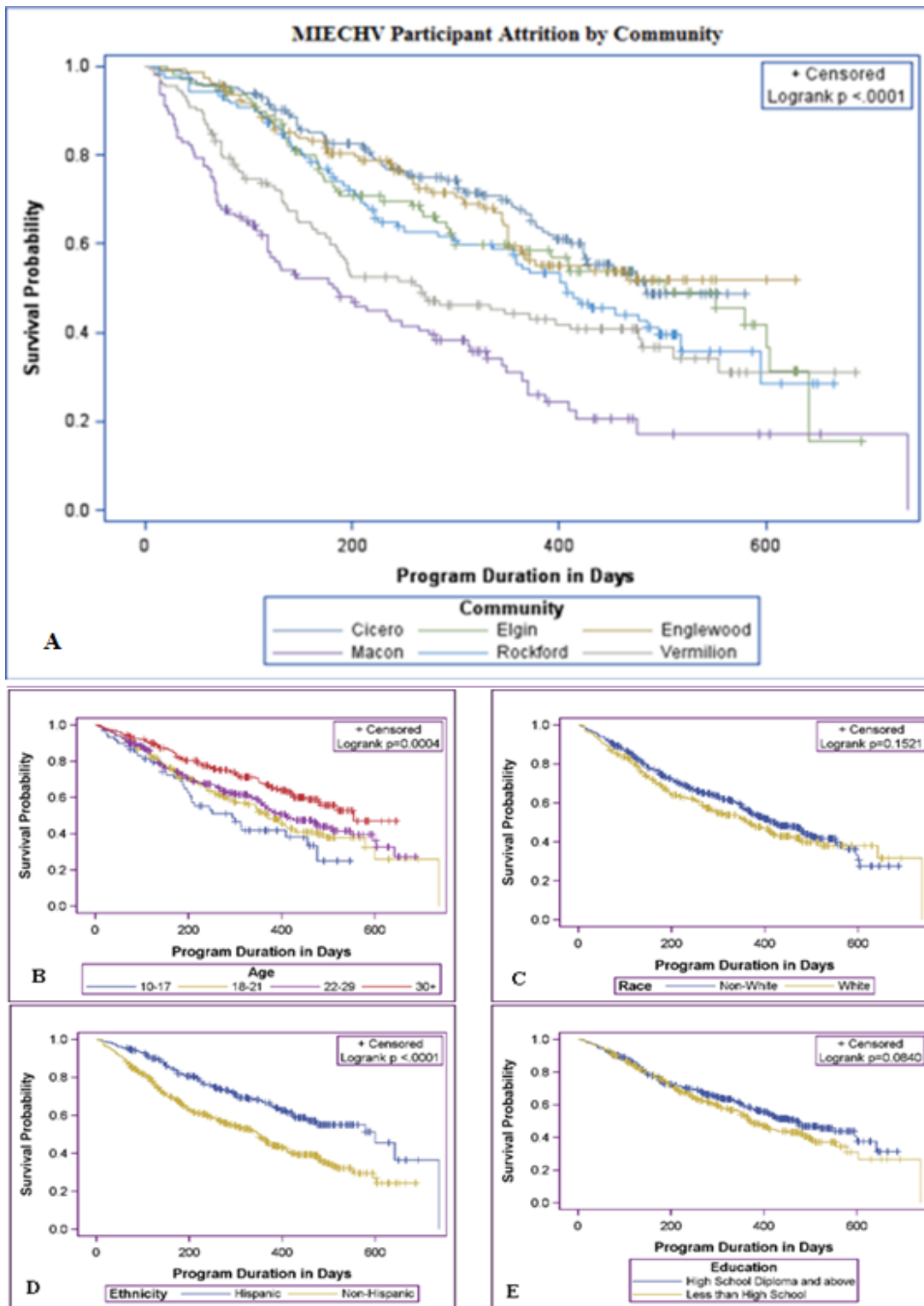


Figure 2: Kaplan-Meier curves showing participant retention probabilities by (A) Community (B) Age (C) Race (D) Ethnicity and (E) Education

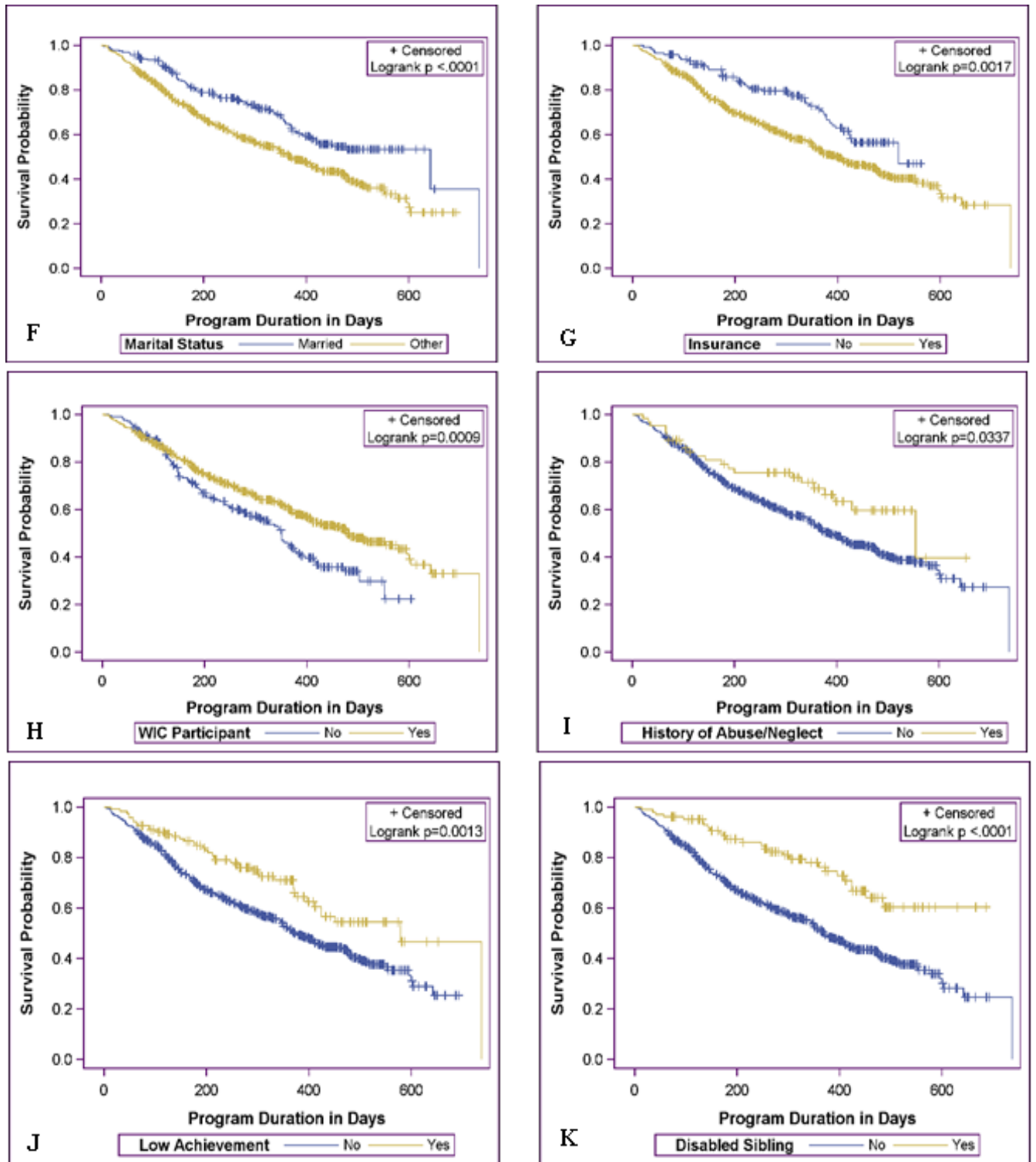


Figure 2 (contd.): Kaplan-Meier Curves showing Participant Retention Probabilities by (F) Marital Status (G) Insurance (H) WIC Status (I) History of Abuse (J) Low Achieving parent or child and (K) Child or Sibling with a Disability

Table 5

Multivariable Cox Proportional-Hazards Regression Models

| | Crude | | | | | | Adjusted | | | | | |
|------------------|-------|------|---------|--------------|-----------|-----------|----------|------|---------|--------------|-----------|-----------|
| | B | SE | P-value | Hazard Ratio | 95% CI-LL | 95% CI-UL | B | SE | P-value | Hazard Ratio | 95% CI-LL | 95% CI-UL |
| Community | | | | | | | | | | | | |
| Elgin | 0.23 | 0.19 | 0.21 | 1.26 | 0.88 | 1.82 | -0.18 | 0.27 | 0.50 | 0.83 | 0.49 | 1.42 |
| Englewood | 0.07 | 0.18 | 0.67 | 1.08 | 0.76 | 1.52 | -0.86 | 0.32 | 0.01 | 0.42 | 0.23 | 0.79 |
| Macon | 1.12 | 0.17 | <.0001 | 3.07 | 2.22 | 4.26 | 0.50 | 0.33 | 0.12 | 1.66 | 0.87 | 3.14 |
| Rockford | 0.36 | 0.17 | 0.04 | 1.43 | 1.02 | 2.02 | -0.37 | 0.31 | 0.24 | 0.69 | 0.38 | 1.27 |
| Vermilion | 0.66 | 0.17 | <.0001 | 1.94 | 1.40 | 2.68 | -0.16 | 0.32 | 0.61 | 0.85 | 0.45 | 1.59 |
| Age | -0.04 | 0.01 | <.0001 | 0.97 | 0.95 | 0.98 | -0.03 | 0.01 | <0.001 | 0.97 | 0.95 | 0.99 |
| Non-White | -0.15 | 0.11 | 0.15 | 0.86 | 0.70 | 1.06 | 0.03 | 0.14 | 0.82 | 1.03 | 0.79 | 1.35 |
| Non-Hispanic | 0.61 | 0.11 | <.0001 | 1.84 | 1.48 | 2.30 | 0.58 | 0.22 | 0.01 | 1.78 | 1.16 | 2.74 |
| < High School | 0.18 | 0.11 | 0.08 | 1.20 | 0.98 | 1.47 | 0.31 | 0.12 | 0.01 | 1.36 | 1.08 | 1.71 |
| Education | | | | | | | | | | | | |
| Marital Status- | 0.48 | 0.12 | <.0001 | 1.61 | 1.27 | 2.04 | 0.15 | 0.16 | 0.35 | 1.16 | 0.85 | 1.59 |
| Other | | | | | | | | | | | | |
| Insurance | 0.50 | 0.16 | <0.001 | 1.64 | 1.20 | 2.24 | 0.25 | 0.21 | 0.23 | 1.28 | 0.85 | 1.94 |
| WIC participant | -0.38 | 0.12 | <0.001 | 0.68 | 0.54 | 0.86 | -0.51 | 0.13 | <.0001 | 0.60 | 0.47 | 0.77 |
| History of Abuse | -0.46 | 0.22 | 0.04 | 0.63 | 0.41 | 0.97 | -0.51 | 0.24 | 0.03 | 0.60 | 0.38 | 0.95 |
| Low | -0.52 | 0.17 | <0.001 | 0.59 | 0.43 | 0.82 | -0.41 | 0.18 | 0.03 | 0.67 | 0.47 | 0.95 |
| Achievement | | | | | | | | | | | | |
| Disabled Child | -0.83 | 0.20 | <.0001 | 0.44 | 0.29 | 0.64 | -0.38 | 0.22 | 0.08 | 0.68 | 0.44 | 1.05 |

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