



Racial EQUITY Research: Early Intervention in Indiana

Indiana Institute on Disability and Community, Early Childhood Center

This research examines Indiana's early intervention system through an equity lens and determines how well the program engages both Black and White families at each major step in the service system.

Katherine Herron, Ph.D.



Contents

Executive Summary	2
Introduction:	2
Methods:	3
Sample:	3
Results and Recommendations:	4
Introduction	7
Methods	8
Sample	9
Results and Recommendations	9
Relationship between race and referrals	10
Relationship between race and service provisions	14
Relationship between race and service utilization	15
Summary of Univariate analyses:	16
Relationship between race and retention	16
Relationship between race and referrals, service provisions, and service utilizations	21
Progress	23
Summary of Multivariate Analyses of Progress Variables	24
Exit from First Steps	25
Family Interview Data:	27
Families Who Exit Early	29
Provider Interview Data:	30
Appendix A. Exit from First Steps by Cluster and Race	31

ACKNOWLEDGEMENTS

This research was funded by the Indiana University Racial Justice Research Fund. This fund is jointly supported by the Office of the Vice President for Research and the Office of the Vice President for Diversity, Equity and Multicultural Affairs.

The author wishes to thank First Steps state leadership for facilitating access to deidentified First Steps data and for their strong commitment to exploring systemic equity issues.



Executive Summary

Introduction:

Racial inequities exist in all systems, including social service systems mandated to support all families regardless of race. One such system is the federally funded Part C early intervention program that provides home visiting services to families of infants and toddlers with developmental disabilities. Indiana's Part C program, First Steps, serves over 20,000 families each year in their home, offering an array of services (e.g., speech, physical, occupational, and developmental therapy) at little or no cost based on family income. While differences between White and Black families have been included in federal reports (e.g., child outcomes, rates of exiting early), these differences have never been systematically examined to determine if major inequities exist across the First Steps system. State leaders have expressed interest in gathering this information but have not had the capacity to do so in the past. A systematic investigation of racial inequities in Indiana could provide a baseline and template for further investigations.

To that end, this research examined First Steps through an equity lens and determined how well the program engages both Black and White families at each major step in the service system, including initial access to the system through referrals, the initial intake process, child evaluation and eligibility determination, development of individual service plans, service provision, and system exit.

Methods:

This study used a mixed methods design. We began by analyzing quantitative data available from First Steps. We investigated the relationships between race and (a) referrals, (b) service provision, and (c) service utilization using a variety of statistical analyses.

For the qualitative portion of the study, we conducted phone interviews with Black and White families who exited the system in 2019. We attempted to interview families from all nine First Steps regions (i.e., clusters). Additionally, we interviewed families who stayed in the system for as long as they were eligible as well as families who chose to exit First Steps early (while still eligible.)

Following the family interviews, and analyses of both the quantitative and family interview data, researchers also interviewed professionals in the First Steps system, including program administrators, White direct service providers, and Black providers. All providers will be asked about their experiences working with Black and White families and their experiences working within the First Steps system.

Sample:

For the quantitative data analyses, our dataset consisted of 43,588 children from First Steps programs in Indiana during the years from 2016-2019. All years from 2016 to 2019 are equally represented, with about 10,000 children being served each year. The average child in our study is referred to First Steps at 17.25 months and terminates enrollment in First Steps at 26.77 months, for a total average time in First Steps of 11.73 months. Approximately 14% of the children in our sample are Black; the remaining children are White. First Steps serves children of other races, but this study is only comparing White and Black family experiences for two reasons: 1) Previous data suggested that the system was struggling to serve Black families more than other racial groups, 2) Funding required us to make choices about who to include and we decided to begin with these analyses and then expand to include other racial groups in future work. Over 70% of children in our sample qualify for First Steps based on a 20% delay in two or more developmental domains, with another 20% qualifying due to a 25% delay in one developmental domain, and the remaining 10% qualify due to a medical diagnosis.

Interviews were completed with 113 former First Steps families: 66 White families and 45 Black families. Of the White families interviewed, 55 had stayed in the program as long as the child was eligible and 11 had exited early. Of the Black families, 33 of the families had stayed in as long as the child was eligible and 12 had exited early. The response rate overall was 13%. The response rate for families who stayed in was 19%. The response rate for families who exited early was 11%.

In addition to family interviews, we conducted 15 provider interviews: 10 with agency directors, 10 with White providers and 2 with Black providers (we were unable to recruit additional Black providers).

Results and Recommendations:

- Overall, the First Steps system under-serves Black families compared to what we would expect based on census data. This does vary by cluster, with Cluster A over-serving and Clusters F, H, I, and J underserving.
- Physicians (the largest referral source for First Steps other than families) are less likely to refer* Black children than White children. Social service agencies are more likely to refer Black children than White children. This finding is present regardless of cluster or income level.

* For this paper, referrals are defined as referrals that move to intake. We do not have race data for referrals that do not continue to intake

- First Steps enrolls Black children approximately half a month older than White children which leads to less time in the system.

• ***Recommendation:** Share this data with SPOEs and LPCCs. Be sure that race is a consideration when planning child find strategies. Consider centering Black families in materials, images and examples while implementing child find strategies at physician's offices. Also, focus on strategies for raising awareness with Black families directly (e.g., hiring Black families who have gone through First Steps to be community/neighborhood ambassadors, visiting predominantly Black churches). In addition to other efforts, consider identifying Black families who have been through First Steps to record brief videos sharing their positive experiences.*

- First Steps is more likely to complete an IFSP with White families than Black families. This finding is true whether the referral comes from Division of Child Services (DCS) or not.

***Recommendation:** Since Black children are not exiting due to lack of eligibility more than White children, more research is needed to determine why IFSPs are being written at a lower rate for Black families than White families. Does it relate to service availability? Family choice?*

- First Steps is more likely to authorize Black families than White families for no services on the IFSP.
- First Steps is less likely to provide services within 30 days of initial authorization for Black families than White families.

Recommendation: *More research is needed to determine why this is occurring (e.g., provider shortages in certain areas, provider unwillingness to serve certain areas, family choice).*

- Black families use a lower percentage of services for which they are authorized than White families.

Recommendation: *The data also shows that Black families have more variation in the utilization of services than White clients. Next steps may include exploring the families with low utilization rates for both groups and identifying factors that may play a role. Do families have unfilled basic needs? Is First Steps addressing their priorities? Motivational interviewing techniques may be helpful here.*

- First Steps also loses Black families earlier than White families. This effect differs by cluster with Cluster F losing Black families earlier and Cluster J keeping them longer.
- First Steps loses more Black families through early exit (i.e., choosing to leave First Steps when they are still eligible) than White families. Income level also plays a role with higher income families more likely to stay in the program and lower income families more likely to exit. Additionally, Black families are more likely to withdraw passively (i.e., stop responding, no-show) versus actively (stating that they want to exit).

“We were trying to find a place to live because we were evicted and there were no shelters available. Then he went to live with his god-mom. We had a lot going on. I believe they cancelled our services because of missed appointments. I wish they had been more flexible with our situation. A referral to a housing agency would be very helpful.”

Recommendation: *Review Service Coordination caseloads and responsibilities. Do Service Coordinators have the capacity to engage in supportive problem-solving with families around basic needs and competing priorities? Regarding passive withdrawal, review Service Coordination procedures for families who are non-responsive. How are those families approached? If we know that Black families are more likely to passively withdraw from services, what additional approaches or efforts could be applied*

- At first glance, it appears that First Steps helps White families reach higher outcomes than Black families. However, when other factors related to referral, service provision and utilization are held constant, differences in outcomes are no longer statistically significant.

***Recommendation:** Be cautious not to perpetuate the idea that child outcomes differ due to race. Instead, carefully craft statements that reflect that Black families are having different experiences throughout the early intervention system and these differences are interfering with the system's ability to support these families. In addition to being careful with language, this finding highlights the importance of continuing to study and address the other system factors (i.e., referral sources, referral age, IFSP development, service utilization and withdrawal rates) to improve outcomes.*



Introduction

Racial inequities exist in all systems, including social service systems mandated to support all families regardless of race. One such system is the federally funded Part C early intervention program that provides home visiting services to families of infants and toddlers with developmental disabilities. Because Part C programs exist in all states and territories, a systematic investigation of racial inequities in Indiana could provide a baseline and template for further investigations of a program that serves over 400,000 families nationwide each year. Indiana's Part C program, First Steps, serves over 20,000 families each year in their home, offering an array of services (e.g., speech, physical, occupational, and developmental therapy) at little or no cost based on family income. While differences between White and Black families have been included in federal reports (e.g., child outcomes, rates of early exit), these differences have never been systematically examined to determine if major inequities exist across the First Steps system. State leaders have not had the capacity to gather qualitative data in the past.

A Racial Justice Research Grant from Indiana University was awarded to the Early Childhood Center in 2020. The purpose of the grant was to gather and analyze data in new ways. This study examined First Steps through an equity lens and determine how well the program engages both Black and White families at each major step in the service system, including initial access to the system through referrals, the initial intake process, child evaluation and eligibility determination, development of individual service plans, service provision, and system exit. Because past quantitative analyses of child outcome data suggest that the largest disparities exist between Black and White families, we focused on Black and White families for this study. We hope to expand this research to include Latinx, Asian and multiracial populations in the future.

Methods

We used a mixed methods design. We began by focusing on quantitative data available from First Steps. First Steps has a comprehensive data system. We investigated the relationships between race and (a) referrals, (b) service provision, and (c) service utilization using a variety of statistical analyses.

For the qualitative portion of the study, we hired a White woman to do the interviews with White families and a Black man to do the interviews with Black families. We selected potential participants from White and Black families in each of the nine regions (clusters). The sample was also selected based on whether the family had stayed in First Steps as long as they were eligible or exited early. We sent introductory letters to all possible participants. Interviewers then began calling and texting families to request their participation. Every family was contacted three times. Interviewer credentials were shared and additional information about the study was provided via email and/or text upon request. Some families were referred to the study's primary investigator to alleviate concerns prior to participating. Interviews were done at the day and time of the family's choosing. Families were compensated \$20 for their participation.

Following the family interviews, and analyses of both the quantitative and family interview data, researchers interviewed professionals in the First Steps system, including program administrators, White direct service providers who are working with Black and White families, and Black providers. All providers will be asked about their experiences working with Black and White families and their experiences working within a primarily White system. Upon completion of family and provider interviews, interviews were entered into NVIVO, which is a qualitative analysis software application designed to identify predominant themes among the responses.



Sample

Our dataset consists of 43,588 children who received First Steps services between 2016-2019 in Indiana. All years from 2016 to 2019 are equally represented, with about 10,000 children being served each year.

Approximately 14% of the children in our sample are Black; the remaining children are White (First Steps serves children of other races, but this study is only comparing White and Black children).

Participants from all clusters were included. Cluster G is the largest region, serving 29% of children in First Steps. Clusters A, B, and I each serve just over 10% of the population, and Clusters C, D, F, H, and J all serve less than 10%.

Interviews were completed with 113 former First Steps families: 66 White families and 45 Black families. Of the White families interviewed, 55 had stayed in the program as long as the child was eligible and 11 had exited early. Of the Black families, 33 of the families had stayed in as long as the child was eligible and 12 had exited early. The response rate overall was 13%. The response rate for families who stayed in was 19%. The response rate for families who exited early was 11%.

In addition to family interviews, we conducted 15 provider interviews: 3 with agency directors, 10 with White providers and 2 with Black providers (we were unable to recruit additional Black providers).

Results and Recommendations

Before beginning analysis, we verified that no differences existed in the percentages of Black and White children under the age of 3 in the census data between the years of 2016-2019. In all four years, residents were similarly distributed at approximately 85% White and 15% Black (Chi square = 1.407; p-value = 0.50). Percentages of Black and White children under 3 have been extremely steady year over year within clusters, as well, with no statistically significant differences found in percentages of Black or White within any cluster between 2016 and 2019. This means that we can safely assume there are no year effects that must be controlled in using multiple years of data for our analyses.

We find that the percentage of Black clients is significantly lower in the First Steps group than in the census, at 14.3% Black in First Steps versus 14.9% Black in the Census (Chi square = 12.886; p-value < 0.001). In other words, Black children are underrepresented in First Steps, even when accounting for their lower percentage in the population. The difference in the percentage of Black clients in First Steps versus the Census varies within clusters. Clusters A, C, F, H, I, and J are statistically significant. Cluster A has significantly more Black clients than predicted by census numbers, while Clusters C, F, H, I, and J have significantly fewer Black clients than predicted by census numbers.

Univariate analyses

As a preliminary step in our analysis, we performed Chi square tests or ANOVAs for race with each variable of interest separately, to determine the strength and direction of these univariate relationships. The purpose is to be able to recognize any unusual interactions between the variables in more complex models. In fact, most all the univariate relationships described here held up even when introduced together.

Relationship between race and referrals. We first investigate the relationship between race and variables related to the client's initial referral to First Steps, including the source of referral, age at referral, whether an IFSP was completed, whether the initial IFSP was completed in a timely manner, whether the client was initially authorized for no services, and the percentage of clients authorized for services.

Referral source. We only have referral data for families who complete an intake appointment. Thus, the substantial number of referrals made that do not lead to an intake are not captured in the data or in this report. For those families who complete intake, we find that race significantly impacts referral source (Chi squared = 226.420, p-value < 0.001), with many more White clients entering the system referred by a physician, and many more Black clients entering the system referred by social services. See Table 1.

Table 1. Referral Source Percentages by Category

Referral Source	Black	White
Family	40.9%	41.3%
Physician	35.9%	42.1%
Social Services	13.1%	8.1%
Other	3.3%	2.3%
Hospital	3.1%	2.9%
Home Visitor	2.2%	2.1%
Child Care	1.6%	1.2%

Most referrals are made by a family member, by a physician in a non-hospital setting, or by a social service organization.

-
- **Recommendation:** *Share this data with SPOEs and LPCCs. Be sure that race is a consideration when planning child find strategies. Consider centering Black families in materials, images and examples while implementing child find strategies at physician's offices. Focus on strategies for raising awareness with Black families directly. In addition to other efforts, consider identifying Black families who have been through First Steps to record brief videos sharing their positive experiences.*
-



Because the number of referrals by physicians and social service organizations is so different between the races, we further investigated these two categories using a Chi square test. Within social services, most referrals come from the DCS office, which tend to be for Black clients. Most physician referrals come from primary care doctors, who tend to refer White clients. These differences are statistically significant ((Chi squared = 350.888, p-value < 0.001). See Table 2 and Table 3.

Table 2. Social Services Referral Source Percentages by Type

	Black	White
DCS Office	18.9%	12.6%
Education Agency	.5%	.2%
MCH Clinic	0%	.1%
Social Service Agency	4.9%	1.5%
State Operated Facility	0%	.1%
WIC	.6	.9%

Table 3. Physician Referral Source Percentages by Type

	Black	White
Physician-Primary Care	67.9%	80.2%
Physician-Other than Primary Care	5.5%	3.6%
Public Health Nurse	1.8%	.8%

Age at Referral. White children enter the system significantly earlier than Black children ($t = 3.244$; $p\text{-value} = 0.001$). The average White client who enters the system is referred at 17.19 months of age, almost half a year earlier than the average Black client, who enters the system referred at 17.61 months.

IFSP Completed. Black clients are less likely to have completed an IFSP (59.7% versus 73.4% for White clients; Chi square = 484.165, $p\text{-value} < 0.001$). We hypothesized that IFSPs may not be completed as often for Black clients because they are more likely to have received an automatic referral due to involvement with DCS, in which case there may be no evidence of need for services. We find that Black clients are less likely to complete the IFSP regardless of whether the referral came from DCS. We would expect to see higher numbers for Black children if the lower IFSP completions were related to lack of need. Instead, we see lower numbers for “no need for services” for Black children at exit, which suggests that this difference in IFSPs completed is not due to ineligibility.

Recommendation: *Since Black children are not exiting due to lack of eligibility more than White children, more research is needed to determine why IFSPs are being written at a lower rate for Black families than White families. Does it relate to service availability? Family choice?*

Timely Initial IFSP. We find no significant difference in the likelihood of a timely initial IFSP based on race (mean difference = 0.6%; $t = 1.54$, $p\text{-value} = 0.115$)

Initial Authorization for No Services. Black children are significantly more likely (Chi-square = 5.605, $p\text{-value} = 0.018$) to be authorized for no services compared to White children (6.7% for Black children versus 5.7% for White children).

Percent Authorized for Services. Black families are less likely than White families to utilize the services authorized at a statistically significant level (mean difference = 1.70%; $t = 5.159$, $p\text{-value} < 0.001$). For each service a child is to receive in First Steps, they must first be authorized for that service (and, depending on how long they are in First Steps, they must be reauthorized annually). The variable “Percent Authorized for Services” is a measure of how many services a child utilized as a percentage of the number of services the child was authorized (or reauthorized) to receive. Black children in this sample utilize the services for which they are authorized or reauthorized 91.6% of the time, on average, while White children utilize the services for which they are authorized or reauthorized for services 93.3% of the time.

Furthermore, there is more variation in the utilization of authorization for services among Black clients than among White clients (i.e., the White clients are a more homogeneous group; standard deviations are 16.6% and 19.0% for White and Black clients, respectively).

Recommendation: The data also shows that Black families have more variation in the utilization of services than White clients. Next steps may include exploring the families with low utilization rates for both groups and identifying factors that may play a role. Do families have unfilled basic needs? Is First Steps not fully understanding or addressing their priorities? Motivational interviewing techniques may be helpful here.



Relationship between race and service provisions. We next investigate the relationship between race and variables related to the client's service provisions within First Steps, including the number of initial service types authorized, the total number of service types utilized, and whether services are delivered in a timely manner.

Initial Service Types. Clients in the dataset are initially authorized for between 0 and 4 service types (e.g., speech therapy, physical therapy, developmental therapy), with most clients (Black or White) being authorized for just one. However, Black clients are authorized for two or more services more often (mean difference .083 service types; $t = 7.64$, $p\text{-value} < 0.001$). Furthermore, there is more variation in the initial number of service types among Black clients than among White clients (i.e., the White clients are a more homogeneous group; standard deviations are 5.55 % and 6.26 % for White and Black clients, respectively).

Total Service Types. Likewise, among those who utilize services, Black clients utilize more types of services than White clients (mean difference = 0.11 service types; $t = 6.94$, $p\text{-value} < 0.001$). See Chart 2.

Timely Services. The Timely Services variable is a measure of the number of services utilized within 30 days as a percentage of the number of services initially authorized. Here we find that White children are more likely to receive authorized services in a timely manner than Black children, all else equal, in our dataset (mean difference = 3.3%; $t = 5.090$, $p\text{-value} < 0.001$). Once again, there is more variation in the percentage of timely services among Black

clients than among White clients (i.e., the White clients are a more homogeneous group; standard deviations are 32.7% and 35.6% for White and Black clients, respectively).

Recommendation: More research is needed to determine why this is occurring (e.g., provider shortages in certain areas, provider unwillingness to serve certain areas, family choice).



Relationship between race and service utilization.

We next investigate the relationship between race and variables related to the client's service provisions within First Steps, including the total time spent in First Steps and the number of

Service Hours received, both in total and per month on average. **Time in First Steps.** Black children spend an average of 0.40 months less in First Steps than do White children. This difference is statistically significant ($t = 2.969$, $p\text{-value} = 0.003$).

Summary of Univariate analyses:

Many of our univariate analyses reveal potential bias that leans in favor of white children. Black children are: (a) less likely to be referred by their primary care physician, which is the number one referral source for First Steps; (b) are underrepresented in First Steps overall and in five clusters, and only overrepresented in Cluster A; (c) enter First Steps approximately half a month older than White children, which means they also spend less time in First Steps, on average; (d) are less likely to have completed an initial IFSP, regardless of whether or not the referral came from DCS; (e) are more likely to be authorized for no services; (f) utilize a lower percentage of services for which they are authorized; and (g) are less likely to utilize services within 30 days of initial authorization (i.e., “timely services”). On the positive side, Black children are more likely to be authorized for more services initially and are more likely to utilize more types of services during their time in First Steps. Service hours are also evenly distributed when time in the program is considered, though this may not be sufficient given that Black clients tend to be receiving more service types (i.e., they still receive less service hours per service type).

Relationship between race and retention

When a child enters First Steps, there are several stages through which they move, from Intake to Evaluation to the IFSP, where authorization for services takes place. Once a child has completed these stages, services begin and continue until the child transitions out of First Steps. For the early and ongoing retention analyses, we analyze the impact of race on retention during these phases.

Early Retention. For early retention, we consider three steps from referral to services: children can exit after the intake but before the evaluation, after the evaluation but before the IFSP, or after the IFSP. We first look at the univariate relationship between race and exit stage using a Chi-square test and find that race is a significant predictor of exit stage ($\chi^2 = 625.95$, $p\text{-value} < 0.001$). We then look at the impact of race within each cluster to determine if some clusters are retaining Black clients at a higher rate. Chi-square tests show that race is a significant predictor of exit stage, with Black clients exiting sooner in every cluster except F and J, where differences between races do not significantly predict exit stage.

Next, we look at the odds a client is Black or White, based on their exit stage, controlling for income and region.

We find that children who exit later in the program are more likely to be White (odds ratios for leaving in Stage 2, after evaluation, is 1.36 and for leaving in Stage 3, after IFSP, is 1.56 with both p-values < 0.001). Children with an additional standard deviation of income over the average income are nearly three times as likely to be White, and children are more likely to be White if they come from any other location than Cluster G.

Because the odds for exit reason increase for White children and decrease for Black children with each additional stage, we also use a linear regression with exit reason treated as a continuous variable, where a higher number indicates a child made it through more stages of early retention. Here we find that Black children are significantly more likely to exit at an earlier stage than White children (t-stat = -11.50, p-value < 0.001), and children with higher income are more likely to exit at a later stage (t-stat 21.00, p-value < 0.001). Children from Cluster J tend to make it through the most stages, followed by children from Cluster I, then H, F, B, G, A, and D.

Ongoing retention. We now investigate the relationship between race and variables related to retention in First Steps, including the number of visits (total and average per month) and the number of service hours received (total and average per month) when controlling for region. We use a Cox proportional hazard model with race as the predictor, including controls for Income and cluster, to consider how race impacts the likelihood of a child making it each additional month in First Steps.

Number of visits. We find that the number of visits received by Black children is not significantly different than the number received by White children (t = 2.584, p-value = 0.060). However, in an ANOVA that also considers the region of the child, Number of visits is significantly different based on the child's race (F = 14.807, p-value < 0.001). The estimated means suggest that, controlling for region, Black children receive an average of 41.8 visits to White children's 45.3 visits. A closer analysis of the average number of visits within each cluster reveals that Black clients receive less visits on average in eight of nine clusters; the biggest disparity is in Cluster F, where Black clients receive only about half as many visits (difference of 22.48 visits). Only in Cluster J do Black clients receive more visits, on average (9.57 more, on average). See Table 4.

Table 4. Average Number of Visits by Black and White

Cluster	White	Black	Difference
A	47.97	41.83	6.14
B	39.67	38.12	1.55
C	46.52	44.28	2.24
D	35.44	29.43	6.01
F	48.29	25.81	22.48
G	50.71	48.23	2.48
H	49.32	41.59	7.73
I	47.45	43.27	4.18
J	42.66	52.23	-9.57

Number of hours. We find that the number of hours received by Black children is significantly different than the number received by White children ($t = 2.095$, $p\text{-value} = 0.036$). In an ANOVA that also considers the location of the child, Number of hours further increases in significance ($F = 12.855$, $p\text{-value} < 0.001$). The estimated means suggest that, controlling for region, Black students receive an average of 42.2 hours to White children's 45.4 hours. In every cluster except J, Black children receive less service hours. The biggest disparity is in Cluster F, where Black clients receive only about half the service hours. In Cluster J, Black clients receive more hours of service. See Table 5.

Table 5. Average Number of Service Hours

Cluster	White	Black	Difference
A	48.22	42.73	5.50
B	40.28	38.79	1.49
C	46.98	45.54	1.43
D	35.61	29.53	6.08
F	49.64	26.69	22.94
G	49.20	46.86	2.34
H	50.10	44.32	5.78
I	46.69	41.84	4.86
J	42.48	51.88	-9.40

What is driving these differences in service hours across clusters? It seems to be the age at exit. Cluster F loses Black families earlier compared to White families. Cluster J keeps Black families longer than White families. See Table 6.

Table 6. Age at Termination by Cluster

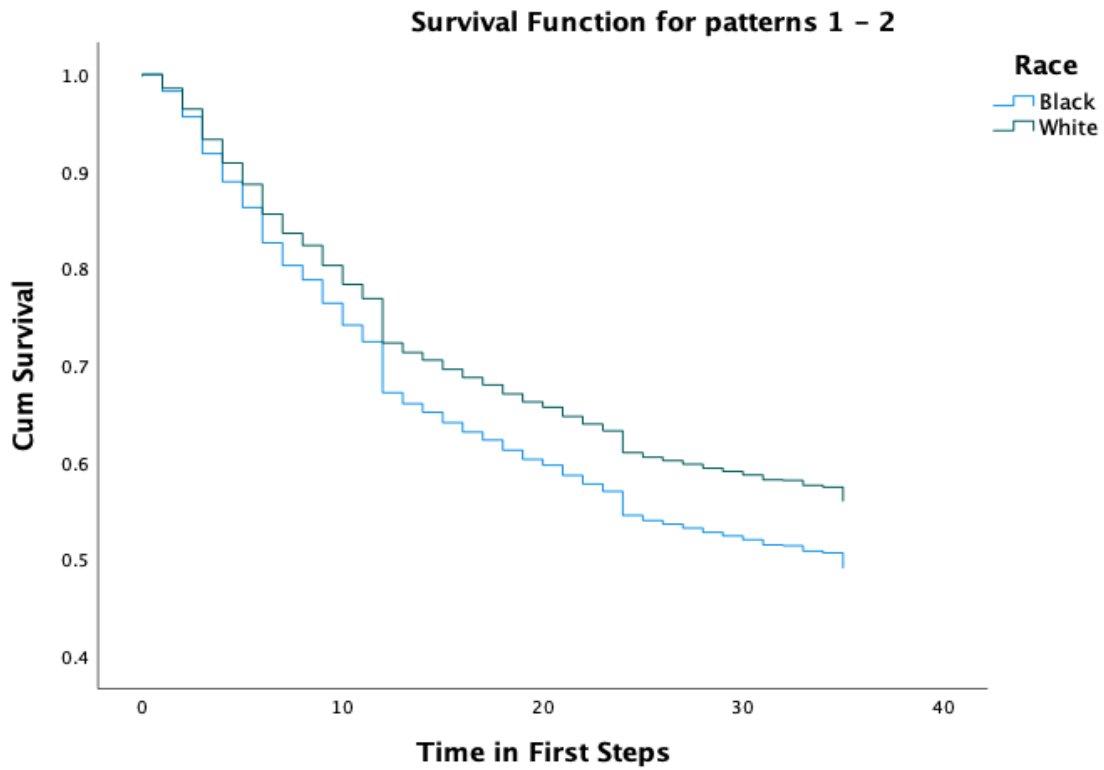
Cluster	Black	White	Difference
A	26.25	27.3	-1.05
B	24.86	26.09	-1.23
C	27.17	28.27	-1.1
D	24.37	26.1	-1.73
F	24.61	26.49	-1.88
G	24.68	25.98	-1.3
H	25.66	26.92	-1.26
I	27.06	28.05	-0.99
J	28.45	26.82	1.63

Survival analysis. Another way to investigate retention is to use a Cox proportional hazard model, which estimates the likelihood of a child exiting early out of First Steps at any time along his or her trajectory. In this case, we code exit reasons as 1 if a child has a exit reason of active or passive withdrawal, a 0 if they “age out” of First Steps (i.e., enter special education). All other exit reasons are ignored, since they represent situations wherein the child’s family has no control over whether they continue in the program. Since some exit reasons are missing from the data, we first verify that there is no systematic pattern to the missing data. It appears that Cluster G is the main culprit in the missing data, followed by Cluster J. However, there do not seem to be patterns to indicate that there is a bias toward missing data for either race. Hence, we proceed with the hazard model.

The results of the model indicate that Race, Income, and the interaction of Race with Income are all significant predictors of whether a child will exit early from First Steps due to Active or Passive Withdrawal versus complete the program. If a child is Black, his or her odds of exiting early in the subsequent month increase by 26% (Odds ratio 1.26, p-value < 0.001) over those of a White child. For every additional one standard deviation of income (over the average level of income in the sample), a White child is slightly less likely to exit early from First Steps in the following period (Odds ratio = 0.84, p-value < 0.001); this represents a 19% increase in completing the following month. If a child is Black, the same one standard deviation increase in family income has an even bigger impact on continuation in First Steps the next month (Odds ratio = 0.81, p-value = 0.004), increasing the likelihood of continuing by 24%.

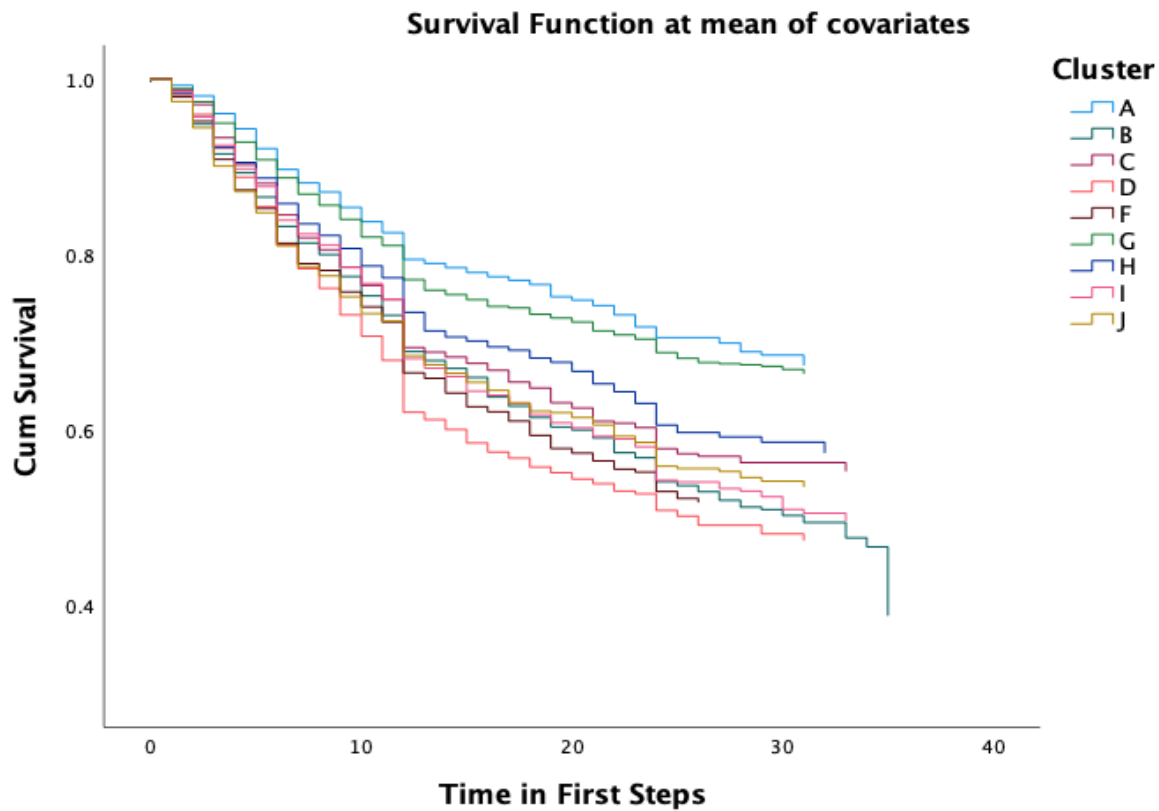
We see in the image of the survival function that Black children begin exiting early at a faster rate than do White children due to active or passive withdrawal within just one month of entering First Steps. There are big drops for both races at the 1- and 2-year marks, but the gap between the two continues to increase as time goes on, indicating that the exit-early rate of Black children is not simply higher at first and then tracking along with the White children (lines become parallel); rather, the exit-early rate continues to accelerate for Black children throughout their time in First Steps. See Chart 1.

Chart 1. Exit from First Steps Over Time by Race



The “survival” rate is not the same within clusters; Clusters A and G seem to be better in general at retaining clients, while Clusters D seems to face drop-offs relatively quickly, especially after the first year. See Chart 2.

Chart 2. Exit from First Steps by Cluster



However, the pattern between Black and White children is the same in every single cluster, with Black children exiting earlier and at ever increasing rates. See Appendix 1 for individual cluster survival function charts.

Multivariate analyses

The next step in our analysis is to investigate which of these variables are significant when placed together in a model. We compare the strength and direction of these results with the univariate findings described earlier.

A logistic regression model is developed to “predict” the odds of a child being Black based on their referral experience, service provisions, and service utilizations. All analyses include controls for location and income.

Relationship between race and referrals, service provisions, and service utilizations.

To be included in the full model, we require a variable to be significant in both the univariate analyses and multivariate analyses. The full model includes (a) the referral variables: Age at Referral, Referral Source, and Percent Authorizations to Service; (b) the service provision variables: Initial Service Types and Timely Services; and (c) the service utilization variables: Exit

Reason, Eligibility, Total Service Types, and Time in First Steps. As with the other multivariate models, this analysis includes controls for location and income.

Multivariate analyses showed that:

- Black children are less likely to be referred by a physician overall, and twice as likely to be referred by childcare than a physician (odds ratio = 2.02, p-value < 0.001).
- As age increased by one standard deviation over the average age at referral, the odds the child is Black children increase by 16% (p-value < 0.001).
- Black children are more likely to have more initial service types (odds ratio =1.24 , p-value < 0.001).
- Black children are less likely to have Timely Services (odds ratio = 0.55, p-value < 0.001).
- Black children are more likely to terminate due to Passive Withdrawal or Transiency compared to Active Withdrawal (odds ratios = 1.61 and 1.42 with p-values < 0.001 and 0.003, respectively).
- Black children are less likely to withdraw due to lack of need for services (odds ratio = 0.67, p-value < 0.001).



Recommendation: Review Service Coordination caseloads and responsibilities. Do Service Coordinators have the capacity to engage in supportive problem-solving with families around basic needs and competing priorities? Regarding passive withdrawal, review Service Coordination procedures for families who are non-responsive. How are those families approached? If we know that Black families are more likely to passively withdraw from services, what additional approaches or efforts could be applied?

Progress. In this section, we explore the role of race in a child's improvements in gross motor, self-care, cognition, and language communication skills as measured at exit. We also use t-tests and logistic regressions.

Substantial social progress. In a univariate analysis of substantial social progress, we find that Black children significantly underperform their White peers (t-stat = 8.894, p-value < 0.001), with a mean difference of 10.7% (58% of White children and 47% of Black children attain substantial social progress).

However, when other factors are considered, race is no longer a significant predictor of progress. For the multivariate analysis, we use all variables that were shown to be significant predictors of race in the univariate analyses (i.e., source of referral, age at referral, IFSP completed, initial authorization of no services, # of initial service types authorized, timely 30 day start, total time in FS, total # of service hours received, total # of service types utilized, termination reason, eligibility reason), and we also include their interactions with race.

“WHEN OTHER FACTORS ARE CONSIDERED, RACE IS NO LONGER A SIGNIFICANT PREDICTOR OF PROGRESS.”

All else held equal, Black children in this model are equally likely to make substantial social progress as their White peers (odds ratio = 0.960, p-value 0.885). This indicates that the univariate result suggesting underperformance by Black clients can be better explained by other variables that are also impacted by race (see above), nullifying the univariate finding.

Other findings from the multivariate analyses include:

- Family income increases the likelihood a child will make substantial progress on the social emotional outcome, with a one standard deviation increase in income increasing the odds of making substantial social progress by 8.8%. While income increases odds for White children, it lowers the odds for Black children.
- Referral source impacts likelihood of progress, with clients referred by social services outperforming those referred by physicians and those referred by physicians outperforming those referred by hospitals. This may be due to the types of issues seen by the various referral sources. See Table 7.

Table 7. Referral Source by Eligibility Type

Referral Source	20% Delay in 2 or more Developmental Domains	25% Delay in 1 Developmental Domain	Medical Diagnosis	No reason given
Hospital	23%	7%	32%	39%
Child Care	52%	13%	3%	32%
Family	53%	15%	7%	25%
Home Visitor	53%	11%	10%	27%
Physician	52%	15%	6%	28%
Other	50%	9%	14%	26%
Social Services	36%	7%	6%	51%

- Cluster impacts the likelihood of progress, with Cluster F outperforming Cluster G and Cluster G outperforming Clusters A, B, D, and H.

The same analyses were done with the variable age-appropriate social skills and the same pattern of results were found.

Summary of Multivariate Analyses of Progress Variables

In summary, all measures of progress are lower for Black children than for White children, but the impact of race is nullified by considering other factors that impact a child's referral (source, age), service provisions, and service utilization. By considering mitigating factors, race loses statistical significance as a predictor for progress with odds ratios ranging from 0.727 to 0.960 and p-values from 0.226 to 0.885. With all measures of progress, income has a positive impact for White children and a negative impact for Black children.

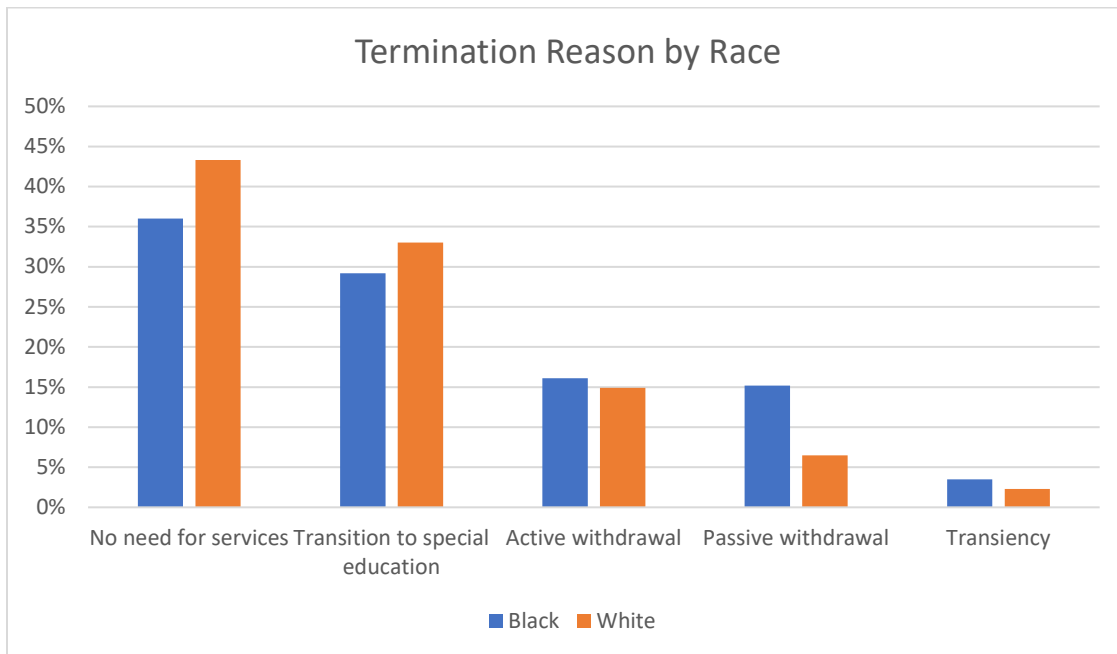
Recommendation: Be cautious not to perpetuate the idea that child outcomes differ due to race. Instead, carefully craft statements that reflect that Black families are having different experiences throughout the early intervention system and these differences are leading to lower outcomes. In addition to being careful with language, this finding highlights the importance of continuing to study and address the other system factors to eliminate the differences we found in referral sources, referral age, IFSP development, service utilization and withdrawal rates.



Exit from First Steps. For the analysis of transitions, we use logistic regressions to investigate the impact of race on exit reasons and whether children in need ultimately move into special education services upon aging out of First Steps.

Impact of Race alone. Children are most likely to transition from First Steps because they have no need for services (42.2%) or because they enter Special ed (32.5%). Compared to their White peers, Black children are more likely to have an active or passive withdrawal, or withdraw due to transiency (chi-square = 645.889, p-value < 0.001). See Chart 3.

Chart 3. Termination Reason by Race



In the logistic regression of exit reason, we learn that if a child withdraws due to No need for services, the child is more likely to be White (odds are $1/0.770 = 1.299$). If the child has a passive withdrawal, they are more than twice as likely to be Black as White, and if the child leaves due to Transiency, they are about 40% more likely to be Black as White. Transitioning to Special ed is more likely to be the exit for a White child.

Impact of Race and IFSP completion. We next consider whether the completion of an IFSP explains the differences we see in exit reason. For example, it is possible that most of the children who terminate the program prior to graduating to Special Ed do so before the IFSP is even completed. Comparing the two graphs, we see that nearly all the children who eventually transitioned to Special Ed had completed the IFSP, while percentages for other exit reasons are about 10% higher for active and passive withdrawals with no IFSP and about 20% higher for exits due to No need for services if an IFSP was completed. However, the patterns for Black and White children are similar within both IFSP groups: probability of active withdrawal is about equal, probability of No need for services is higher for White children, and probability of Passive Withdrawal, Special Ed, or Transiency are all higher for Black children, regardless of whether an IFSP was completed. A logistic regression confirms these findings.

Impact of Race and DCS referral. We next consider whether referral by DCS explains the differences we see in exit reason. For example, it is possible that most of the children who exit the program due to active or passive withdrawal or a lack of need for services do so because they were referred by DCS automatically, without any indication of need (beyond DCS being involved with the family). Comparing the two graphs, we see that indeed there is a higher likelihood of a child exiting because they have no need for services if DCS referred the family.

Furthermore, the patterns for Black and White children differ between the graphs: the probability of active withdrawal is higher for Black children than White without a DCS referral, but opposite with a DCS referral. The pattern is opposite for no need for services, with Black children more likely than White children to exit for this reason if referred by DCS and less likely if not referred by DCS. A logistic regression confirms these findings.

Family Interview Data:

Thematic analysis completed using NVIVO did not reveal racial differences in responses (family interview items listed in Appendix B). Responses revealed that 76% of comments indicated that the First Steps experience was positive while 89% of comments showed that participants saw changes in child development due to First Steps.

“WE WERE COMPLETELY INFORMAL AND COMFORTABLE. IT WAS JUST EASY. IT WAS LIKE A FRIENDSHIP AND SO IT WAS ENJOYABLE.”

When asked about their initial impressions of First Steps, prior to entering the system, 52% of comments indicated that families didn't know about First Steps. 42% of families entered due to a pediatrician referral, while 14% entered due to a hospital referral and 10% entered due to having had an older child in the program.

Respondents overwhelmingly appreciated that First Steps is home-based. Only 11% of comments mentioned that they felt nervous at first about having a provider in their home. Respondents perceived providers to be comfortable.

87% of comments indicated that participants felt very comfortable or comfortable sharing information with providers both during intake, assessment and IFSP writing as well as on-going services. 18% of comments centered around why the Service Coordinator reviewed the assessment report with the family instead of the assessment team. 10% of comments for both the IFSP writing and the assessment process requesting that providers explain more about what is occurring and why.

93% of comments indicated that families had a positive relationship with their providers. Most concerns centered around scheduling and availability with 11% of comments regarding on-going therapy indicated a desire for more flexibility with scheduling and 10% of comments requested more consistency and availability of providers.

Only 48% of comments indicated that participants felt very comfortable or comfortable with sharing information at the transition meeting. Comments were evenly split on whether the transition meeting was a positive or negative experience. The only comment regarding what could be done differently involved offering more information and more options. To that end, 43% of comments indicated that participants felt positive about their options after First Steps while 15% of comments indicated that participants felt negative.

Recommendation: *Although there were not race differences in these comments, we recommend exploring the transition process and how information is being shared with all families. Less than half of families felt comfortable sharing information during their transition meeting, which suggests that exploring the inclusion of family-centered practices and LifeCourse principles would be beneficial during this time.*

When asked about the impact of race, only 3% of comments indicated a preference for a provider of the same race. While most comments indicated that race was not a factor (“They were a different race-no impact mainly because of how open and friendly they were”), we want to highlight the 3 Black families who indicated that race made a difference.

“I feel like with people of a different race you have to explain things differently, so it’s not taken out of context. I was careful with my word choices so that I would not be misunderstood or taken the wrong way or have any misunderstandings”

“They were a different race, and it was sort of difficult and I think each race understands their own children. I think it would be better if there were more minorities and people who look like us to motivate people to stick with the program.”

“She [provider] was Black and it made me more comfortable because it was someone that looks like me and my child and I think it made a huge impact. She was also very knowledgeable. It made a huge difference to have at least one person on my team that looked like me.”

“I don't have a problem with race, but I understand how some families would want to at least have the option to have some to work with who looks like you. My son attends a black daycare, and I don't know if race played a role in his mind. He had never really been in contact with white women before and he already was not talking and now we expect him to talk to someone who does not look like him. Again, I don't have a problem with race. I was fine with the therapist, but I don't know what was going on in my son's mind because he was not talking at the time.”

Recommendation: *Share positives from interview data when sharing results with providers. Providers are clearly bridging cultural divides to form relationships with Black and White families. There were very few comments regarding interpersonal challenges related to race.*

Families Who Exit Early

One of the benefits of this study is that it allowed us to attempt to reach families who had chosen to leave First Steps. This is a sample of families we often do not get to hear from. The response rate for these families was lower (11%) than the response rate for families who stayed in the system (19%), so we cannot make assumptions about generalizability or representativeness. However, their answers indicated that their decisions to leave First Steps were not directly related to race.

Among the White families in our sample who exited early, five stated they “no longer needed it”, four expressed frustration with services (e.g., lack of services, long wait, poor experience), and two mentioned family circumstances (e.g., new baby, busy with a move).

When asked what First Steps could have done differently, the only response from a White family was a request for First Steps to be clearer about the family’s option to switch therapists when there wasn’t a good match.

Among the Black families in our sample who exited early, six stated they “no longer needed it” and six stated that there were family circumstances that got in the way.

When asked what First Steps could have done differently, Black families who exited early asked for more flexibility, referrals, more support with life stressors, and that First Steps make more attempts to reach them before cancelling services.

WHEN ASKED WHAT FIRST STEPS COULD HAVE DONE DIFFERENTLY, BLACK FAMILIES WHO EXITED EARLY ASKED FOR MORE FLEXIBILITY, REFERRALS, MORE SUPPORT WITH LIFE STRESSORS AND THAT FIRST STEPS MAKE MORE ATTEMPTS TO REACH THEM BEFORE CANCELLING SERVICES.

***Recommendation:** 45% of White families and 50% of Black families who exited early stated that they left First Steps early because their child no longer needed it (even though their child was eligible). It is possible that Black families had clear ideas about why their children were receiving services and felt comfortable discontinuing, which is acceptable. Alternatively, some families may not understand the developmental issues. This would be worth exploring more—How are providers and/or Service Coordinators explaining on-going eligibility?*

Provider Interview Data:

Provider interviews suggested that most providers (60%) felt that there was an impact when working with Black families, from asking more questions to avoiding “Black” topics, to following their lead to staying neutral. Provider interviews items are listed in Appendix C.

When getting to know families initially, 47% of comments suggested there was no impact. The other 53% of comments included single comments about:

- Black families do not ask Black providers to prove education the way White families do
- Black families may need more reassurance that provider isn’t there to take away children/trust
- More conversation about extended family because Black families may be more connected
- Deal with initial guardedness with Black families

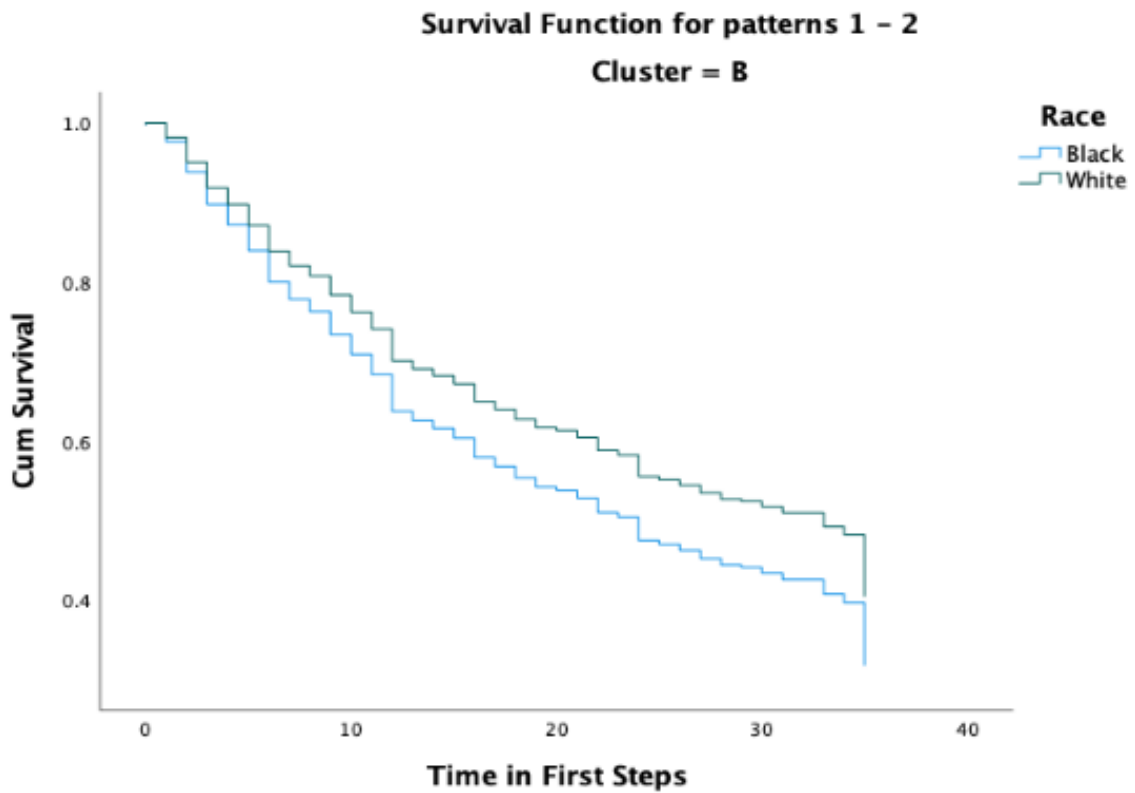
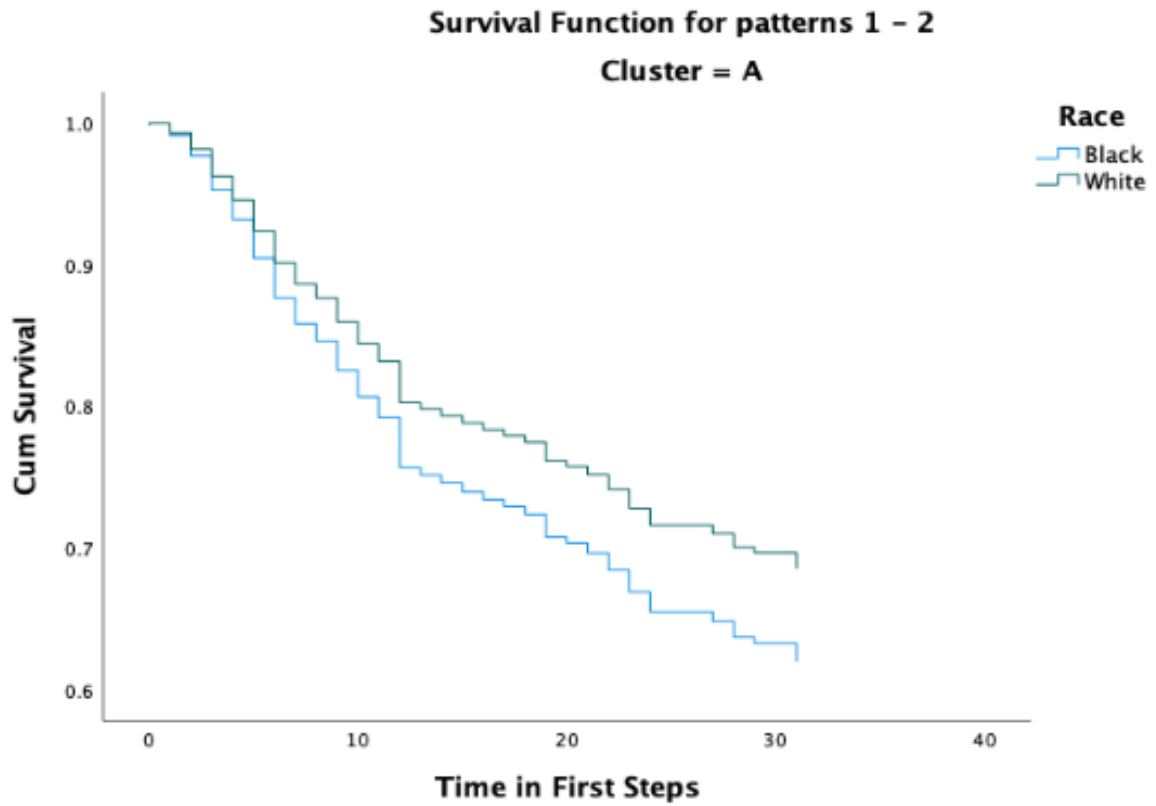
We were only able to speak to two Black providers. Although First Steps does not have data on how many Black providers are in the system, we know anecdotally that the numbers are very low. The two Black providers we spoke with shared the following:

- One comment expressed concern that many therapists won’t serve kids in certain areas
- Two comments focused on the need for the Black provider to “be more polished” (she is asked about her education when her White counterparts are not) and to be careful with language choice with White families
- One comment express regret about the lack of Black peers
- One comment stated that the Black provider has “learned to live with inequity”

“WHITE FAMILIES ARE UNSURE OF ME UNTIL MY WHITE COLLEAGUE SPEAKS HIGHLY OF ME”

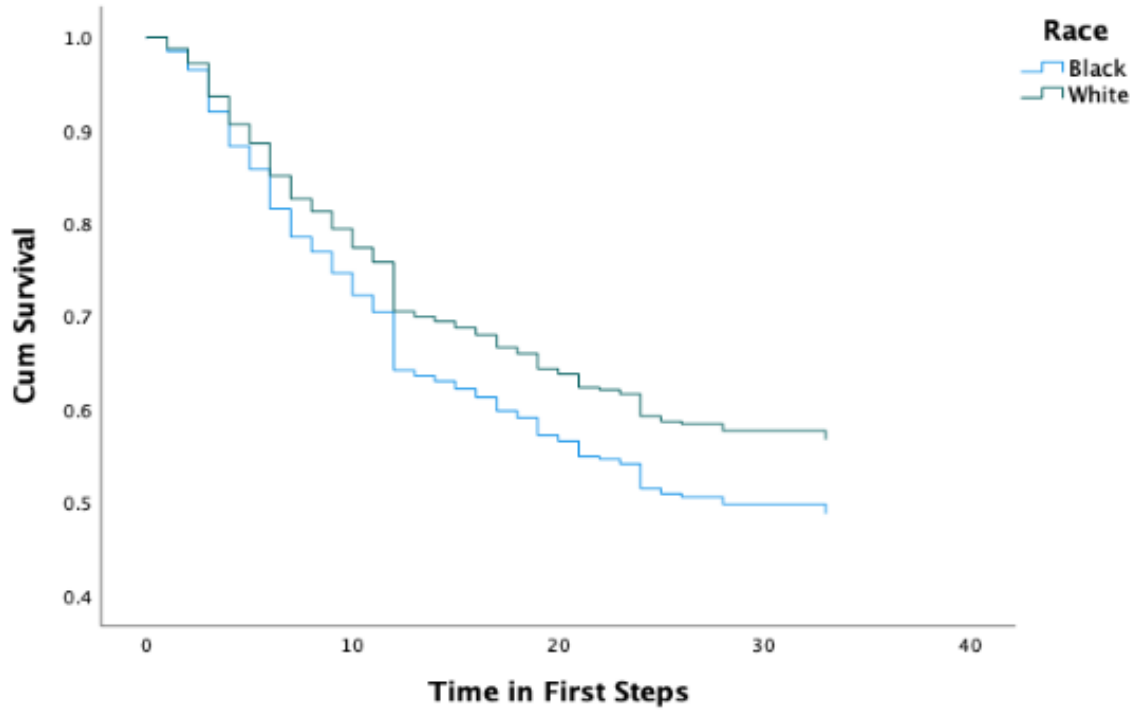
Recommendation: Begin to gather data on provider race statewide. Encourage agencies to seek out Black professional associations to recruit. Consider creating a community of practice for existing Black employees (or employees of color) to discuss their experiences and support one another.

Appendix A. Exit from First Steps by Cluster and Race



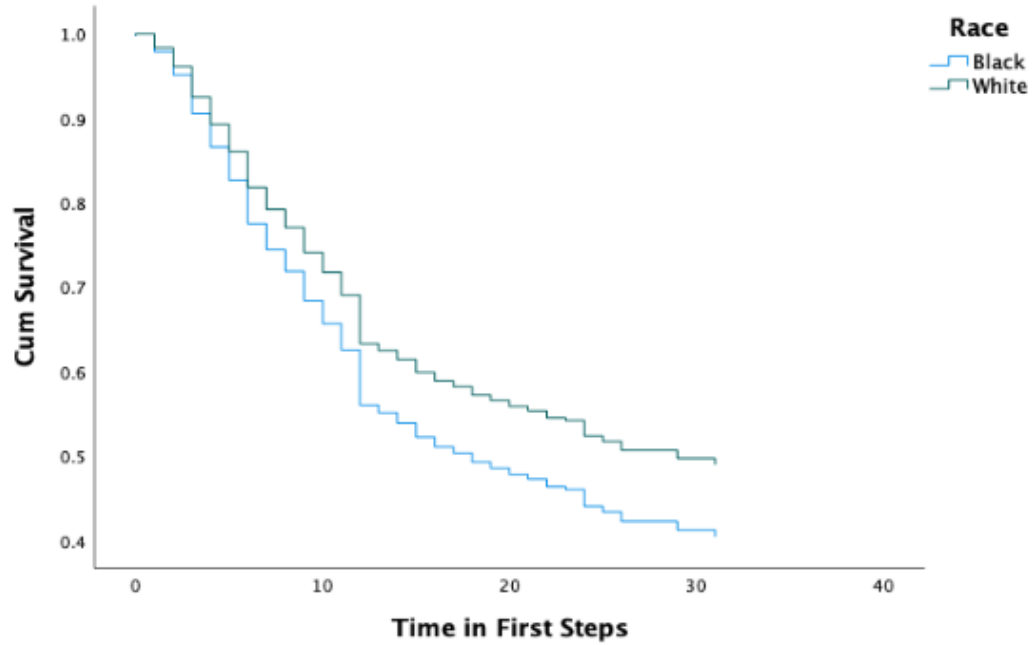
Survival Function for patterns 1 - 2

Cluster = C



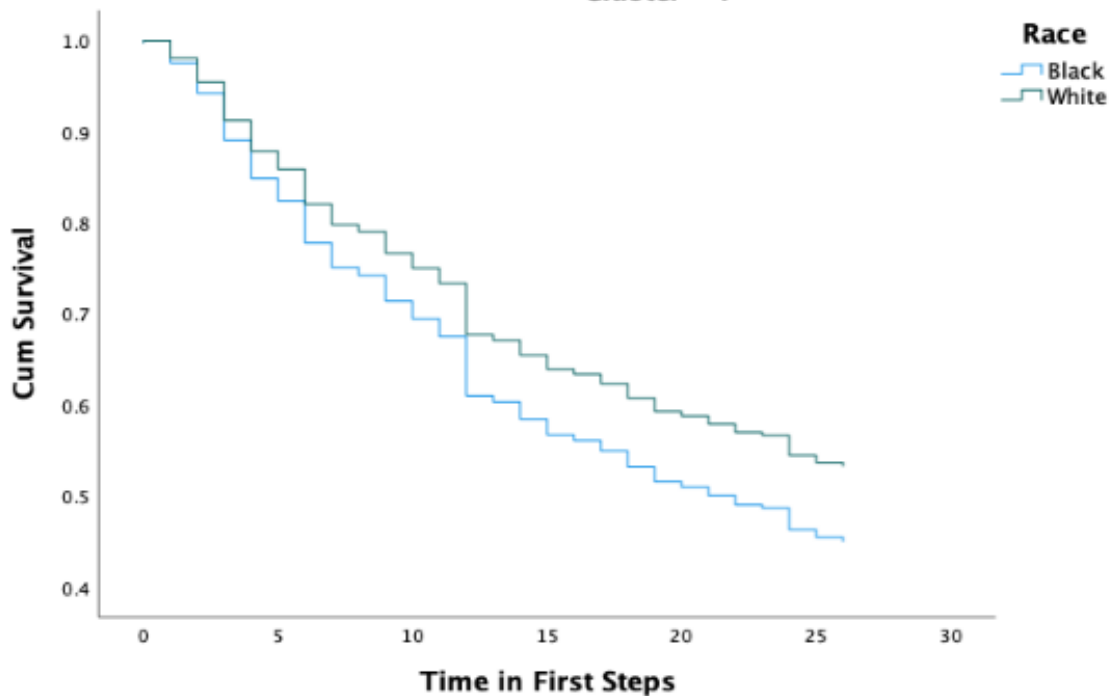
Survival Function for patterns 1 - 2

Cluster = D



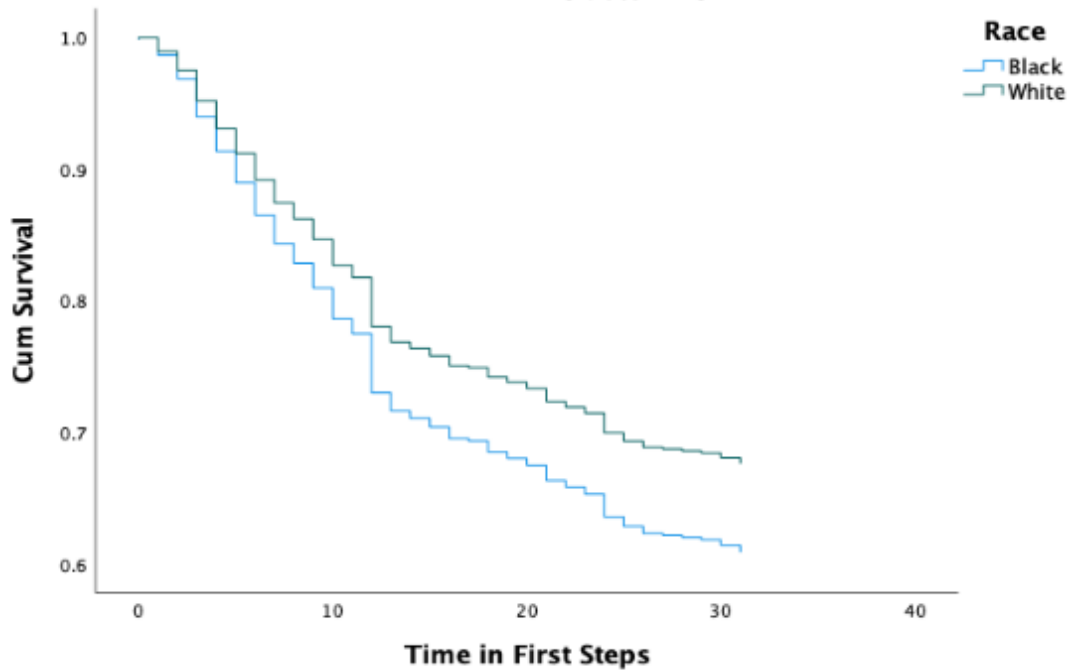
Survival Function for patterns 1 - 2

Cluster = F



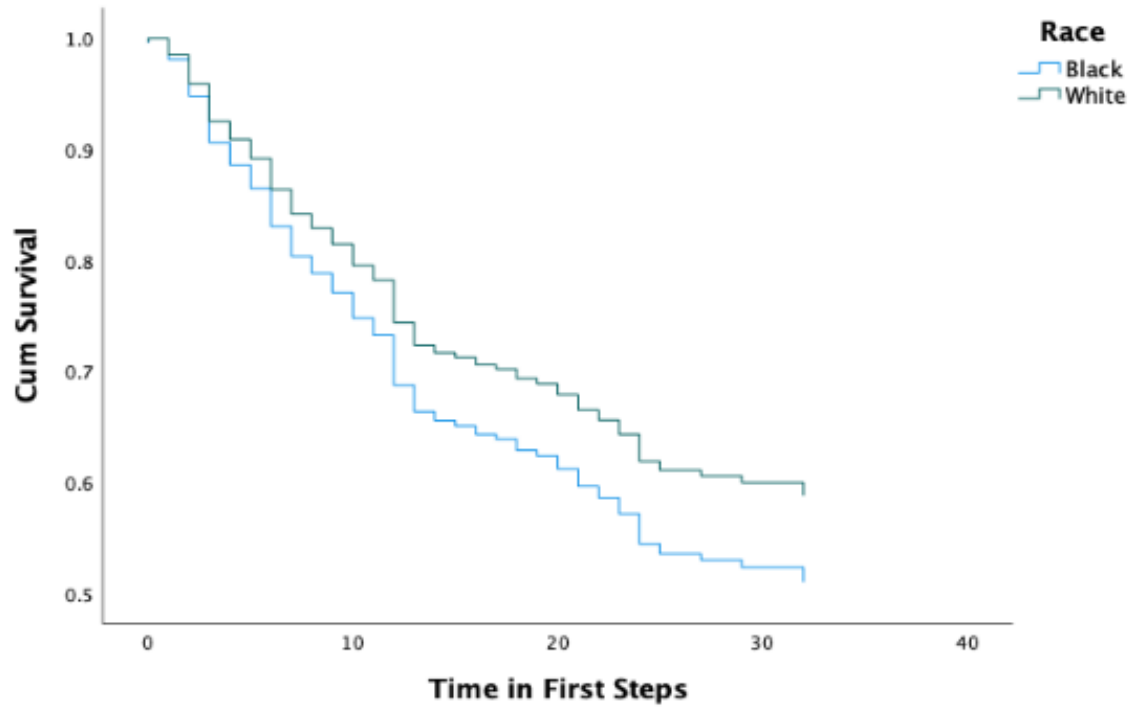
Survival Function for patterns 1 - 2

Cluster = G



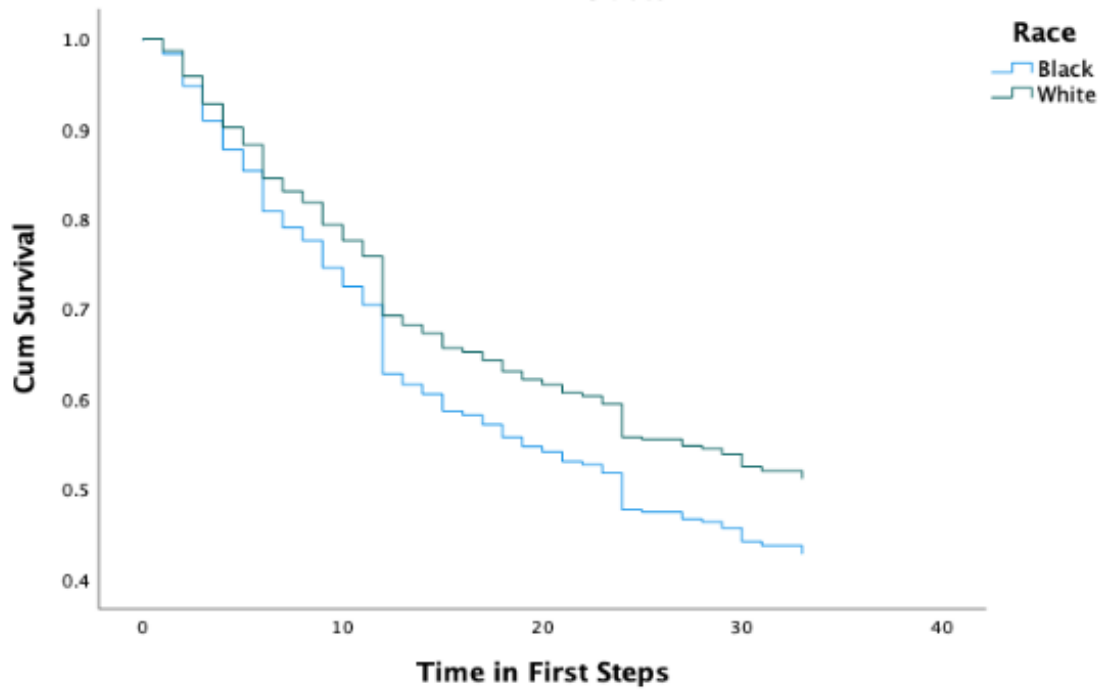
Survival Function for patterns 1 - 2

Cluster = H

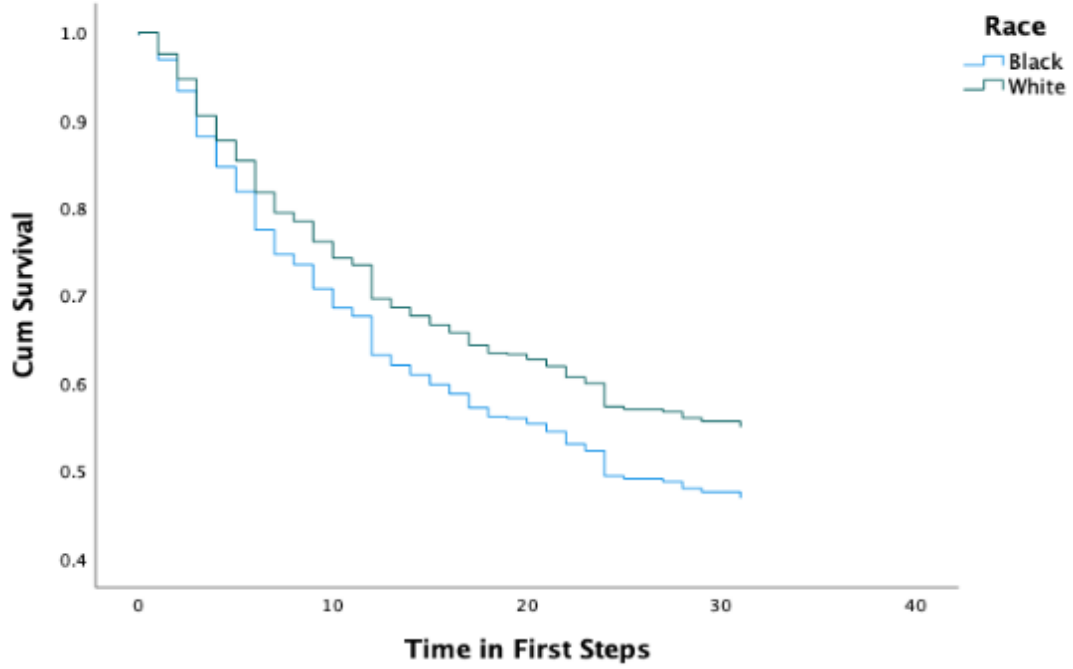


Survival Function for patterns 1 - 2

Cluster = I



Survival Function for patterns 1 - 2
Cluster = J



Appendix B. Family Interview Questions

Location of Services:

First Steps is a home-based program.

17. How do you feel about having people in your home?
18. In your opinion, did the people coming into your home seem comfortable being there? If no, could you give some examples?
19. If the people were of a different race than you or your child, how did that impact your comfort level?

Let's start at the beginning (referral):

20. How did you hear about First Steps?
21. Who referred your child to the FS program?
22. Have you spoken to your pediatrician about your child's development?
If yes: How did that/those conversations go?
23. What impressions did you have about First Steps before you got involved with the program?
24. How have your impressions changed-what are your thoughts about the program now?

Intake:

When you are referred to First Steps, the first thing that happens is someone calls to set up a time to meet with you. They fill out a bunch of paperwork, ask you about income and insurance, and get a sense of what your concerns are.

25. What do you remember about your first meeting with people from First Steps?
26. How comfortable did you feel sharing information and asking questions?
27. How was the First Steps program explained to you? How well did First Steps staff explain the way the program works and what would happen next?
28. Do you recall if the person you met with at first was the same race as you or your child or a different race?
29. If they remember: What impact, if any, did this have on your level of comfort or willingness to share information?

30. What could First Steps staff have done differently to make your entry into the program easier?

31. On a scale of 1-10, how would you rate your first experience with First Steps?

1-----2-----3-----4-----5-----6-----7-----8-----9-----10

Evaluation:

Next is the evaluation. This is when a few people (usually 2) came to your house to get a feel for what your child is doing and not doing, before you write your plan and start working with your regular providers.

32. What do you remember about the evaluation process?

33. How comfortable did you feel sharing information and asking questions?

34. Do you recall if the evaluators were the same race as you or your child or a different race?

35. If they remember: What impact, if any, did this have on your level of comfort or willingness to share information and ask questions?

36. What could First Steps staff have done differently to make the evaluation process work better for you?

37. On a scale of 1-10, how would you rate your evaluation experience?

1-----2-----3-----4-----5-----6-----7-----8-----9-----10

IFSP Writing:

Once your child is determined to be eligible for services, you meet with a Service Coordinator to write the IFSP, which is the Individualized Family Service Plan. This plan is what guides all the services your family receives from that point on.

38. What do you remember about meeting with the Service Coordinator to write the IFSP plan?

39. How comfortable did you feel sharing information and asking questions?

40. Do you recall if the evaluators were the same race as you or your child or a different race?

On-Going Services:

Now we've made it to on-going services, those regular visits from providers who work with you and your child in your home.

44. What types of services does your child receive from First Steps?

45. How is/was your relationship with your First Steps providers? *If more than one, ask about each.*

46. Were there any barriers to overcome as you got to know each other? *Might be more than one answer.*

47. How comfortable did you feel sharing information and asking questions?

48. Was your provider the same race as you or your child or a different race? *Might be more than one answer.*

49. Did that make it easier or harder to work together? Can you give an example?

50. What could First Steps have done differently to make having therapy sessions in the home work better for you?

51. On a scale of 1-10, how would you rate your experience having First Steps providers working with you in your home?

1-----2-----3-----4-----5-----6-----7-----8-----9-----10

NOTE: If family refused services at any point after getting started, skip to #64

52. Have you ever considered ending your First Steps services? If YES, why?

53. What role, if any, did race play in that?

54. What made you decide to continue?

ONLY For families whose child is older than 2

When a child in First Steps is between the ages of 2-3, the Service Coordinator meets with families to talk about transitioning out of First Steps and into either preschool or whatever the family wants to next. Sometimes a representative from the school might attend. This is called a transition meeting.

55. What do you remember about your transition meeting?

56. Did you have a transition meeting? If YES, what was that like?

57. How comfortable did you feel sharing information and asking questions?

58. How did you feel about your options after First Steps?
59. Did you meet with a representative from the school system?
60. If yes, do you recall if this person was the same race as you or your child or a different race?
61. What impact, if any, did this have on your level of comfort or willingness to share information and ask questions?
62. What could First Steps have done differently to make the transition process work better for you?
63. On a scale of 1-10, how would you rate your transition experience?

1-----2-----3-----4-----5-----6-----7-----8-----9-----10

Leaving First Steps early (before age 3 or while child is still eligible for services)

64. What made you decide to stop getting services from First Steps? If there was more than one reason, please share as many as you can remember.
65. (prompt) What role, if any, did race play in your decision to leave the program? If it played a role, could you give some examples?
66. What could First Steps could have done differently to make it more likely you would want to continue with services?

NOTE: If family refused services at any point during the referral/intake/eval/IFSP process, skip to the end.

Before we wrap up, let's talk about what you got out of First Steps

67. What kind of changes have you seen in your child's development since being in First Steps?
68. How do you feel about the progress your child made?

Appendix C. Provider Interview Questions

Location of Services:

As you know, First Steps is a home-based program.

How comfortable are you working in people's homes?

What factors influence your comfort level?

In particular, what factors about the home or family might be a barrier to you feeling comfortable?

When you work with Black family members, how does that influence your comfort level being in the home?

When you work with Black family members, how do you think that influences their comfort level with you being in the home?

Let's start at the beginning:

When you first meet a family, what do you do to get to know them and begin to build a relationship?

What barriers have you encountered when attempting to get to know families initially?

How is that initial "getting to know you" process impacted if the family is Black?

How do you and family members usually engage during a typical session?

What factors influence how you interact with the family?

How does a family being Black influence the way you and the family engage with each other during a typical session?

What could the First Steps system do to support you to work more effectively with all families?

What could the First Steps system do to support you to work more effectively with Black families?

FOR BLACK PROVIDERS ONLY:

How has your experience been as a Black provider in a predominantly White early intervention system?

What supports could your agency provide to help you feel comfortable and connected?

What supports could First Steps provide to help you feel comfortable and connected?

FOR AGENCY DIRECTORS ONLY:

How do you discuss race/equity within your agency?

Have you provided professional development regarding race/equity?

How else do you support providers to work with families from different racial and cultural backgrounds?

Do you have providers from races and cultures other than the White race/culture?

Is race something you consider when you are attempting to hire new providers?