

OUTCOME EVALUATION

This section of the report serves two purposes. First, it illustrates the analytic techniques that will be used to assess the impact of the IV-E Waiver on outcomes for children served by child welfare in North Carolina. Additionally, it summarizes the baseline status of Waiver counties, comparison counties and all non-Waiver counties on the following outcome indicators:

- Number of children entering out-of-home placement
- Rate of entry into out-of-home placement in individual counties
- Probability of entry to out-of-home placement
- Length of stay in out-of-home placement
- Rate of reentry to out-of-home placement following reunification or other permanent placement from an earlier custody; and
- Use of least restrictive, family-like placement types for children who must enter out-of-home placement

Although the IV-E Waiver Demonstration in North Carolina was officially approved in 1996, the actual implementation of policy and program changes in the Waiver counties was delayed. Counties did not begin to make substantive changes in their practices until months later. The result of this delay is to limit the follow-up time available for tracking changes in outcomes due to Waiver implementation making it premature *at this time* to assess the Waiver's impact on outcomes.

Outcome Evaluation Strategy

Due to the number and scope of child welfare initiatives being implemented in various counties of North Carolina, the outcome evaluation employs multiple analytic strategies including both descriptive analyses and multivariate modeling. We use administrative data files to track the experiences of children whose initial involvement with the child welfare system began on July 1, 1994 or later. This time frame encompasses pre-Waiver state fiscal years, 95 and 96, as well as Waiver implementation years, 97 through 99. The two primary sources of data for our analyses are the Child Abuse and Neglect Registry and the Services Information System that includes the child placement data table. The North Carolina Department of Health and Human Services maintains both of these administrative databases. For our analyses, the data are configured as initial

substantiation cohorts of abuse and/or neglect referrals or as initial entry into out-of-home placement cohorts. A common client ID number links the substantiation cohorts to the initial placement cohorts allowing us to track the experiences of children throughout their entire child welfare experience, and thus, to identify changes in outcomes that may be attributable to implementation of the Waiver. In North Carolina, spells of child welfare custody are defined operationally as a continuous sequence of placements without more than one day's interruption.

To ensure that changes in outcomes are appropriately attributed to the Waiver, we examine whether children in Waiver counties experience more favorable outcomes than children in two other groups of counties: 1) children in a selected group of 19 non-Waiver comparison counties that are matched to the Waiver counties on key characteristics; and 2) children in *all* 81 non-Waiver counties in North Carolina (i.e., the 19 comparison counties and 62 other counties not participating in the Demonstration). The use of all non-Waiver counties expands the analytic strategy beyond bivariate tests of differences by increasing the sample size to permit multivariate modeling that controls for factors that are a threat to internal validity while adjusting variance estimates for intra-county correlations. Since we believe that there are county-level characteristics (e.g. the presence of a temporary emergency shelter, the number of foster homes in a county that serve adolescents, agency review timeframes, the juvenile court system in the county) that influence outcomes for children this is a significant enhancement to our analytic strategy. We apply our modeling strategies to both child-level outcome indicators, summarized in Exhibit 3.1, and to aggregate county measures, such as: the number of children who initially entered out-of-home placement and rate of entry to placement.

In North Carolina, child welfare reform began in earnest with the Families for Kids (FFK) initiative implemented in eight counties in 1995 (hereinafter referred to as FFK1 counties).¹ The initiative was expanded in 1998 to include an additional twelve counties which will be referred to as FFK2 counties throughout the report. Half of the original eight FFK counties and eight of the second group of 12 FFK counties volunteered to participate in the IV-E Waiver Demonstration. The comparison group of 19 counties includes four FFK1 counties and two FFK2 counties. The significant progress made by the FFK counties towards improving outcomes for children dictates that we control for FFK participation in the analysis of Waiver outcomes. Additionally, since the progress toward goals differs among FFK counties depending on when the county became an FFK county, it is necessary to differentiate between FFK1 and FFK2 status in the outcome analyses. For

¹ For convenience in the statistical comparisons and graphs in this chapter, the original FFK counties will be referred as FFK1; second phase FFK, counties will be referred to as FFK2.

this reason, many of our analyses group North Carolina counties into six categories: FFK1 and Waiver (four counties), FFK2 and Waiver (eight counties), FFK1 and non-Waiver (four counties),

Exhibit 3.1 Outcome Indicators for IV-E Waiver Individual Child-level Analysis

Outcome	Indicator
Reduce the number of children entering out of home care	Probability of entering out-of-home care given a substantiated CAN report
Reduce the length of stay for children who must enter out-of-home care	Median days in custody Probability of remaining in care at 6 mos., 1 yr., 18mos., 2 yrs.
Reduce the number of children who re-enter out-of-home placement after achieving permanency in a prior spell	Probability of re-entering custody Probability of re-abuse or neglect
Improve the experiences of children who must enter out-of-home care	Probability of being placed in a family-like setting Probability of being placed with a relative

FFK2 and non-Waiver (four counties), non-FFK and Waiver (7 counties), non-FFK and non-Waiver (73 counties).

Initial Entry to Placement Authority

Several outcome indicators estimate the impact of the Waiver Demonstration on incidence of out-of-home placement. In this section, we begin by presenting analysis on an individual child-level measure—the probability of entering out-of-home placement. Child Abuse and Neglect registry data record all reports of abuse and/or neglect that are accepted for investigation in North Carolina. Using these data we identify cohorts of children who experienced a first *substantiated* incident of abuse and/or neglect during a series of state fiscal years (SFY) beginning with SFY95. The probability of entering out-of-home placement is estimated by linking the substantiation cohorts to initial entry into placement cohorts for SFYs 95 through 99. We follow these analyses with a county-level analysis of the number of children entering placement authority by SFY. Finally, to

examine the rate of entry to placement authority by county over the past years we use child-level data from the child placement tracking system aggregated to a county level.

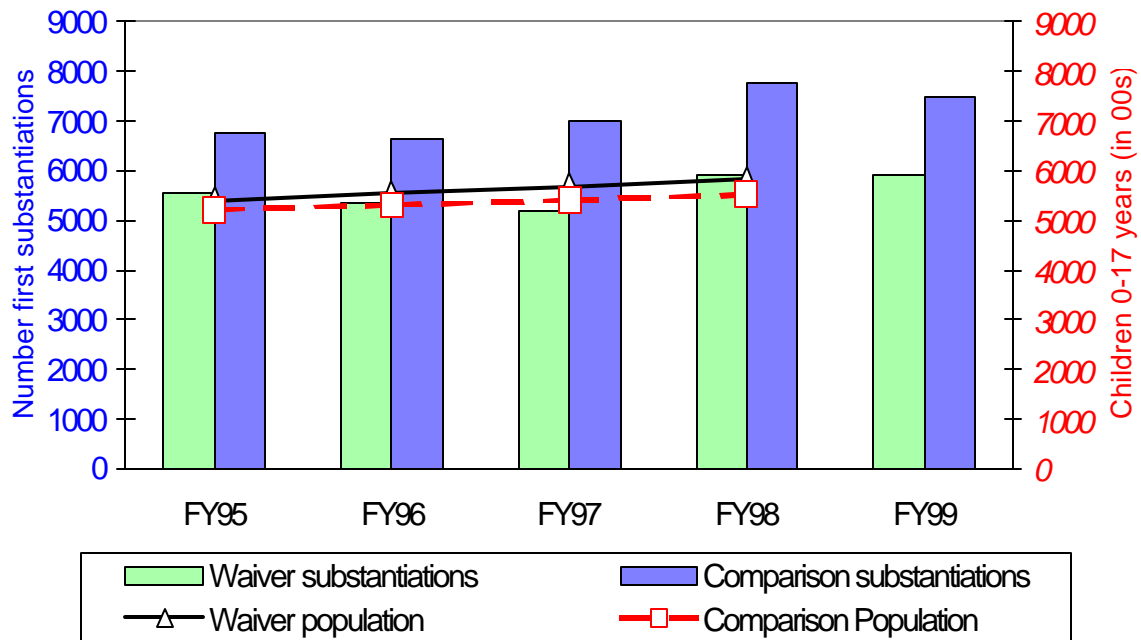
Number of Initial Substantiations of Abuse and/or Neglect. When a county department of social services (DSS) first receives information about suspected child abuse or neglect, an initial judgment, based on established policy and protocol, is made to determine if the information rises to the level of a report based on the General Statutes of North Carolina and NC-DSS policy. If the call is judged valid, then a report is formally recorded. The report is investigated by child protective services through a county DSS and, if there is sufficient evidence, the report is substantiated. For the analysis, children included in the North Carolina Child Abuse and Neglect Registry data file

(CANs) were identified by their first substantiated report, and cohorts by year of first substantiation were created. These data were linked to the child placement data file. Data on estimated child population by county were also obtained from Census estimates.

Exhibit 3.2 illustrates a comparison of first substantiations to the total estimated child population (0-17 years of age) for Waiver versus comparison counties. The number of first substantiations in both Waiver and comparison counties increased slightly from SFY95 to SFY98, as did the total child population. However, it appears that the comparison counties have consistently more first substantiations. Based upon the child population estimates, comparison counties may have a higher rate of first substantiations than do Waiver counties. The rate is approximately one substantiation per 100 children for Waiver counties, compared to slightly more than one substantiation per 100 children for comparison counties. Exhibit 3.3 shows the same analysis for all non-Waiver counties. The trends for non-Waiver counties are similar to those of the comparison counties – a slight increase in substantiations and child population from SFY95 to SFY98, and more than one substantiation per 100 children.

There is little difference among children substantiated for abuse and neglect across counties by age, race, gender, or type of maltreatment (see Appendix 1). Waiver, comparison, and all non-Waiver counties follow the same general trends. Slightly more children are substantiated between the ages of two and eleven. More white children are substantiated than African American children, with the proportion of African American children decreasing from SFY95 to SFY99. However, the proportion of Hispanic children in North Carolina substantiated for abuse and neglect is increasing. This may, however, be an artifact of data coding changes for race/ethnicity that occurred in SFY97. There is no difference in the proportion of male compared to female children substantiated. Neglect is by far the predominant type of maltreatment. Children substantiated for neglect represent approximately 80 percent of all first substantiations.

Exhibit 3.2 Number of First Substantiations by SFY for Waiver and Comparison Counties Compared to the Child Population (0-17 years)



Cumulative Probability of Entry into Out-of-Home Placement. While there is general similarity among Waiver, comparison, and all non-Waiver counties in the cumulative probability of entering out-of-home placement in the year after first substantiation, as shown in Exhibit 3.4, there are slight differences. Waiver counties have a higher cumulative probability of substantiated children entering placement than comparison or all non-Waiver counties (16, 14, and 12 percent, respectively in SFY96). In addition, the cumulative probability of entering placement in Waiver counties decreased from SFY96 to SFY98, whereas the probability in comparison and all non-Waiver counties remained essentially the same.

Stratified analyses, as presented above, present a fairly simple depiction of the probability of entering out-of-home placement, since they are only able to adjust for a limited number of factors. It is difficult in stratified analyses to distinguish the impact of multiple types of initiatives on outcomes or to control for potential confounding factors. To accomplish this we fit multivariate models, or more specifically Cox proportional hazards (PH) models. This type of analytical model estimates the comparative risk of entering out-of-home placement for multiple groups of children relative to a baseline group and year. In the preliminary PH models below we estimate the risk of entering

Exhibit 3.3 Number of First Substantiations by SFY for All Non-Waiver Counties Compared to the Population of Children (0-17 years)

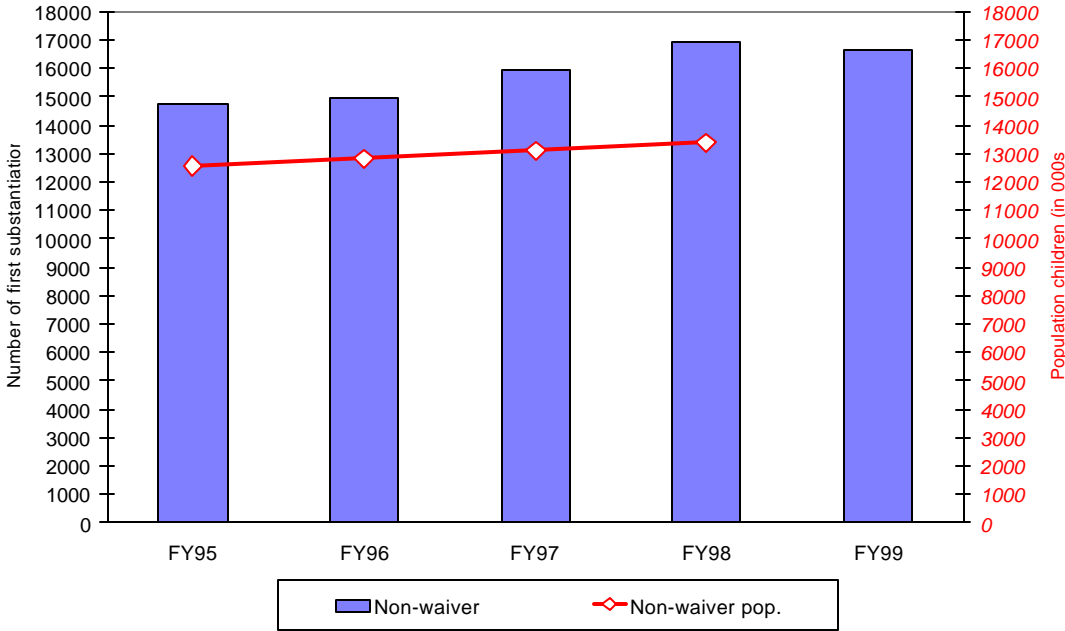
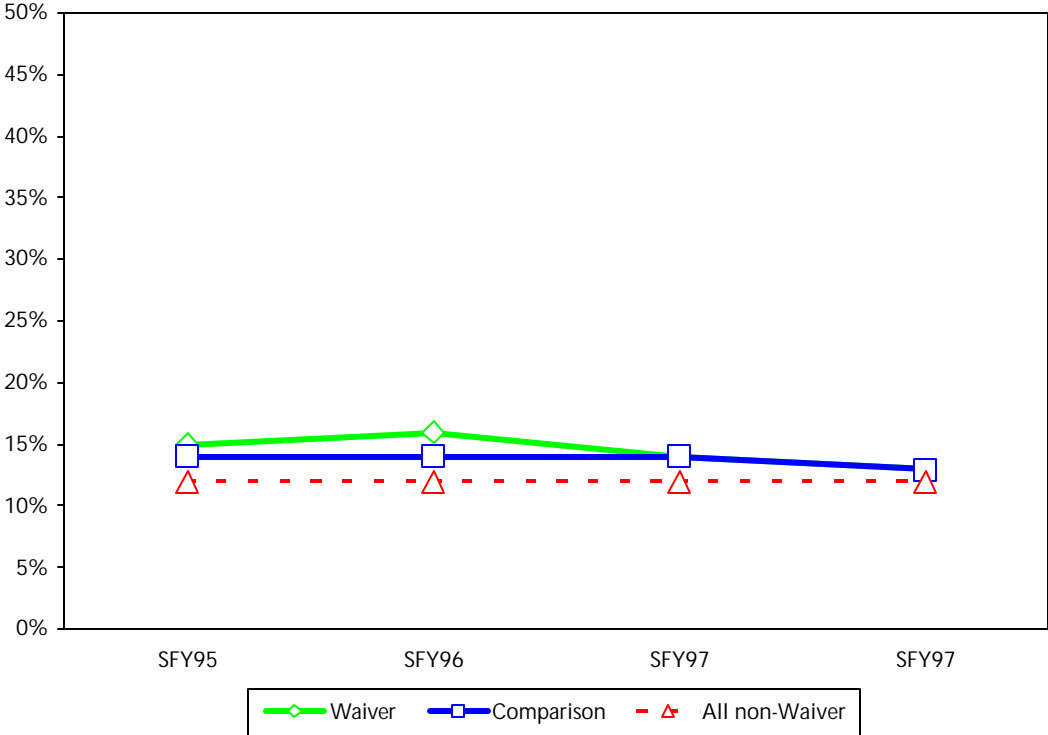


Exhibit 3.4 Cumulative Probability of Entering Out-of-Home Placement within a Year of Initial Substantiation for Children with First Substantiation in SFY95 to SFY99



out- of-home placement for children with a first substantiation in SFYs 95, 96 and 97. The risk for children in FFK and/or Waiver volunteer counties is compared to the risk for children in non-FFK/non-Waiver counties using SFY95 as the baseline year for analysis.

The model calculates the relative risk (RR) of entering out-of-home placement for children in FFK and/or Waiver counties compared to the risk for children in non-FFK/non-Waiver counties. A RR of 1 signifies that there is no difference in risk between groups. A RR greater than 1 indicates that, compared to the baseline group, the group under study has an increased risk of entering placement. For example, a RR of 1.2 estimates that the group under study has a 20 percent greater risk of entering placement than the baseline group does.

Additionally, PH models can adjust the RR estimates for the effects of potential confounding variables on the probability of entering out-of-home placement thereby isolating the impact of the Waiver on the outcome. For example, these models present the impact of the Waiver after subtracting out the effect of the FFK initiative allowing us to estimate the impact of the Waiver alone. The models that we present below demonstrate this methodology by *controlling for* FFK status, size of the county, and child characteristics such as age and race. The addition of a SFY indicator to the model estimates changes over time in the probability of entering placement.

The multivariate model summarized in Exhibit 3.5 estimates that there was no statistically significant difference in the probability of entering out-of-home placement in Waiver volunteer counties compared to non-Waiver counties in these years. Although the relative risk is greater than 1.00 (i.e. 1.16 for Waiver versus non-Waiver counties) the significance level (p-value) is greater than .05 indicating that this difference could simply be due to chance and not to differences attributable to the Waiver. Since SFY95 through 97 are pre-Waiver years and SFY 98 and 99 are very early implementation years this result is not unexpected.

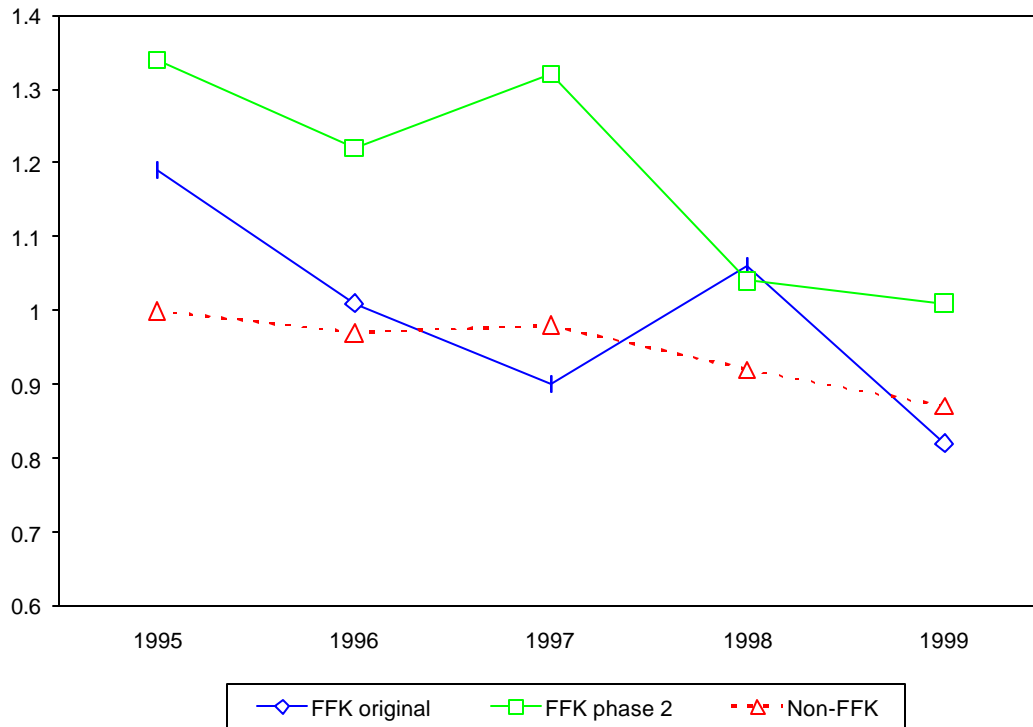
Additional information provided by this model identifies statistically significant differences in the likelihood of entering out-of-home placement by race/ethnicity, size of county, age at referral and FFK status by SFY. The risk of entering out-of-home placement was greater for African American, American Indian and Hispanic children compared to white children. African American and American Indian children were 27 and 28 percent more likely (RR=1.27 and RR=1.28) to enter out-of-home placement than were white children. Children over two years old were significantly less likely (RR=.51, RR=.43 and RR=.59) to enter out-of-home placement than were very young children. Children in larger counties (i.e. levels 2 and 3) were less likely (RR=.67 and RR=.68) to enter out-of-home placement than children in level 1 counties.

Exhibit 3.5 Risk of Entering Out-of-Home Placement for Children with a First Abuse and/or Neglect Substantiation in SFY95 through SFY97

	Relative Risk
Age at referral	p = .000
< 2 years	1.00
2- 5 years	0.51
6-11 years	0.43
12 – 17 years	0.59
Race/Ethnicity	P = .001
White	1.00
Hispanic	1.15
African American	1.27
American Indian	1.28
Other	1.02 (ns)
DSS Level	P = .004
Level 1	1.00
Level 2	0.67
Level 3	0.78
Waiver Status	P = .173
Non-Waiver county	1.00
Waiver county	1.16 (ns)
FFK Status * SFY of substantiation	P = .022
Non-FFK, SFY95	1.00
Non-FFK, SFY96	0.97
Non-FFK, SFY97	0.98
Non-FFK, SFY98	0.92
Non-FFK, SFY99	0.87
FFK1, SFY95	1.19
FFK1, SFY96	1.01
FFK1, SFY97	0.90
FFK1, SFY98	1.06
FFK1, SFY99	0.83
FFK2, SFY95	1.34
FFK2, SFY96	1.22
FFK2, SFY97	1.32
FFK2, SFY98	1.04
FFK2, SFY99	1.01

Exhibit 3.6 indicates that the risk of entering out-of-home placement in FFK counties differed across the fiscal years. There is virtually no change in the non-FFK counties in the risk of entering out-of-home placement in SFY95 through 99. In both FFK1 and FFK2 counties, compared to non-FFK/non-Waiver counties in SFY95, there was an overall decrease in the risk of entering out-of-home care from SFY95 to SFY99 indicating that children in these counties were less likely to enter placement following an initial substantiation in these years.

Exhibit 3.6 Risk of Entering Out-of-Home Placement by SFY for FFK Counties Compared to Non-FFK Counties



Rate of Entry to Out-of-Home Placement by County. The number of children initially entering placement in each county from SFY95 through SFY99 provides a summary county-level estimate of trends in the use of out-of-home placement. Since county variation in general population size can mask substantive differences, we calculate a rate of entry into out-of-home placement. The rate of initial entry to out-of-home placement compares the number of initial entries in a year in a county to a population estimate of the number of children in a county between birth and 17 years. The outcome indicator in this analysis is rate of entry into out-of-home placement per county per consecutive state fiscal year (95 through 99). In addition to the substantive variable of interest, Waiver status, participation in FFK and size of county, indicated by county DSS level, are also included in the analysis.

The analyses below summarize changes in the number of children initially entering out-of-home placement over the past five years comparing Waiver counties to both comparison group counties and to all non-Waiver counties in North Carolina. Following this descriptive summary we present a multivariate model that estimates changes in rate of initial entry and the relationship of these changes to Waiver and FFK status and to size of county. These analyses are implemented

using a county-level data set that contains one observation per county for each year from SFY95 through SFY99. We use an analytic procedure for analyses that also adjusts our variance estimates for within county variation over time thus providing more reliable statistical significance testing.

Analysis of rate of entry into PA and Waiver status is guided by the following questions:

- Are there statistically significant differences across the SFYs 95 through 99 in rate of entry into out-of-home placement between groups defined by IV-e Waiver status, FFK participation, and county DSS level?
- Are there significant differences between SFYs 95 through 99 in rate of entry into out-of-home placement for a specific group as defined by IV-e Waiver status, FFK participation and level?

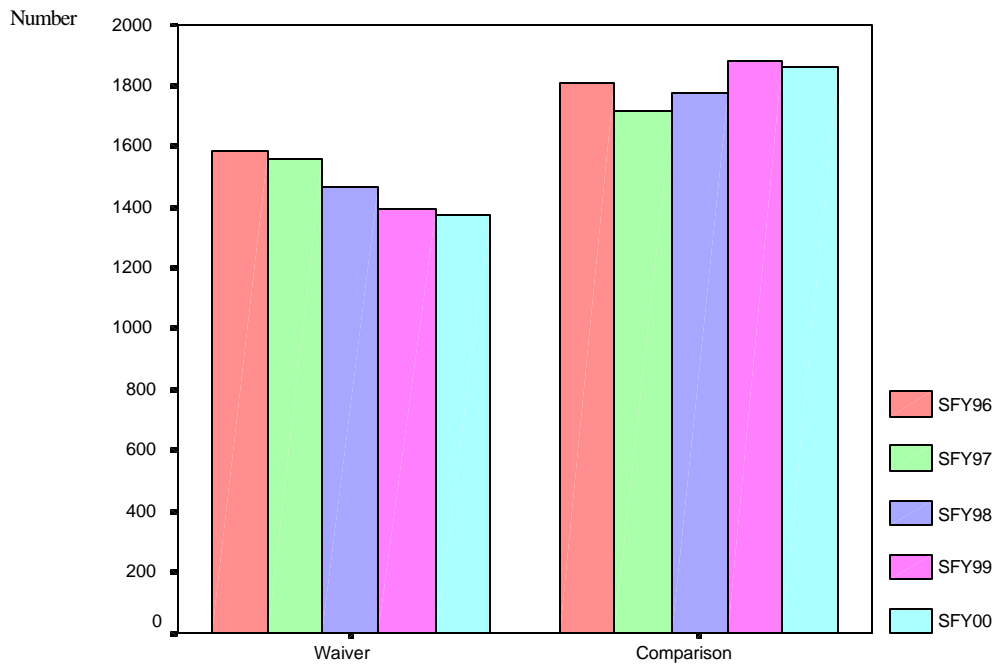
The county-level data set comprises variables concerning each county's participation in two initiatives (the Waiver and Families for Kids), the designated county DSS level, state fiscal year, number of children entering placement each year, number of children ages birth through 17 years per county per year, and rate of entry into placement. Rate of entry into placement is calculated by dividing the number of children entering placement by number of children from birth through 17 years for each county for each year.

Descriptive statistical analyses describe the number of children entering placement each SFY. We present total numbers of children entering into placement each year for Waiver versus comparison counties, and for all non-Waiver counties. Results indicate a consistent decrease in number of initial entries for Waiver counties over the years, while the Comparison counties have a slight increase (Exhibit 3.7). Similarly, all non-Waiver counties indicate a slight increase in total number of children entering into placement each year (Exhibit 3.8).

Descriptive analysis of the number of children entering placement authority indicates a high degree of variability from county to county (Exhibit 3.9). The average standard deviation over the years SFY95-99 is 70.8; the number of children ranges from 0 to 451 in SFY97. Consequently, raw counts of entry into placement are adjusted to account for variation in county size by dividing the total number of children entering placement for each county by a U.S. Census population estimate of children ages birth to 17 years in that county on July 1 of each year (data from the Bureau of the Census, Population Estimates Program, Population Division). To facilitate interpretation of the adjusted estimates, the ratio of total number entering placement divided by the number of children birth to 17 years is multiplied by 1000 to obtain the average number of placements per county per 1000 children.

Initial interpretation of the rate of entry statistics indicates that Waiver counties have a higher average placement rate than non-Waiver counties; the Waiver counties decrease slightly over the years, but the non-Waiver counties do not. FFK counties start with higher rates of entry and achieve decreases over the years; the second wave of FFK counties (FFK2) also have higher initial entry rates than the remaining counties (Exhibit 3.10). To determine whether the change over time is statistically significant and to include multiple county characteristics in a single analysis, a multilevel, multivariate modeling approach is used to analyze rates of entry (the SAS Proc Mixed program module was used for this analysis).

Exhibit 3.7 Number of Children Initially Entering Placement in Waiver and Comparison Counties by SFY



The first model fit to these data addresses the question of whether there are significant differences in rates of changes across years between Waiver and non-Waiver counties, and further, whether those changes are related to FFK status or DSS Level. Results indicate three statistically significant relationships: (1) Waiver status, SFY, and DSS level ($p = .06$); (2) FFK status and DSS level ($p = .002$); and (3) FFK status and SFY ($p = .01$). However, interpretation of these results should be tempered with the knowledge that (a) the significant [Waiver x level x year] interaction consists of only 3 counties, (b) the variation within that specific group increases over time, and (c) substantial variation in the overall model remains unexplained.

Exhibit 3.8 Number of Children Initially Entering Placement in All Non-Waiver Counties by SFY

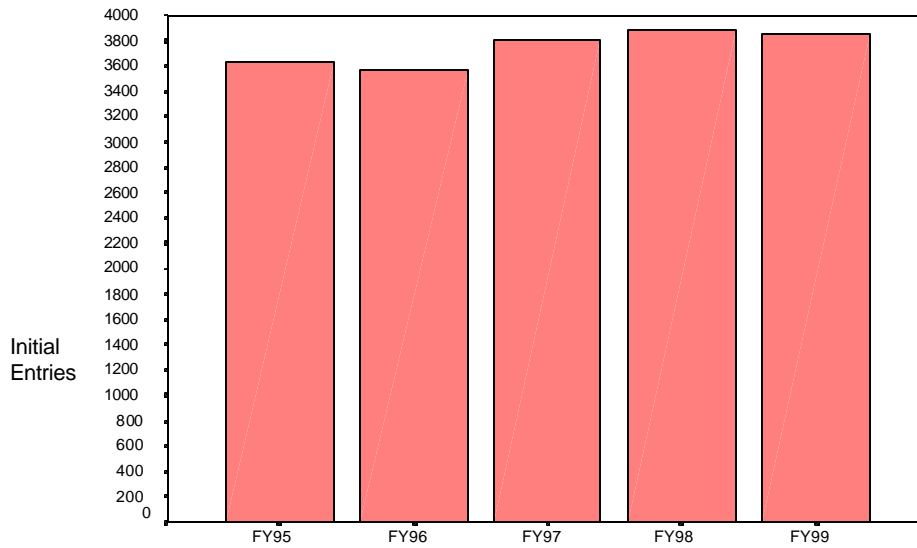


Exhibit 3.9 Number of Children Entering Placement Authority by County

N = 100	FY1995	FY1996	FY1997	FY1998	FY1999
Mean	54.0	51.5	54.3	54.5	53.3
Std. Deviation	70.6	68.8	71.7	73.9	69.2
Minimum	0	1	0	0	0
Maximum	373	378	451	393	406

With these caveats in mind, the significant relationship of Waiver/SFY/DSS level indicates a qualitative difference in the average change over SFY for counties that are DSS level-3 Waiver participants. For this specific group of counties, the regression weight of .84 is significantly ($p=.02$) different from the other groups defined by these categories. Counties in the DSS level 3/Waiver group are predicted to have, on average, a rate of entry into placement that increases by .84 each year. A graph of this interaction confirms that the Waiver/level 1 group has a decisive upward shift in rate of entry (Exhibit 3.11). The second relationship (FFK and DSS level) does not include the time variable, indicating that there is a significant effect for original FFK and DSS level on initial rate of entry ($B=5.5, p = .001$). It is important to note that there is one county in this group. The last relationship (FFK/SFY) indicates a significant relationship between FFK status and change over

Exhibit 3.10 Summary Information for County-level Rate of Children entering Out-of-home Placement per 1000 Children

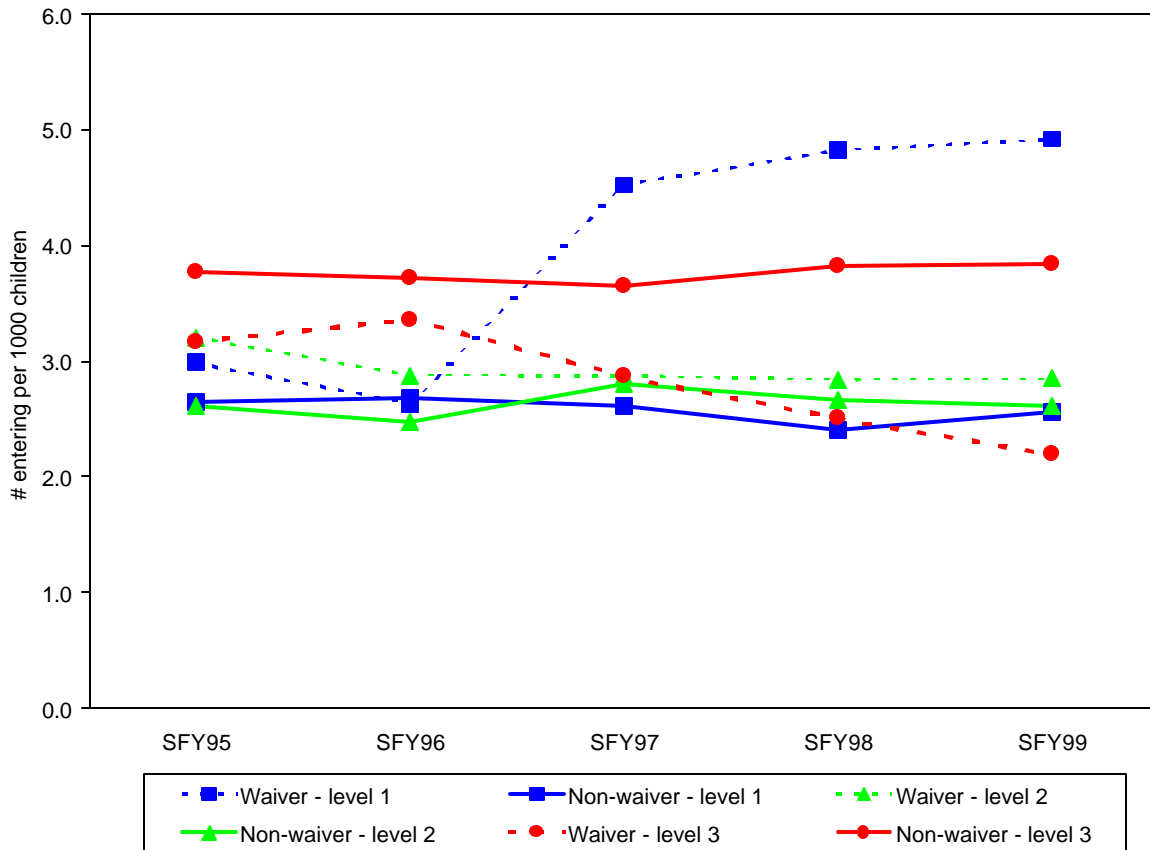
		SFY95		SFY96		SFY97		SFY98		SFY99		
		N	Mean	SD	Mean	SD	Mean	SD	Mean	Sd	Mean	SD
Overall		100	2.8	1.6	2.7	1.3	2.8	1.5	2.7	1.5	2.7	1.5
IV-E												
	Waiver	19	3.2	1.4	2.9	1.3	3.1	1.8	3.1	2	3	1.6
	Non-Waiver	81	2.7	1.6	2.7	1.3	2.8	1.5	2.6	1.4	2.7	1.5
FFK												
	FFK original	8	4.5	1.6	3.9	1.6	3.1	1.1	3.6	1.5	3.0	0.8
	FFK phase 2	12	3.2	0.8	3.0	1.1	3.2	0.7	3.2	1.4	3.1	1.1
	Non FFK	80	2.6	1.5	2.6	1.3	2.7	1.7	2.5	1.5	2.7	1.6
DSS Level												
	Level 1	51	2.7	1.9	2.7	1.6	2.7	2.0	2.6	1.8	2.7	1.7
	Level 2	39	2.8	1.2	2.6	0.9	2.8	0.9	2.7	1.2	2.7	1.2
	Level 3	10	3.5	1.1	3.6	1.0	3.3	0.8	3.3	1.0	3.2	1.2

time. In the case of the second interaction, the significant difference over the years is between FFK counties as a group and other counties.

Inclusion of the county level variables reduces the unexplained variance in initial status by nearly 25% $((1.30 - .98) / 1.30 = .247)$. The unexplained variation in slope also decreased by nearly 24%. Overall, while statistically significant variations in slopes and intercepts remain unexplained by the model, this particular model does suggest that overall rates of change are different between groups. The following analysis will formulate specific comparisons between time points for a specific county or group of counties.

This second line of analysis is directed toward examining whether there is a significant difference from one time to another for a specific group. The full model, comprised of all categorical variables and all interaction terms, is analyzed. indicate one statistically significant 2-way relationship of FFK status by DSS level ($p = .03$). The original FFK – level 1 counties are statistically different from other counties in the initial intercept. This result is consistent with the FFK by Level interaction found in Model 1 analysis.

Exhibit 3.11 Number of Initial Entries to Placement per 1000 Children by DSS Level and Waiver Status



Restrictiveness of Placement

The decision to house a child in a particular setting is one of the first decisions that an agency must make and often sets the course for the remainder of the child’s stay. How a child welfare agency initially responds to a child in need of out-of-home placement often has longer-term implications in terms of length of stay and placement stability. The stratified analyses in this section provide an overview of prevalent initial placement types in Waiver counties, comparison group counties and all non-Waiver counties. In particular these analyses address the use of relative placements which is often the most family-like, least restrictive, and most stable placement available to a child welfare agency.

Initial Placement Type. Several measures are used in the evaluation to describe experiences of children in child welfare. Two of these measures are descriptive – type of initial placement and use of relative care. Type of initial placement serves as an indicator of the restrictiveness of placement,

and often influences the length of time in placement and the stability of placement. For Waiver counties, initial relative placements are slightly lower than for other counties. Except for a slight increase in SFY98, Waiver counties do not exhibit the growing reliance on relative placements seen in comparison and other non-Waiver counties. It is possible that in Waiver counties, relative placements divert children before they enter placement. Use of foster homes has increased in Waiver counties, while they have decreased in comparison and all non-Waiver counties. Use of group homes has also increased more steadily in Waiver counties. Groups homes are more expensive placements and may reflect a changing population of children, those with more significant needs, entering placement authority in Waiver counties. All counties report a fairly large percentage of unknown/missing type of initial placement. This is largely due to temporary arrangements, often over a weekend, that are not recorded by the caseworker as an initial placement. Exhibits 3.12, 3.13, and 3.14, illustrate these trends.

Exhibit 3.12 Initial Placement Type in Waiver Counties by SFY

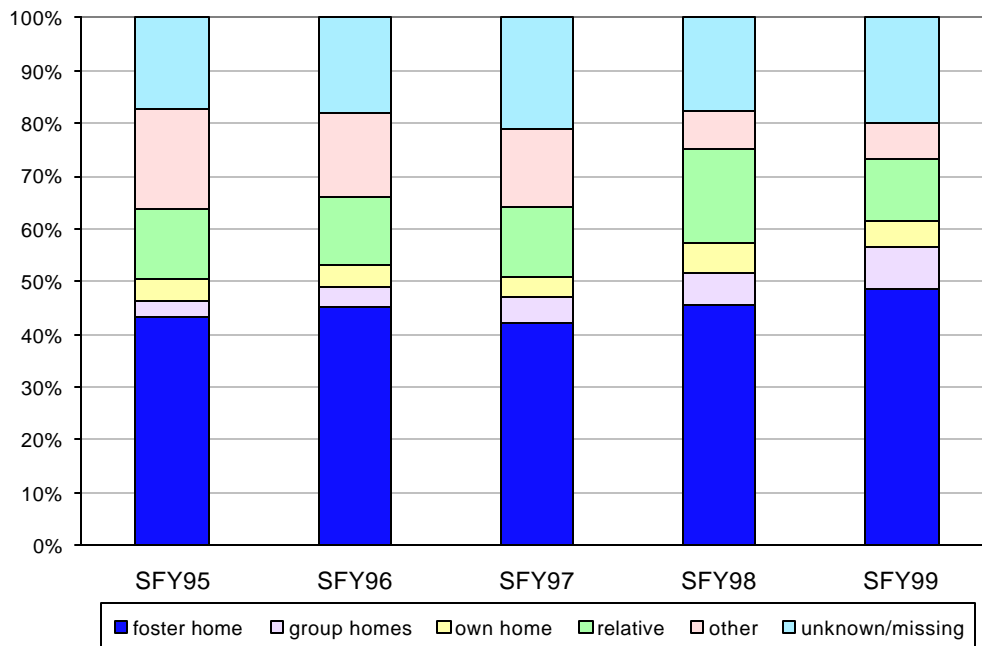


Exhibit 3.13 Initial Placement Type in Comparison Counties by SFY

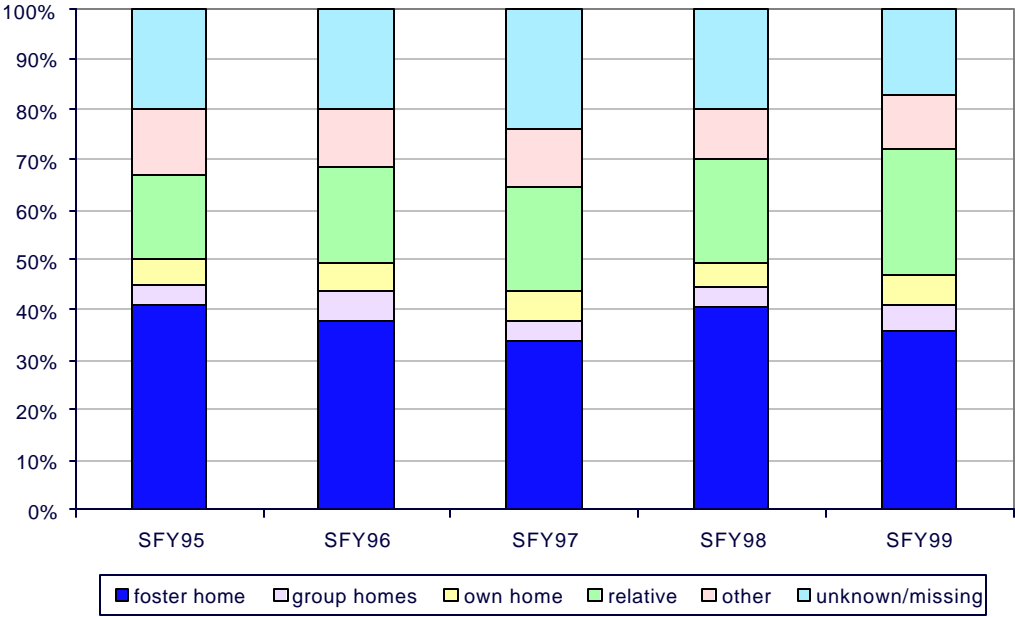
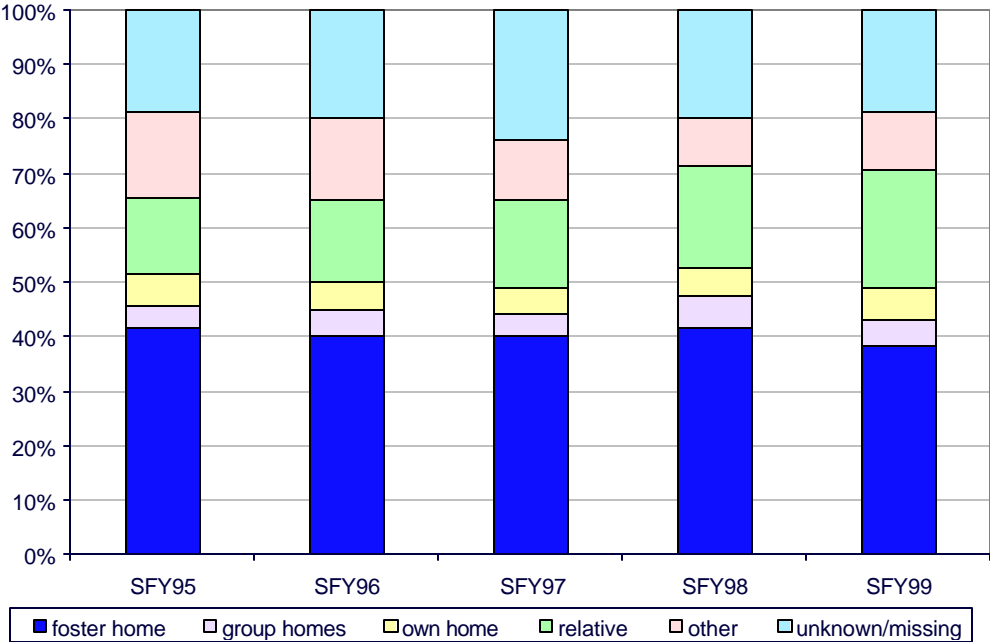


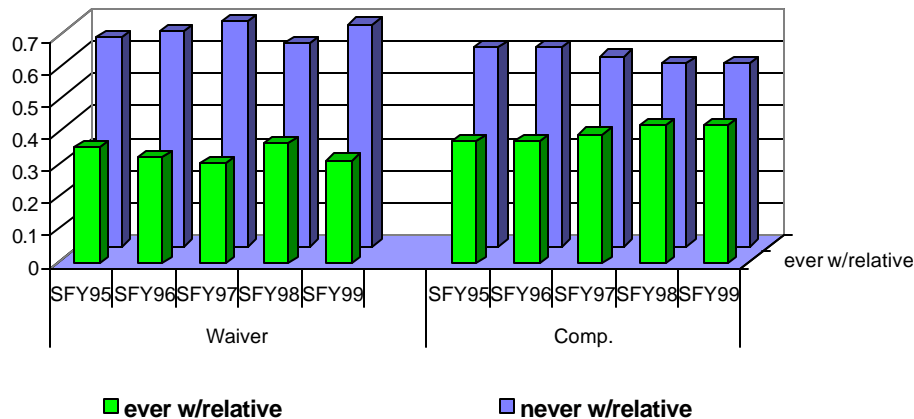
Exhibit 3.14 Initial Placement Type in All Non-Waiver Counties by SFY



Similar to the trend for initial placements with relatives, use of relatives during a child’s entire placement spell is decreasing in Waiver counties, while increasing elsewhere. As depicted in Exhibit 3.15, Waiver counties reported that 36 percent of children who first entered care in SFY95

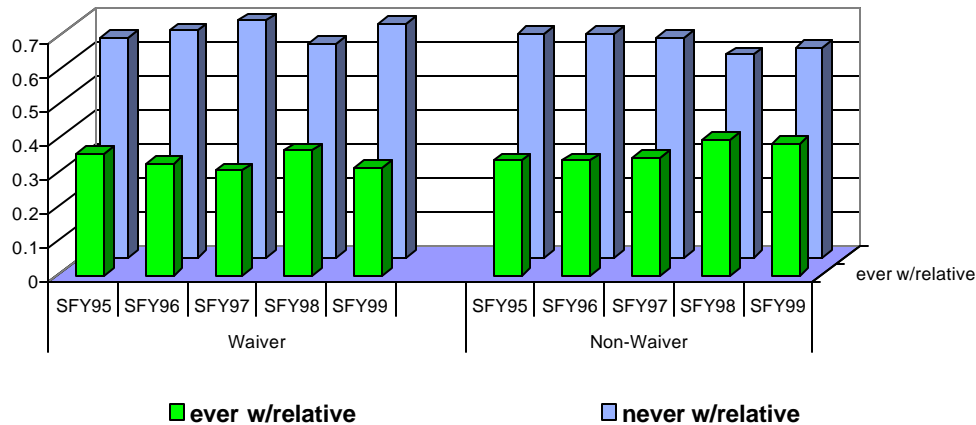
were ever placed with a relative, and by SFY99 the rate was 32 percent (as children in the later cohort experience longer spells, this rate is likely to increase). In the same years for comparison counties, 38 percent of children in SFY95 and 43 percent in SFY99 were ever placed with relatives. As depicted in Exhibit 3.16 for all non-Waiver counties, 34 percent of children in SFY95 and 39 percent in SFY99 were ever placed with relatives. While these trends are influenced to some extent by initial placement trends, they also reflect a decrease in subsequent relative placements for Waiver counties compared to other counties. It would appear that Waiver counties began implementation of the Waiver with less prominent use of relative placements, and that this practice has continued to the present time and has, if anything, become more pronounced.

Exhibit 3.15 Proportion of Children in Waiver and Comparison Counties by Use of Relative Placements by SFY



In addition to these measures describing a child’s experience with DSS – type of initial placement and use of relative care – the evaluation also includes several measures that describe characteristics of children. Approximately 25 percent of children entering out-of-home placement are represented in each of four age groups (0-1, 2-5, 6-11, and 12-17), with no significant differences among counties. In all counties, the proportion of African American children entering care decreased from SFY95 to SFY99, and the proportion of Hispanic and white children has increased. There was no difference in the proportion of children male or female entering placement during this

Exhibit 3.16 Proportion of Children in Waiver and Non-Waiver Counties by Relative Placement Status by SFY



time period, for all counties. As with first substantiations, by far the larger proportion of children enter placement authority due to neglect rather than abuse.

Length of Stay in Placement Authority

In this section we present multiple indicators to summarize the length of time spent in out-of-home placement. The complexity of this outcome necessitates the use of measures that address different aspects of length of time in placement. For example, the median number of days in placement authority is a summary measure that is easily understood and is used to make overall comparisons of differences in length of stay in Waiver versus comparison versus all non-Waiver counties. However, the median does not provide information about the number of children remaining in placement authority at critical child welfare junctures, such as one year and 15 months. Survival analyses (also called event history analysis, life table analysis, or analysis of failure time data) calculates a cumulative probability for remaining in placement authority at specified times and presents these results (i.e. the proportion of children remaining in placement) in a graph called a survival curve.

Since the patterns of exit from placement of children who spend at least some portion of their time in out-of-home placement with a relative are different than those of children with no relative placements, we present separate analyses of length of stay for each group. Moreover, our

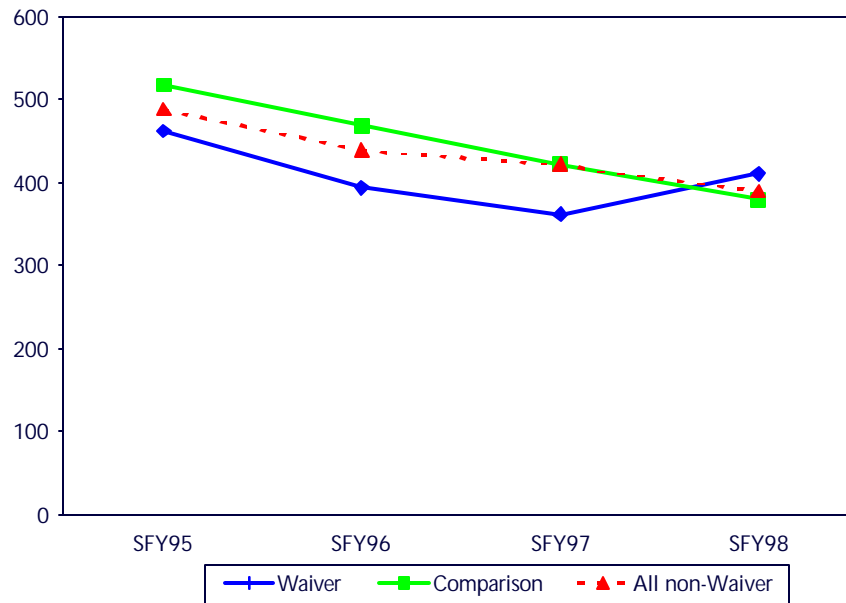
analyses in this section are stratified by FFK and Waiver status to permit comparison of differences in length of stay by these groups. Finally, we group cohorts for pre-Waiver years, SFY95 and 96, and early implementation years, SFY97 and 98, to assess whether there are early differences across time in length of stay in our multiple groups. Since follow-up time is limited and it is premature to assess the effect of the Waiver on length of stay we do not present length of stay analyses for SFY99 in these bivariate and stratified analyses.

For the evaluation, length of stay is measured using entry cohorts of children. Use of entry cohorts (representing children who entered out-of-home care in a given year for the first time in their lives), as opposed to caseload data, allows one to capture the experiences of all children who have ever experienced out-of-home care. By contrast, caseload data only includes the subset of children in placement authority at one point in time, over-representing children who remain in care the longest, and excluding the majority of children who enter and leave out-of-home placement more quickly. With cohort data, survival analysis methods can calculate the cumulative probability of experiencing an event of interest– in this case exiting out-of-home placement – and derive a valid measure of length of stay.

To illustrate the use of survival analysis for children entering placement in Waiver counties in SFY95, the cumulative probability of exiting placement after 12 months is 39 percent, and the cumulative probability after 18 months is 55 percent. Thus, the median length of stay (50 percent) for this cohort of children is between 12 and 18 months. Furthermore, if for these same children the cumulative probability of exiting placement at 462 days is 50 percent, then the median length of stay for these children is between 12 and 18 months, or exactly 462 days. This cumulative probability reflects the total number of days in placement for the entire cohort of children who entered in SFY95 – those who remain as well as those who have left placement.

The median length of stay for all counties from SFY95 to SFY98 is illustrated in Exhibit 3.17 below. As shown in the Exhibit, children in Waiver counties had the shortest median length of stay in SFY95. Since that time, the median length of stay has decreased across the entire state, except in Waiver counties where the median increased from SFY97 to SFY98. When interpreting these data, however, one must remember the presence of other reform initiatives such as *Families for Kids* whose implementation may also impact length of stay in each of the Waiver groupings – Waiver, comparison, and non-Waiver. Therefore, readers should not ignore differences in length of stay among the Waiver counties.

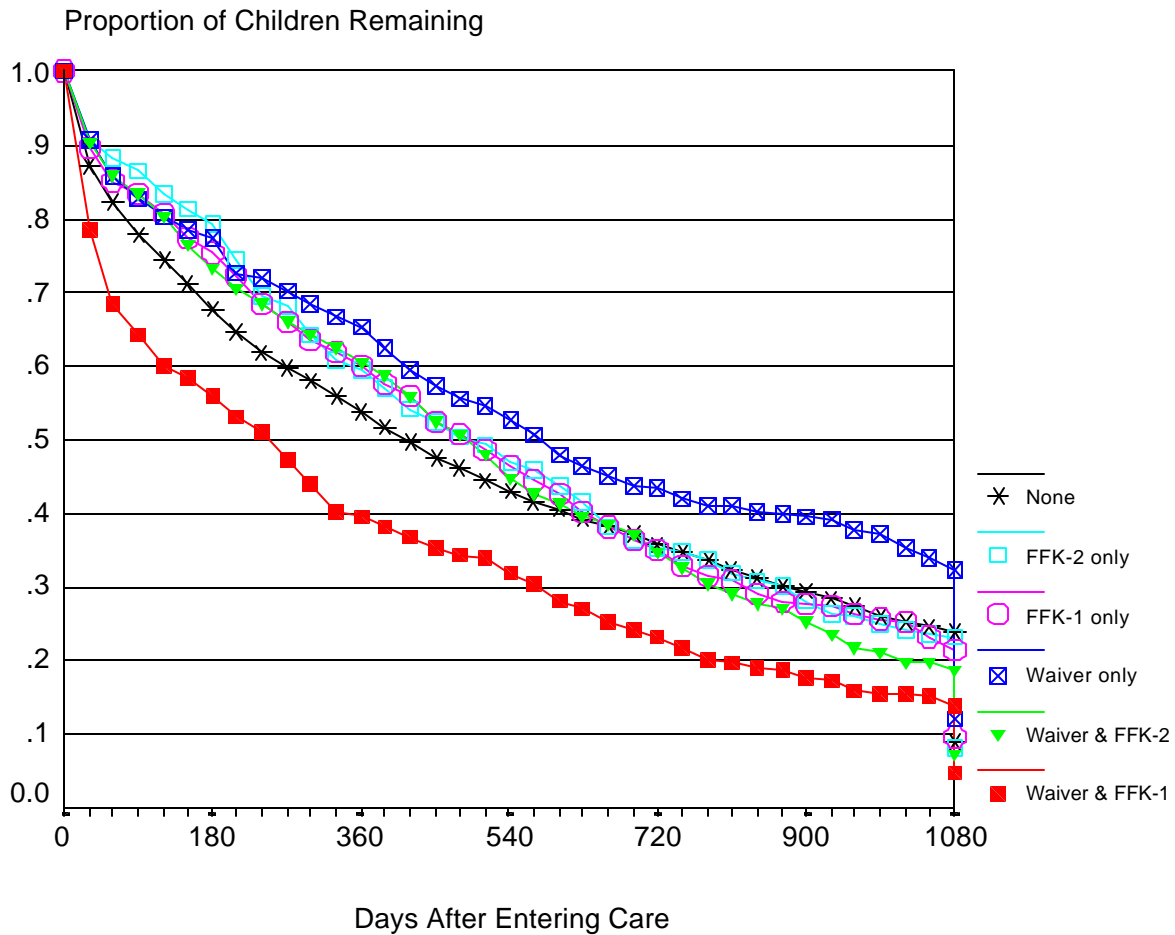
Exhibit 3.17 Median Number of Days in Out-of-Home Placement for Waiver, Comparison and All Non-Waiver Counties by SFY



One way to look at differences in length of stay among smaller subsets of counties is to use stratified survival curves. Survival curves show the plot of the cumulative probability for exiting care for groups of children over specified time periods. Exhibit 3.18 presents survival curves for children never placed with a relative who entered placement in SFY95 and SFY96. Each of the different plots, or curves, depicts the cumulative probability of remaining in placement for a specific number of days, for several different subsets of counties. These subsets are – Waiver and participation in the original phase of Families for Kids (FFK1), Waiver and participation in the second phase of Families for Kids (FFK2), Waiver only, FFK1 only, FFK2 only, and no Waiver/no FFK.

Exhibits 3.18 and 3.19 concern children without relative placements, while Exhibits 3.20 and 3.21 are based on the experiences of children who were placed with relatives at some point while they were in out-of-home care. We make this distinction for several reasons. Relative placements in North Carolina, unlike those in New York, Chicago, Los Angeles, and other major urban areas, do not involve payments to relatives unless the caregiver becomes a fully licensed foster parent. Also, children placed with relatives have somewhat different experiences in care and show different patterns of exit from care. Given these differences, it is not appropriate to include both groups in a single analysis. To explore trends across the years, we look at Exhibits 3.18 and Exhibit 3.20 that depict children who entered placement in the baseline years SFY95 and SFY96, and Exhibits 3.19 and 3.21 that depict children who entered in early Waiver implementation years SFY97 and SFY98.

Exhibit 3.18 Length of Time in Out-of-Home Placement for Children Never Placed with a Relative, SFY95-96



In Exhibit 3.19 we see that, for children never placed with a relative who entered placement in SFY95 and SFY96, those with the lowest probability of remaining in placement after 180 days are children in FFK1 counties that volunteered for the Waiver Demonstration (median less than 360 days). The median for all other counties is approximately 540 days. In addition, there is a difference between original FFK counties and FFK2 counties, with respect to the Waiver. The median length of stay in counties with Waiver/original FFK is lower than in counties with Waiver/FFK2. Exhibit 3.20 illustrates similar data for children never placed with a relative, who entered placement in SFY97 and SFY98. These survival curves are moving closer together, with a median for Waiver/FFK2 counties of approximately one year, similar to the median for Waiver/FFK1 counties.

Exhibit 3.19 Length of Time in Out-of-Home Placement for Children Never Placed with Relatives, SFY97-98

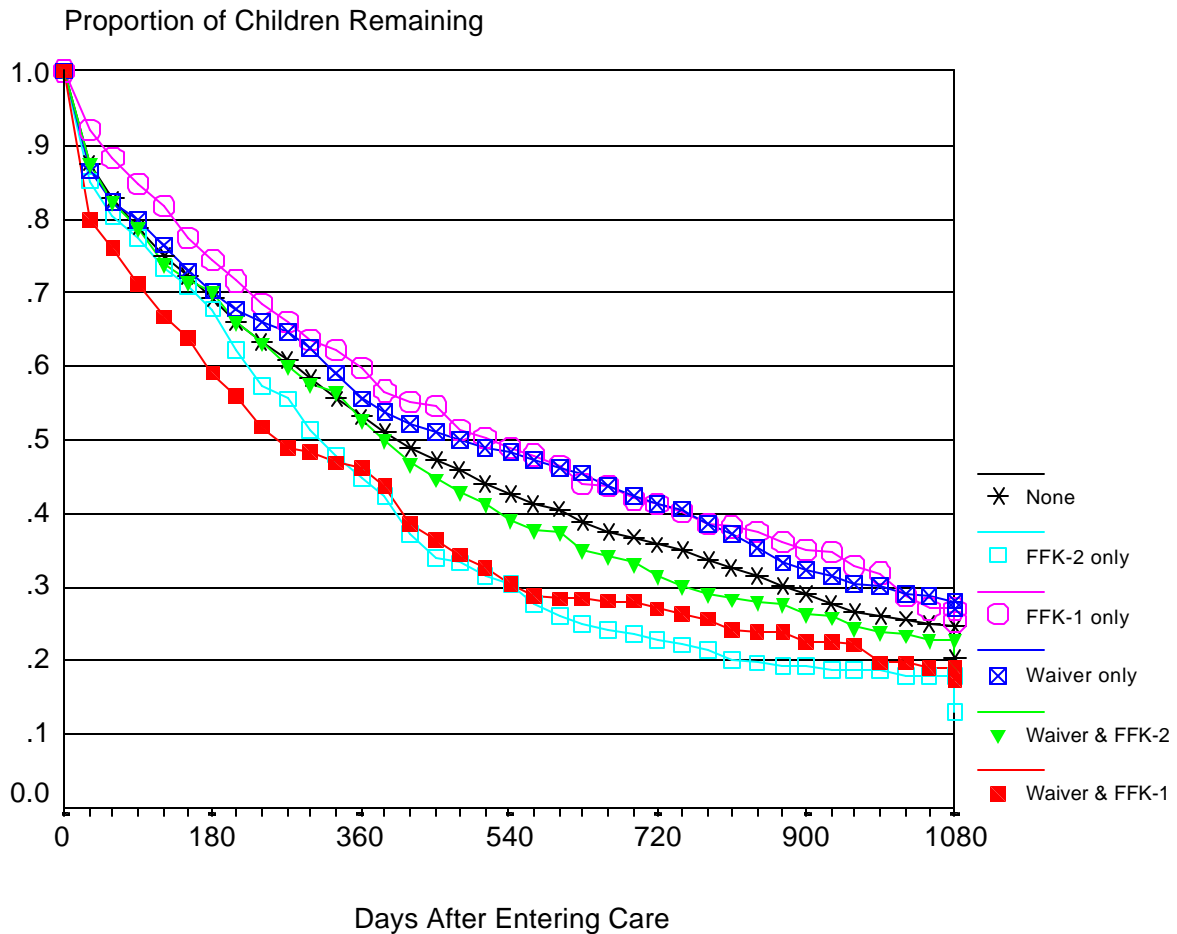
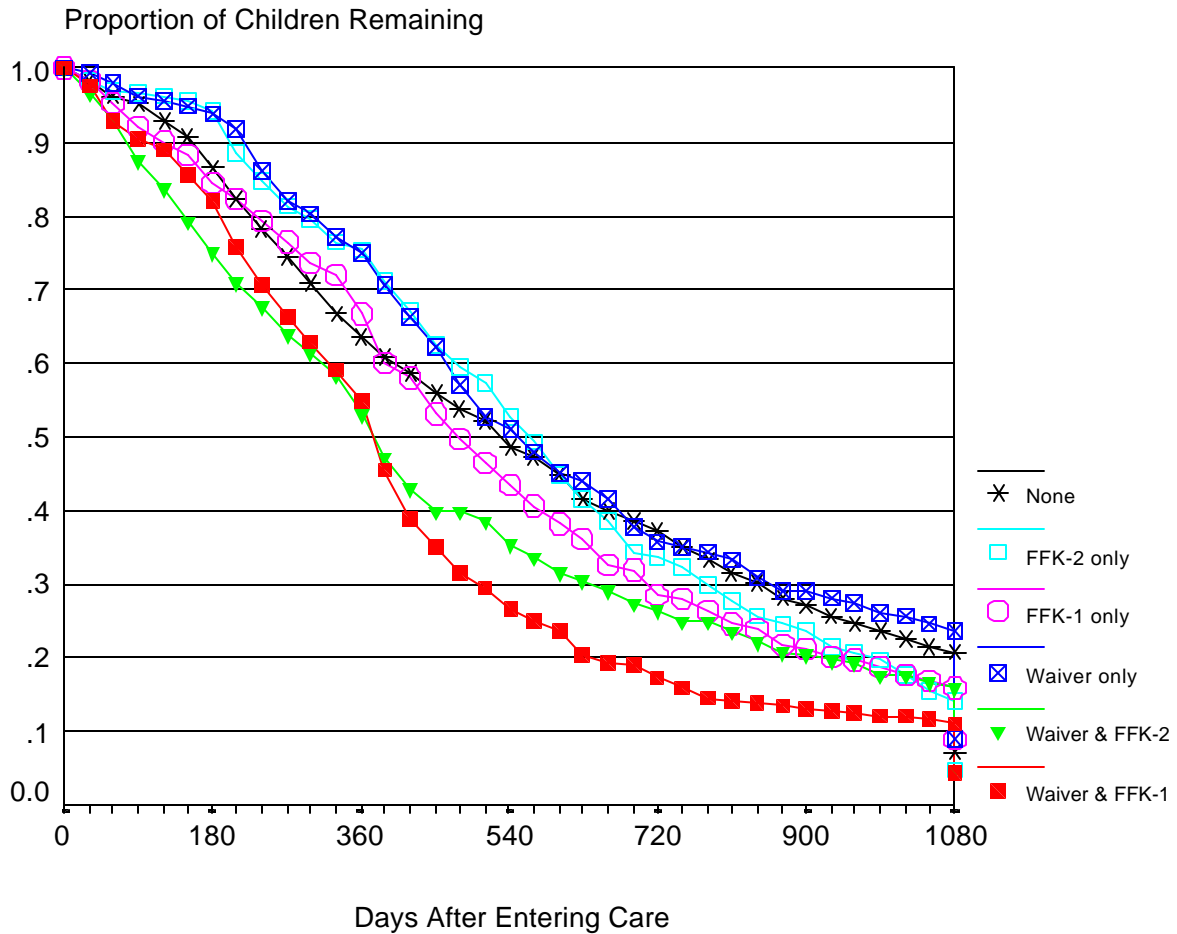


Exhibit 3.20 illustrates length of stay for children ever placed with a relative, initially or subsequently, who entered placement authority in SFY95 and SFY96. For these children the lowest probability of remaining in placement authority after 360 days are children in Waiver/FFK1 counties and Waiver/FFK2 counties. There is little difference in median length of stay between these two groups for children who entered placement authority in SFY95 and SFY96 – both have median lengths of stay of approximately one year. This is in contrast to children never placed with relatives for the same years, where there was a difference between Waiver/FFK1 and Waiver/FFK2. Other county subsets – Waiver only, FFK1 only, FFK2 only, and none – all had median lengths of stay more than one year.

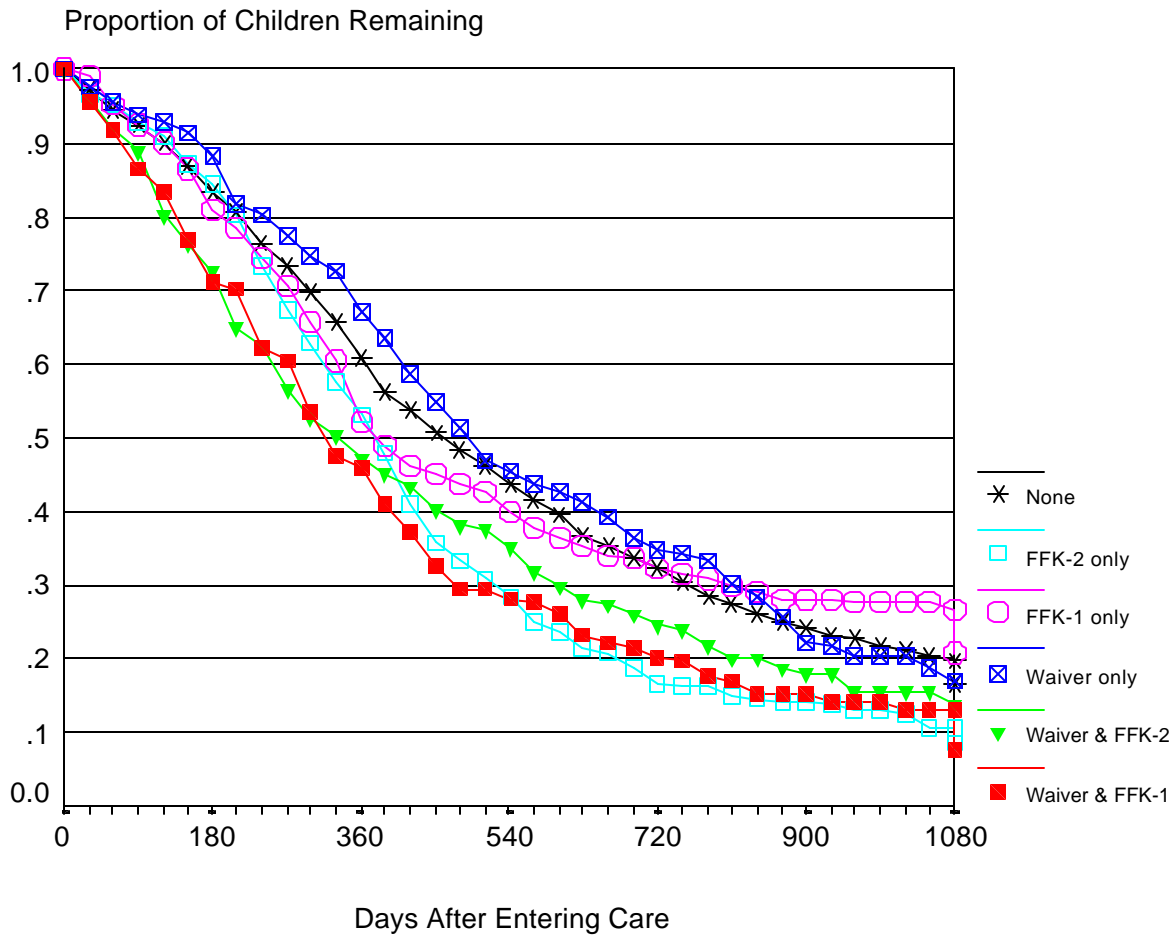
Exhibit 3.20 Length of Time in Placement for Children with Relative Placements, SFY95-97



In Exhibit 3.21, children who entered placement authority in SFY97 and SFY98 and were ever placed with a relative, the survival curves are closer together. Again, there is little difference in median length of stay for Waiver/FFK1 and Waiver/FFK2 counties – it is approximately 360 days for both.

From these stratified survival curves a few general observations can be made at baseline. Counties involved in both the Waiver Demonstration and FFK1 have the shortest lengths of stay, followed by FFK2 counties involved in the Waiver. This holds for children with and without relative placements, across several years.

Exhibit 3.21 Length of Time in Placement for Children with Relative Placements, SFY97-98



Exhibits 3.22 and 3.23 depict a more simplified illustration of median lengths of stay. In Exhibit 3.22, we see that the general trend across the state, from SFY95 to SFY97, was a decrease in the median length of stay. However, from SFY97 to SFY98, all Waiver counties and FFK1 only counties increased their median length of stay. For children never placed with a relative, the decrease may reflect a changing population, for example, children with more significant needs. In Exhibit 3.23, we see a general decline across cohorts in median length of stay in relative placements.

These analyses illustrate the methodology that will be used to assess the impact of the Waiver on length of stay in placement, controlling for the impact of FFK1 and FFK2. They also describe baseline characteristics in Waiver and comparison groups and identify the departure point from which change will be assessed.

Exhibit 3.22 Median Days in Placement for Children Never Placed with a Relative, SFY95 – 98

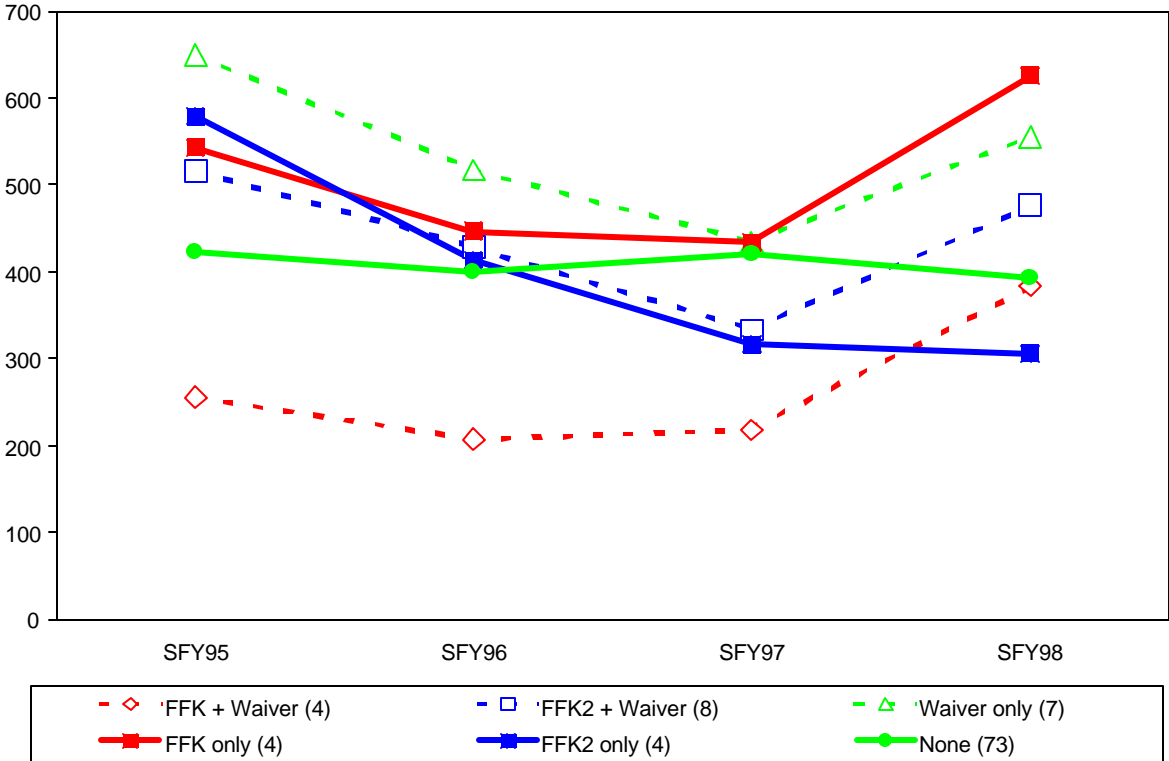
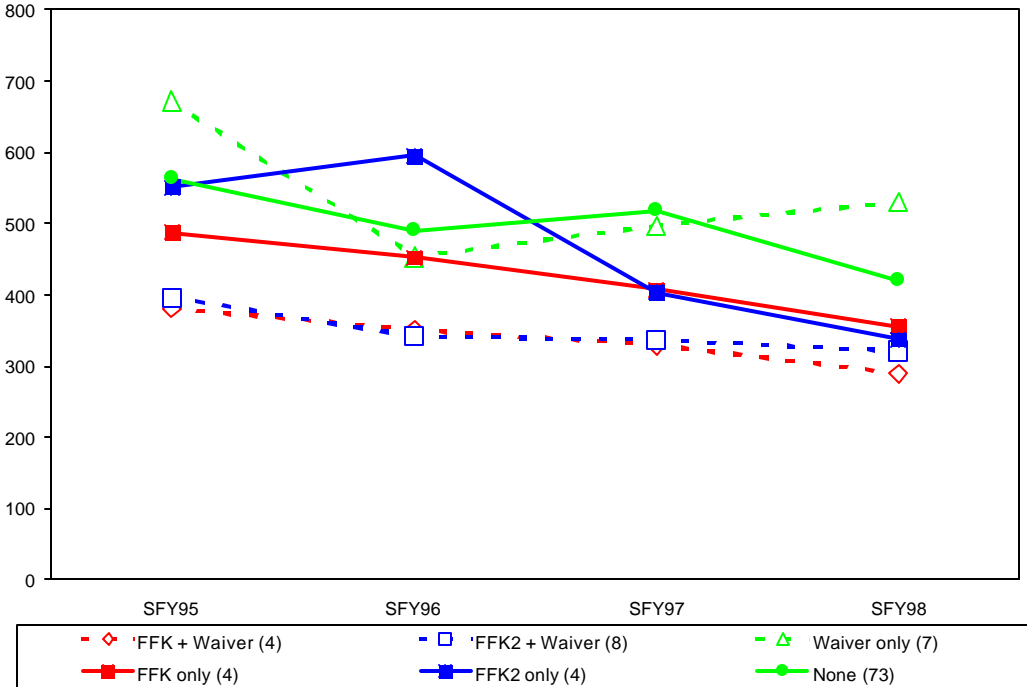


Exhibit 3.23 Median Days in Out-of-Home Placement for Children with Relative Placements, SFY95-98

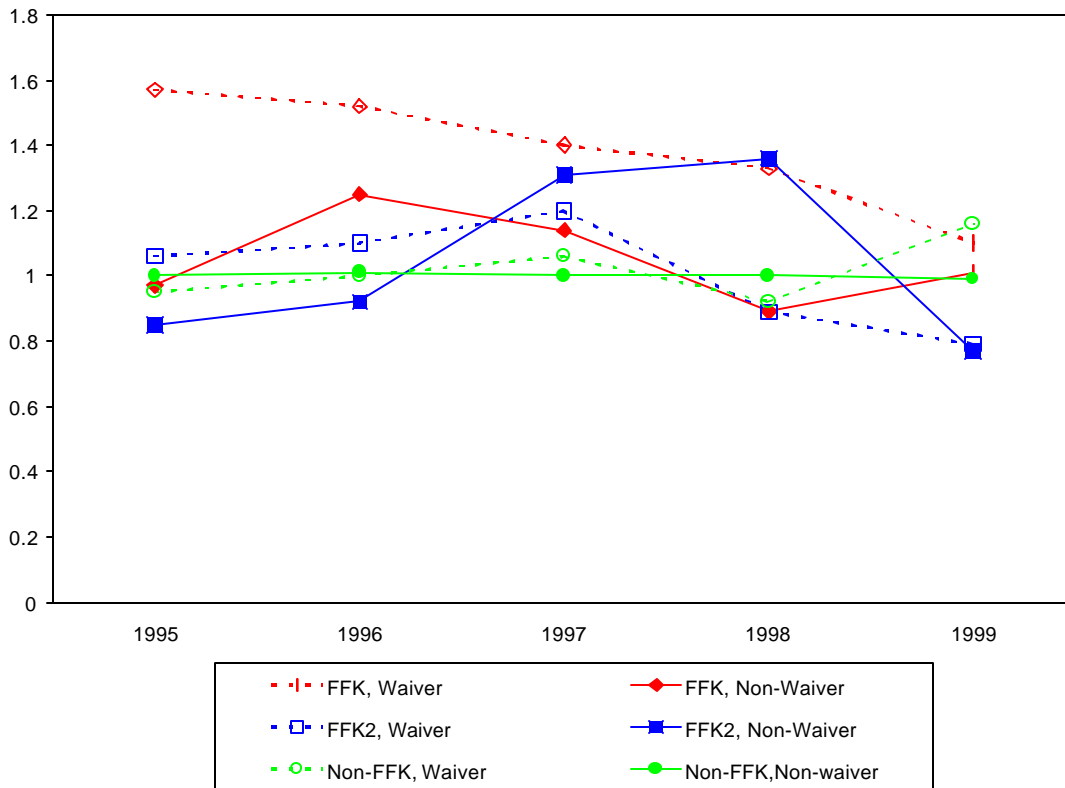


Stratified analyses provide a first glimpse at changes in length of stay over time by FFK status. However, this approach does not control for various potentially confounding factors, such as size of county and differences in child characteristics (age at placement, racial identity, etc.). In particular, data about care needs are not captured in the evaluation because no information of this type is recorded in the case information system. We will attempt to incorporate risk factors for a subset of children in the future by including some vital statistics data about children's birth weight, delivery, mother's prenatal care, and other medical and social characteristics relevant to child well-being, and the probability of subsequent abuse, neglect, and entry to placement authority. We will then use PH models estimate the relative risk (RR) of exiting placement authority while adjusting for confounders, the first step in sorting out the differences in outcomes due to Waiver participation. These models provide a more precise estimate of the effect of the Waiver on length of time in placement authority by comparing the "risk" of exiting for children in a Waiver county to the "risk" for children in non-Waiver counties (i.e., RR).

To estimate the relative risk of leaving placement we fit PH models that include an indicator for Waiver and FFK participation status, as well as, variables that represented county size (Level 1, Level 2 and Level 3). Since the placement experience tends to be different for children placed with a relative compared to children in other placements, we fit separate models for these two groups of children. We selected children in non-FFK/non-Waiver counties who initially entered out-of-home placement in SFY95 as our baseline group for comparisons. Overall African American children are less likely to exit placement than children of other races, reflecting the longer lengths of stay that African American children experience. Children who enter placement in smaller counties (i.e. levels one and two) tend to exit more quickly than children who enter in level three counties. Finally, Exhibit 3.24 graphically depicts the significant differences in RR for children by FFK/Waiver status.

Children in non-FFK/non-Waiver counties had virtually unchanged lengths of stay from SFY95 through SFY99. Children in counties that are Waiver participants but not FFK participants had similar length of placement experiences as the non-Waiver/non-FFK children from SFY95 through SFY98, but in SFY99 we see a significant increase in the RR to 1.2 indicating that children entering placement in this year had a 20 percent greater chance of exiting than the comparison group signifying a shorter length of stay.

Exhibit 3.24 Likelihood of Leaving Out-of-Home Placement for Children with No Relative Placements



In SFY95 children entering placement in counties that are now designated as FFK/Waiver counties were almost 60 percent more likely to exit placement (as indicated by a RR = 1.6) than children in the baseline group of non-FFK/non-Waiver. These children were also significantly more likely to exit than those in the FFK/non-Waiver group. There is a steady decline in the RR of children in FFK/Waiver counties while in the FFK/non-Waiver counties there is an increase in RR (i.e. a decrease in length of stay compared to the baseline group) in SFY96 followed by a decline in the ensuing years. The overall patterns for these two groups of counties, comprising only the original eight FFK counties differentiated only by Waiver Demonstration status, is somewhat similar across the years except that the shortest lengths of stay are seen in SFY95 for one group (FFK/Waiver) and in SFY96 for the other group (FFK/non-Waiver). Since we know that FFK counties substantially reduced the number of children entering placement authority it is likely that this increase in length of stay is due at least partially to a shift in caseload characteristics. It is premature to assess the final length of stay for SFY99. Ongoing follow-up of these data will

determine whether the FFK counties can use the more flexible resources available because of the Waiver to more quickly achieve permanency for children.

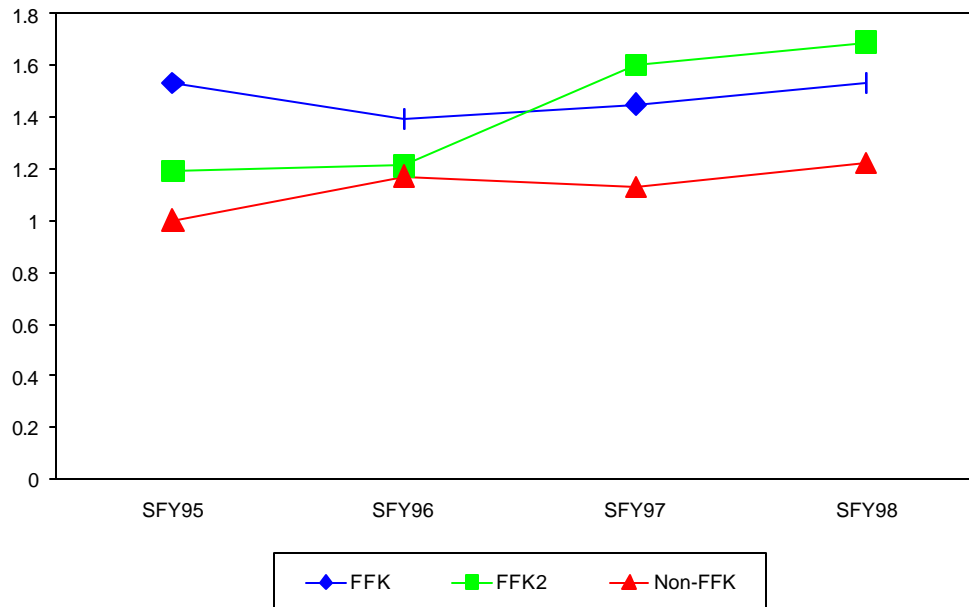
The last groups of counties depicted in Exhibit 3.24 are the FFK2/Waiver and FFK2/non-Waiver counties. FFK and Waiver implementation is even more intricately interwoven in these FFK2 counties because the planning and initial implementation periods of the two initiatives overlap. From SFY95 through SFY98 the length of stay for children in these groups of counties are similar and there is not much change across the years. We will continue to track length of stay in these counties to determine whether the SFY99 decrease is the beginning of a decline in length of stay or an isolated year.

These analyses demonstrate that our assessment of the effect of the Waiver Demonstration on length of stay must also consider the impact of FFK on this outcome. It is apparent from Exhibit 3.24 that the relationship between the two initiatives varies over time and by group. Not all Waiver counties demonstrate the same trends and neither do all FFK counties.

Length of stay analyses for children who have spent at least part of their time in placement with relatives also illustrates this point. Relative risks for children with relative placements, depicted in Exhibit 3.25, reveal that for this group of children there are no differences in length of time by designated Waiver status, only FFK status is significantly related to length of time in placement. Similar to children with no relative placements, children from FFK counties were about 60 percent more likely to exit care (RR=1.6) in SFY95 than children in non-FFK counties and children in FFK2 counties were 20 percent more likely to leave placement than the comparison group in non-FFK counties. However, contrary to what we observed for children with no relative placements, there is an overall increase in the RR (indicating a decrease in the length of stay) for children from FFK2 counties from SFY95 to SFY99. In FFK1 counties the pattern is slightly different with an early decrease in the RR followed by an increase.

The early decrease and then increase in the length of stay for FFK1 counties could reflect the stage of reform in which the counties are engaged. The early successes in reducing length of stay in the FFK1 counties (i.e. those observed in SFY95) were followed by a period of increased length of stay due, possibly due to changing characteristics of children brought about by only bringing into care only those children for whom there was no alternative to out-of-home care. Recent increasing trends in RR for SFY96 to 98 suggest that counties may have modified practices in identifying relative caregivers. The years prior to SFY98 must be considered baseline years for the FFK2 counties. Changes in length of stay due to implementation of the Waiver and FFK will be assessed in light of

Exhibit 3.25 Likelihood of Leaving Out-of-Home Placement for Children with Relative Placements by FFK status for SFY95-98



this baseline. It is evident that baseline experiences in terms of length of stay vary significantly by FFK status and changes due to the Waiver implementation must be assessed in light of these different baseline experiences.

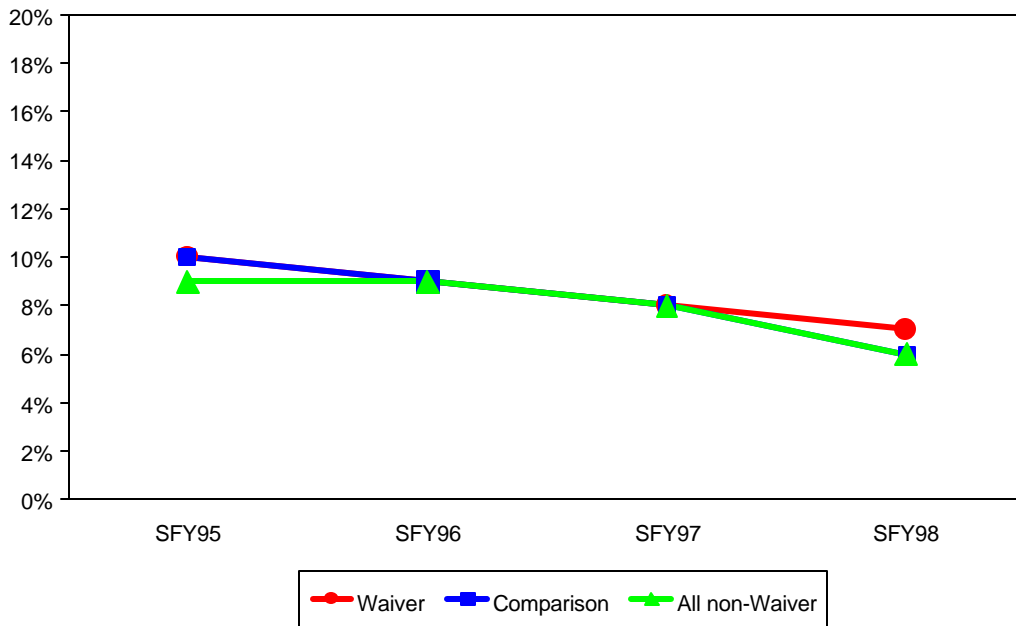
Reentry to Placement

Returning to child welfare custody after having achieved permanency at the end of a period in out-of-home care can be an indication of ineffective services. A high rate of re-entry to care suggests poor assessments of the family's ability to protect and nurture the child, or inadequate reunification or post placement services. Also, to ensure that perverse incentives are not incorporated into the Waiver, it is important to assess this outcome in light of changes in other outcomes such as length of stay. Decreasing length of stay accompanied by increasing reentry rates *may* be an indicator that children are leaving foster care too quickly.

Exhibit 3.26 summarizes re-entry rates for Waiver, comparison and all non-Waiver counties. Overall the reentry rates in all counties in North Carolina are relatively low, less than 10 percent in all years. Waiver, comparison counties and all non-Waiver counties have virtually the same reentry rates in these years. Since children who exited placement authority in SFY97 and SFY98 have had substantially less time to reenter, the graph deceptively suggests that reentry may be decreasing in

recent years. As we continue to track this indicator, the approximately 10 percent reentry rate seen in the earlier years provides an appropriate baseline for comparison.

Exhibit 3.26 Reentry to Out-of-Home Placement for Children with a Completed First Placement Spell, SFY95-98



Future Analyses

The outcome analyses presented in this section summarize the analytic strategy adopted for the Waiver Demonstration evaluation and provide baseline data from which to assess changes in outcomes due to Waiver participation. There are, however, several areas of the analyses that warrant discussion about proposed next steps.

First, our use of data from the Child Abuse and Neglect registry to calculate the probability of entering placement authority is still in the very early stages. There are as yet unresolved data issues that constrain these analyses. We currently restrict our descriptive analyses to examining the probability of entering out-of-home placement within a year of the first initial substantiation and without consideration of whether there is an intervening abuse/neglect referral and/or substantiation. Since the circumstances, and ultimately the outcomes, of a child who immediately enters out-of-home placement following an initial substantiation is possibly different than that of a child who enters out-of-home placement after subsequent referrals and substantiations, we will

continue to explore ways to capture these differences in the data. This expansion of the use of these data will also substantially enhance our definition of future safety of children. Using a subsequent substantiation indicator and not simply future re-entry to out-of-home care, we can better determine whether a child endured subsequent abuse or neglect following the termination of an initial placement spell.

A second issue that affects all of our outcome analyses is the operationalization of the “Waiver” indicator. Currently, this indicator simply reflects a county’s designation as participating in the IV-E Waiver Demonstration. It does not distinguish the different implementation paths that counties may have chosen to take under the Waiver. We will use information developed in the process evaluation and the cost benefit analysis to develop a more sensitive indicator of Waiver status. Thus, we should be able to distinguish between counties that made substantial agency-wide changes in practice and policy due to the Waiver and those that made more focused less encompassing modifications. Using such an indicator in the outcome analyses will provide a more valid estimation of the impact on outcomes due to Waiver participation.

We also will continue to investigate the issue of appropriate variance estimation given the clustered county sample of the Waiver evaluation design. We have already begun to address this by using SUDAAN® (Survey Data Analysis software) for some of our hypothesis testing analyses. However, given that the Waiver is an initiative that is appropriately implemented at the county level in North Carolina and that we do expect all children within a county to experience some of the beneficial effects of the Waiver (i.e. should be correlated in some respects) we must be cautious that our use of SUDAAN® does not diminish our ability to detect real differences due to the Waiver. The use of a more sensitive Waiver indicator will address this issue in some respects. Additionally, we will examine the possibilities of including agency contextual variables in our models to adjust for differences due to agency structure, policy and practices.

Finally, we are beginning to explore ways to analyze Waiver outcomes that are related. For example, we see that as the number of children entering placement authority declines, overall length of stay often increases. Child welfare staff suggest that this is due to the changing nature of the caseload; that is, when children with less severe problems or family circumstances are served within their own homes and preventive services are provided to families, the number of children entering placement authority declines, and consequently, the children entering placement authority have more intensive needs. As a result, a larger proportion of this smaller group remains in placement for longer periods of time. At this stage of the evaluation, we are unable to test this hypothesis, but will examine ways to do this as the analysis proceeds.