

A New View of Foster Care Data



**An exploratory report on using longitudinal analysis of North Carolina data to
measure foster care outcomes.**

Mike Dolan Fliss
Sponsored by Second Family Foundation

A New View of Foster Care Data



An exploratory report on using longitudinal analysis of NC data to measure foster care outcomes.

Abstract: Data analysis on foster care from other research bodies (like UNC) often focuses on multi-year, population level snapshot comparisons of demographics. Second Family Foundation funded exploratory research in using existing state collected, county-level foster care data to attempt longitudinal and outcome analysis of 13 to 15 year olds in foster care as they progress through the system over time. This report details the research process, outlines challenges encountered, suggests new strategies for confronting those challenges, and offers next steps for longitudinal analysis of outcomes for children in foster care.

After considerable trial and error, two test cohorts (13-15 year olds in 2007 and 2010) foster care were selected largely based on data integrity limitations. Data from state form 5094 for both cohorts was compared, verified against paper records at Orange County, and then the 13-15 in 2007 group was compared to that same group "aging out" of care in 2010 (16-18 year olds in 2010). The attempted longitudinal analysis was challenged by data loss from migrating database solutions at the state without complete data transfer, inter-county variation on field use, form revisions, etc. Focusing on a specific, calculated longitudinal indicator ("number of moves") and its variants (e.g. "avg # moves / yr") suggests new avenues for research and opportunities for deeper data use at the state and county level (e.g. by comparing to demographics or outcome data).

Keywords: foster, foster care, teenager, database, state, county, longitudinal, retroactive, analysis, cohort, CSDW, NC

Project Origin

Second Family Foundation (SFF) constructs and funds supplementary support services and programs for teenagers in foster care in Orange County, North Carolina. We searched for an understanding of who these teenagers and aging out of foster care youths were. We worked with the State's Division of Social Services to seek and establish a baseline for this important population in hopes of informing the Second Family Foundation programming and educating the County and State. Additionally, SFF was interested in learning about the State's foster care database to establish familiarity for future State research partnerships.

Over the course of this project, gaining a better understanding of this part of the foster care population became even more relevant to SFF, Counties, and States as the U.S. Congress set mandated guidelines that established the National Youth in Transition Database (<http://www.acf.hhs.gov/programs/cb/resource/about-nytd?page=all>) in 2008. The initiative requires all fifty states to track demographics and outcomes for some of the youth aging out of foster care. This project offers possible longitudinal indicators that may contribute meaningfully to those age-out outcomes.

In 2011 SFF began a second research initiative, this time partnering locally with the Orange County Department of Social Services using data from the State to conduct a focus group with teenage foster youth from Orange County over the last 20 years. We hope that this exploratory project combined with the findings from the focus group study will together produce a better understanding of the teens in foster care in NC, and Orange County in particular, and contribute to better practices and programs for this population.

NC DSS representatives were willing to work with Second Family on this basis. The project began thanks to the support of Dawn Cambridge, with Leah Fullerton pulling multiple datasets. After data challenges and staff turn-over, the project was closed out with expert support from Heather Bohanan. Without their support and guidance, this project could not have gotten off the ground or come to completion.

Timeline

- 2009** Hired Researcher, Mike Fliss
Submitted Data Sharing Request for three participant samples
- 2010** Data Sharing Request approved
First set of data received
Data analyzed, questions fielded by state
- 2011** Second set of data received
(Payment fields had created duplicate records, skewing results.)
- 2012** Analyzed dataset, brought preliminary findings to state for review.
(Learned that only data after 2007 was the most reliable, likely due to data storehouse transition.)
Third & fourth data sets received. Last set was sufficient for analysis.
- 2013** Data analysis and report completed, ending project.

Data Request & Challenges

Data came from the DHHS Client Server Data Warehouse (CSDW) database representing the Division of Social Services, Child Placement and Payment Report, form DSS-5094 (see **Appendix A**). Form DSS-5094 is used primarily to track funding sources and payments for children in the custody of any NC County department of social services. Each County is responsible for keeping the records current.

When this project was conceived in 2009, the initial data request was to pull data snapshots from 2004 and 2009 to build three cohorts for comparison: cohort A, 13-15 year olds in 2004; cohort B, 13-15 year olds in 2010; and cohort C, the A cohort as they “aged out” of the system at 18 years old in 2007, 2008 and 2009. These cohorts would be compared to each other as 13-15 year old snapshots at two points in time. Demographic analysis is already available through aggregate summaries available from Dean Duncan at UNC in collaboration with DHHS (<http://ssw.unc.edu/ma/>), though does not have a breakdown to the 13-15 age range or longitudinal data analysis. By comparing cohorts A and C, we hoped to build an exploratory longitudinal time study of cohort A as

they aged out of the system, in effect giving us a “before and after” to draw new data from. Five years was estimated to be enough time to see statistical changes in the cohort.

The data request to the state was made with this structure. Multiple challenges arose in extracting the data from CSDW, however. First, SFF requested social security numbers as part of the original data request, which slowed down the approval process significantly. SSNs were originally included for two reasons: (1) the other “unique” identifier, SIS ID, might be changed if clients moved between counties, and (2) the prospect of linking clients to other state datasources (like education data at the Department of Public Instruction or law involvement through the Department of Juvenile Justice) would require cross-department unique IDs. This challenge was overcome by offering to use a database technique to obfuscate the social security numbers (“hashing” the IDs into similarly unique, but indecipherable IDs where the state had the hash key: see **Appendix B** for the SFF briefing offered to NC DSS).

The second challenge was in SQL data extraction from the CSDW database. Few reports are run on the data, so CSDW became more a data repository than the supplier of reportable data. A number of months were spent in back-and-forth data pulls and data verification. By the third or fourth data pull with unexpected results, NCDSS suggested changing the cohort years for two reasons: (1) the DSS-5094 was last revised 5/05, making pre-2005 data unreliable and (2) the database was last rebuilt in 2007, making pre-2007 data unreliable and incomplete (the count of records seemed dramatically below what SFF and state point people thought were valid). Thus, cohort A was shifted to 2007 (1743 records of 13-15 year olds in 2007), and cohort B, consequently, was shifted to 2010 (1234 records of 13-15 year olds in 2010).

The original cohort method attempted to build a longitudinal subset by two snapshots (with cohort C being the subset of the 2007 cohort A who had records in 2010, when they would have aged to be 16-18. This was abandoned for after dataset problems for the more thorough method of retrieving all years records on file for the 2010 cohort B, with the thinking that, if data was questionable from 2007 backwards, we’d get the best data integrity by focusing on the most recent cohort and going backwards and forwards as far as possible. Thus, the new “cohort C” is just the longitudinally tracked cohort B, with records going as far forward as 2012 (when a child would be 15-17 years old) and select records as far back as 1992 (when a child would be 2-4 years old). All but one 2010 record had longitudinal data (1233 records).

After acquiring the data, obstacles in data handling itself were as follows:

- County variation in coding – Particularly use of the “move” fields
- “Secondary status fields” – not reliably or regularly updated
- Unique IDs – IDs sometimes not unique or available, especially with movement across counties.
- Name misspellings, race mis-matches, etc. that split children’s records.
- Year-to-year form changes

Analysis

Final data tables were pulled down from the CSDW portal into excel, and combined on a biometric (fingerprint) secured computer. Excel was chosen over more formal statistical software because of (1) the comparably small

number of records and (2) the complicated, custom formulas needed to combine records into a longitudinal story (e.g. counting moves but excluding brief respite visits). Some fields, when pulled back out of the database, were deemed unfit for useful analysis. The full list of fields on the 5094 with notes is included in Appendix A.

Preliminary latitudinal results were explored to verify data integrity. However, the novel activity of this project is the exploratory longitudinal data analysis (second **Results** section) – these findings suggested that the database with slight modifications might yield meaningful indicators to further research.

Results: Latitudinal 2007 to 2010 Snapshot Comparisons

A basic cross-tabs mean/frequency analysis was performed on the cohorts at the state level (with summary results in Appendix C). Data showed that 13-15 year olds in foster care in 2007 were a very similar cohort to those in 2010, with the following exceptions.

Size of population: Foremost and notably, the total children in foster care by the database records shrank nearly 30% from 2007 to 2010. See Appendix D.

Placement Authority: Some specific field results, however, demonstrated representative challenges in analysis. For example, placement authority showed small shifts, some of which were statistically significant, but also had clear errors or new codings: (1) a code clearly meant not to be used was used once in 2010, which would not throw off the chi-square; (2) “Contractual Agreement for Residential Services” is newly used in 2010, 256 times to its one use in 2007, which contributed to a lower chi-square probability when included in the analysis

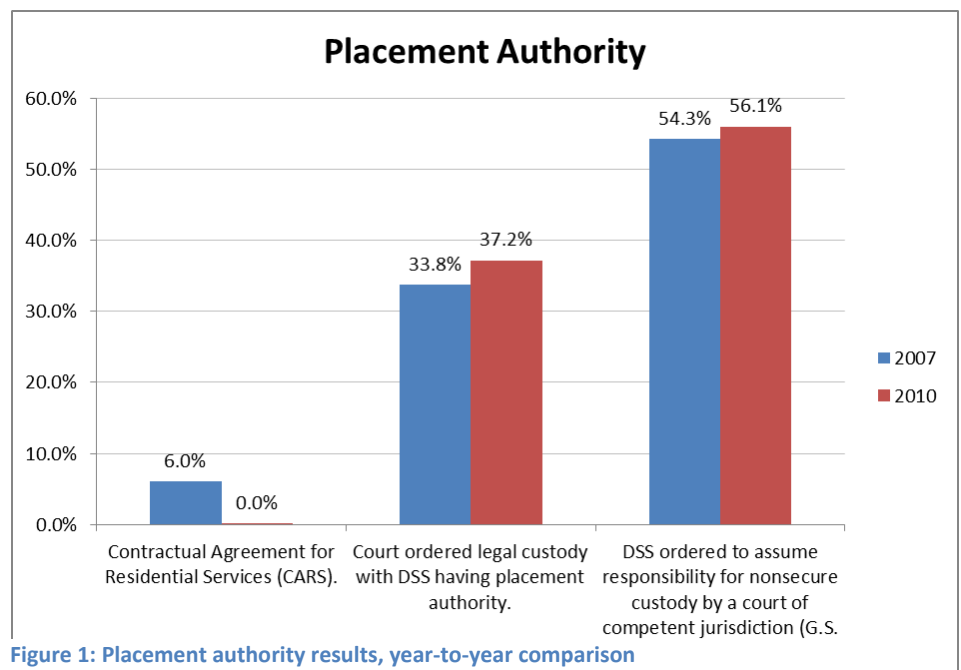


Figure 1: Placement authority results, year-to-year comparison

While a chi-square result of 0.0024 is still significant, including the new coding instructions throws the chi-square to 2.06×10^{-35} . In short, differences in coding instructions or habits between years, even just the three years between these two cohorts, may produce significant errors in analysis. Causes aside, however, it seemed that placement authority “DSS ordered to assume responsibility for non-secure custody by a court of competent jurisdiction (G.S. 7B-502)” went up 4.5% between 2007 and 2010, and “Court ordered legal custody with DSS having placement authority” went down 4.1%.

Placement Authority Reason: Of 15 different coded reasons for placement authority (allowing for multiple reasons per child; not mutually exclusive), all but 4 were statistically insignificant changes from 2007 to 2010. “Reason: Sexual Abuse” rose 1.4% at 95% confidence; “Reason: Child Drug Addict” dropped 1.4% at 99% confidence; “Reason: Death of a Parent” rose 0.6% at 95% confidence; “Reason: Inadequate Housing” dropped 2.6% at 99% confidence; and “Reason: Neglect” rose at 6.5% confidence. Notably, “Reason:

Coping” dropped 2%, but given its frequent coding (around one out of

four children had that reason listed), the chi-square test suggested it was just as likely due to chance as statistical significance. “Reason: Death of a Parent” may only have increased 0.6%, but at 50 cases, that change was statistically significant, albeit with a very low number that may discount its inclusion. “Reason: Child Drug Addict” is right on the border of being too small for this statistical significance test at only 3.0% in 2007. Lastly, both “neglect” and “coping” are highly common codings, making them possible catch-alls that might not as accurately represent distinct categories. However, the placement authority reasons of sexual abuse increasing, inadequate housing decreasing, and, with caution, general neglect increasing may be conservatively taken to be statistically significant.

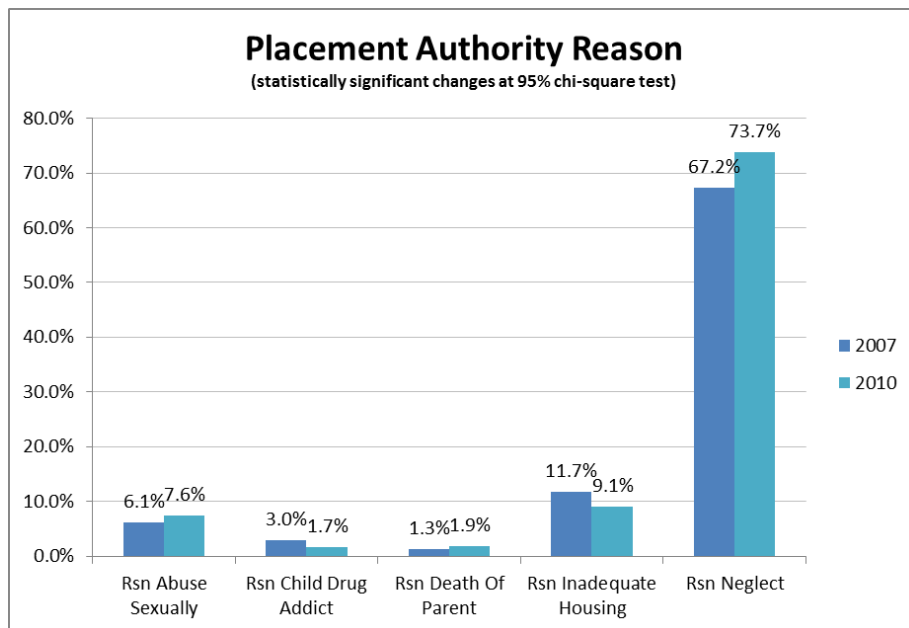


Figure 3: Placement Authority Reason results passing 95% chi-square test

Permanency Indicator
Move: No progress towards permanency
Not a move: No progress towards permanency
Move: Progress towards permanency
None Listed
Not a move: Progress towards permanency
Not collected

Figure 2: Permanency Indicator representation in CSDW

Results: Exploratory 2007 longitudinal indicators & outcomes.

One of the major draws to and innovations of this project was the possibility of longitudinal data points unavailable when comparing one year’s snapshot to another. The following are the longitudinal indicators that were explored:

Moves: Being able to count the number of moves a child experiences during their time in foster care was one of the earliest aims of the project. This would enable meaningful comparisons between counties, for instance, average number of moves or average stay in foster care. Unfortunately, data validity challenges made this difficult with only a few years of “good” data in the system at the time of this project. However, even with data integrity challenges, proof- of-concept move counting was completed for foster care children aged 13-15 in

2010. Again given the challenges to data integrity, this should be considered a “proof of concept” with only limited validity without further study.

1233 foster care records had multiple move records in 2010, enabling counting analysis. While CSDW’s 5094 representation does contain a “Permanency Indicator” field (see Figure), the data suggested that there was widespread variation in its use. In addition, not all date information for moves was included, further confounding analysis. The initial counting algorithm and results were as follows:

A “Move” was defined as any of the two “Move” permanency indicators combined with filters to make sure the date ranges were sensible (start date before end date, i.e. length of stay greater than zero days). However, this data analysis without adjustment for errors produced unbelievable values – foster care children with dozens of moves per year, in some cases over one hundred “false moves” in the database. Note in figure 4 the Union County data, representative of these errors: four children had an average of 20 moves/year listed, with one as many as 12 moves in a short period of time (creating the unbelievable 73.1 moves/yr data point). This is both a challenge of the indicator definition (2-3 moves in a week, with that being the only week on record, create a large moves/yr data point), and a county-to-county difference in coding something as a move vs. not a move. An algorithm was needed to handle these data challenges

Duration of stay in the foster care system was approximated by taking the earliest and latest dates on record. While seemingly the only method available with this data set, there are obvious problems with this approach, e.g. children in and out of foster care with large gaps between.

Closer data analysis revealed that, due to regular billing, some counties or case workers did not update the permanency indicator when filling out the 5094 for the next month, producing a move for every monthly billing cycle. Facility ID was also a possible tool to weed out duplicate

Top 20 Count-of-Moves totals / county					
<i>pass: no adjustment for data errors; sort by Max Moves/Yr</i>					
County	Cases	Avg of Moves/Yr	Avg Years / Move	Max Moves/Yr	Max Moves
Union	4	20.6	0.7	73.1	12
Currituck	3	20.0	0.3	56.2	11
New Hanover	42	3.7	1.4	40.6	51
Cleveland	26	10.5	0.4	36.5	42
Cumberland	82	7.2	0.5	29.5	104
Lenoir	9	11.0	0.2	26.1	34
Hertford	6	16.5	0.1	25.6	193
Anson	4	7.7	0.3	22.1	6
Davidson	15	7.7	1.1	21.4	96
Robeson	17	3.8	0.9	20.9	28
Rockingham	18	2.5	1.9	20.3	15
Clay	5	9.9	0.2	20.3	13
Sampson	19	4.4	0.5	18.3	28
Mecklenburg	121	2.1	1.4	18.3	56
Rowan	24	5.7	0.7	16.5	42
Edgecombe	10	4.4	1.1	16.4	17
Alamance	17	4.7	0.5	15.9	73
Richmond	5	4.5	0.7	15.1	9
Pitt	25	5.7	0.5	14.1	50
Durham	32	3.1	0.5	13.6	64
Grand Total	484	5.2	0.9	73.1	193

Figure 4: Count of moves roll-up for top 20 max moves/yr counties, no adjustments (Data errors represented)

Adjusted Count-of-Moves totals / county							
<i>(Moves 5-25 days, 32 days+; sort by Avg Months between moves)</i>							
<i>for cases with >6mo duration</i>							
County	Cases	Max Moves	Max Duration (Yr)	Avg Duration "in system" (Yr)	Avg Mos Btwn Moves	Avg Moves /Yr	Max Moves /Yr
Surry	4	8	9.2	4.3	40.4	0.8	1.8
Guilford	45	16	16.8	5.4	40.3	0.6	2.3
Yadkin	5	1	5.8	3.3	40.1	0.4	0.6
Rutherford	14	11	14.7	7.2	30.8	1.0	3.9
Vance	14	7	12.9	5.9	29.1	0.9	2.3
Bertie	7	5	16.9	5.7	28.5	0.7	1.4
Rockingham	18	9	14.6	5.0	27.3	1.1	3.1
Henderson	11	16	13.5	4.1	25.9	1.8	3.6
Franklin	5	17	7.0	4.6	25.7	1.1	2.4
Pasquotank	4	4	7.0	5.4	24.5	0.5	0.7
Clay	5	9	4.2	2.3	5.5	2.2	2.7
Anson	4	6	3.2	1.3	5.3	2.4	3.0
Hertford	6	31	13.3	6.3	5.1	2.8	4.1
Granville	10	19	15.5	3.8	5.0	3.7	8.3
Lenoir	9	21	4.0	2.2	4.8	3.8	8.7
Watauga	7	12	3.7	2.2	3.7	3.6	5.4
Alleghany	1	10	2.8	2.8	3.4	3.5	3.5
Camden	1	14	3.4	3.4	2.9	4.1	4.1
Lee	1	7	0.9	0.9	1.6	7.5	7.5
Martin	1	5	0.7	0.7	1.6	7.5	7.5
Grand Total	1233	39	17.3	4.4	16.0	1.8	17.9

Figure 5: Top and bottom 10 counties on “average months between moves.” Full table in Appendix E.

moves (a move to and from the same facility ID is likely not a true move), but not all facilities had facility IDs, further complicating the analysis.

Given that billing cycles on these “false-moves” were monthly, it was expected that setting a minimum duration of stay to be 32 days would incorrectly not count shorter, true moves in the total, but may have a more positive impact overall on the large number of moves. Therefore, a two-sided filter was used that did not count any moves between 25 and 35 days as a move – hoping to maintain short moves while still weeding out billing cycle moves.

This full table is included in **Appendix E**.

In the future, with potentially better data, this is certainly “low-hanging fruit” as a next step for data analysis. Suggestions for database design and other best practices to enable counting “# of moves” in the near future are presented in **Possible Next Steps & Recommendations** section.

Proof of Concept: Applications of # of Moves Variable

The idea that minimizing the number of moves a child in foster care experiences may contribute to better outcomes seems valid at face level, the same being true with the idea that certain kinds of experiences or demographics may contribute to increase or decrease the number of moves experienced.

Given the state of the moves data, this preliminary analysis of caretaker count, gender, disability status (emotionally, mentally, physically, visually or other) and race against average number of moves / yr is included only as a proof of concept – there may be a link between these indicators, but without additional research to confirm the validity of the move counting method, these findings should not be taken as statistically relevant.

Plan & Barrier Changes

Lastly, some fields unrelated to move-counts may contain meaningful “before-after” data. By focusing on the subset of the 2007 foster care children who had records in 2010, plan (figure 6) and barrier (figure 7) changes were analyzed as follows. Again, given the data integrity, these findings are meant to be preliminary and exploratory.

Plan Switches, 2007-2010

Reunification to Adoption	14%
Reunification to Guardianship	13%
Reunification to Custody	12%
Reunification to Age Out	8%
Adoption to Age Out	6%

Figure 7: Plan switches. Snapshots at 13-15 in 2007 and 16-18 in 2010.

Avg # of Moves / Yr vs. other categories.		
Category	Avg of Moves/Yr	# in DB
Gender		
Female	3.60	602
Male	3.34	631
Has Second Caretaker		
Y	3.56	508
N	3.40	725
Race / Ethnicity		
Hawaiian or Pacific I	11.69	3
Unable to Determin	6.07	5
American Indian	4.98	12
Black	3.57	506
White	3.41	566
Hispanic Ethnicity	3.07	91
Bi-Racial	2.79	39
Other	2.44	8
Asian	1.97	3
Disabled		
Y	3.59	263
N	3.43	970
Family Situation		
Single Male	3.64	90
Unmarried Couple	3.61	141
Married Couple	3.55	367
Single Female	3.42	617
None Listed	1.70	6
Unable to Determin	1.45	12
Grand Total	3.47	1233

Figure 6: Average number of moves per year vs. select demographic categories. Categories with n < 12 are grayed out to represent face-value validity.

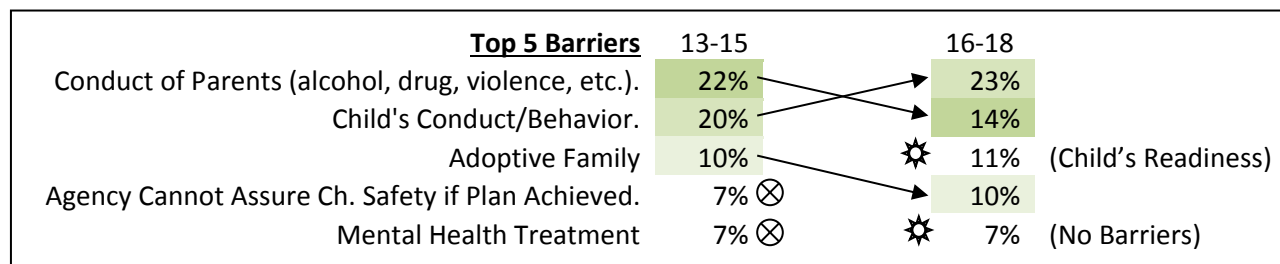


Figure 8: Top 5 barriers overall in 2007 13-15 cohort (and then again when that cohort was 16-18 in 2010).

Possible Next Steps & Recommendations

Collect & Share longitudinal indicators “as you go” through iterative summation: It is often the rule that data is only as good as the frequency of verification of reports built on that data. Consider the case of the indicator “number of moves.” Without counties extracting this data for their clients and comparing against hard records, they would never see this data once it goes into the system. As data storage becomes cheaper and cheaper, the incremental cost of storing and updating longitudinal variables becomes negligible. While traditional database design suggests not storing “calculated” variables within the table (but instead assuming report designers), this model is more or less based on “ideal” databases that are not migrated or subject to data loss.

The pseudo-code for reporting number of moves (outside of the database) becomes something akin to “*If IsValidMove (by comparing facilityIDs, length of stay, etc.), add up all moves in system for this uniqueID.*” This reporting method works only when all of a child’s data is valid, retrievable and tested within the system. This method was attempted in this project, but with data limitations in previous years, these move-counts, while possible (see Longitudinal Results section), are not to be trusted. Instead, consider a stored variable “NumberOfMovesToDate” and a corresponding “DateOfLastNumMovesUpdate”. This could be assigned at any time (for instance, when transferring from county to county or into the state). It could be overridden in case of bad data in the past for that child. It could be updated “iteratively”, that is, a simple, user-verified “+1” when forms (like the 5094) are submitted. Then by showing “NumberOfMovesToDate” in common screens, the assigned social worker managing this case has a chance to regularly review and verify those numbers – in effect, continually verifying the validity of the database as it is worked.

During future update cycles of the database, then, the state could begin calculating iteratively and storing these longitudinal indicators, and presenting them for verification to end users. They could request current cases be updated with these longitudinal variables, effectively “boot-strapping” the longitudinal data onto the system with assistance from social workers handling those cases.

On age-out, assigned social worker transfer, or database migrations, have “front line” social workers gather longitudinal data. Often it is only the social workers who deal directly with certain clients that can know the intricacies of some of these longitudinal data points. For instance, with “number of moves”, consider the following real-world situations that would challenge a purely calculated approach: (1) a child who moves from family member A to family member B, then back to family member A after that family member has changed addresses; (2) a child without an SSN who moves between counties, potentially being assigned new SIS IDs; (3) In addition to the above iterative system of gathering longitudinal data as you go, requesting that assigned social workers do the minimal research it would take to reporting these longitudinal indicators would provide a final verification of potentially important longitudinal indicators. By this method, front-line workers are more culturally-bound to these outcome indicators, if even only a handful, and can therefore keep the indicator integrity in mind on a more ongoing basis.

Run follow-up research when more longitudinal data is available, but also “boot strap” as soon as possible. As the current database and forms age, the possibility for meaningful research increases. However, with the possibility of needing to track up to 18 years of data in order to process longitudinal indicators, this sets an

impossibly high goal of keeping electronic records for nearly two decades in the same system with no modifications and solid data integrity that entire time. Changes in policy, forms, funding, database architecture, back-ups, failures, etc. make this an unlikely possibility. As an example: The current system seems to have valid 5094 data back to 2007. This would mean the first longitudinal data would be ready to pull out of the system (if there were no significant changes in the above aspects) in 2025. This is clearly a long time to wait for solid outcome data.

Therefore, in order to enable longitudinal data collection of outcomes-based indicators, the state would need to (1) select those indicators (suggestions are listed later), (2) make plans to fold in the needed architecture to track them and (3) solicit end user social workers to enter data, possibly back-entering summary data for recent year's children, to bring closer the data longitudinal data might be ready. Then, by saving the summary data in fields within the database, that legacy data is preserved more robustly.

Follow-up research along the same lines as this project within a few years may be able to effectively test this strategy – by 2015, there should be data within the system to track full longitudinal data for children who first enter the foster care system age 10 and up.

Special Thanks

Special thanks to the NC State Department of Social Services for partnering with Second Family Foundation to engage in this exploratory research. Additional thanks go to Heather Bohanan at state DSS, who worked to supply the best possible dataset after years of false starts, fielded questions and gave an appraisal of the data integrity after database transfers. Lastly, thanks to Orange County Department of Social Services for validating this move count algorithm against actual cases – without their help we would have had no ability to verify “on the ground” our interpretation of the state database.

List of Attached Appendices

Appendix A: Form DSS-5094 & Field Notes

Appendix B: SFF Briefing on SSN hashing

Appendix C: Chi-Square Details

Appendix D: 2007 v 2010 snapshot comparison summary

Appendix E: Moves Analysis Tables

Appendix A: Form DSS-5094 & Field Notes

NORTH CAROLINA DEPARTMENT OF HUMAN RESOURCES DIVISION OF SOCIAL SERVICES CHILD PLACEMENT AND PAYMENT REPORT															MO	DAY	YEAR																		
DSS-5094 (Rev. 05/05)																																			
1. COUNTY		2. CASE MANAGER NAME, LAST					FI MI		3. CASE MANAGER SSN					4. COUNTY CASE NO.																					
I. SIS INFORMATION (Complete Fields 7-14 Just for Children who do <u>not</u> have an SIS record: DSS-5027)																																			
SIS	5. CLIENT ID					6. CLIENT NAME, LAST										FIRST		MI																	
	7. CLIENT SOCIAL SECURITY NO.					8. DATE OF BIRTH MO DAY YEAR					9. SPECIAL AREAS					10. SEX		11. RACE		12. SCHOOL		13. GRADE													
II. CHILD INFORMATION (Complete for all Children)																																			
CHILD	14. DISABILITY <input type="checkbox"/> NONE <input type="checkbox"/> PHYSICALLY DISABLED <input type="checkbox"/> MENTAL RETARDATION <input type="checkbox"/> EMOTIONALLY DISTURBED <input type="checkbox"/> VIS/HEAR IMPAIRED <input type="checkbox"/> OTHER MEDICAL CONDITION										15. ADOPTION STATUS <input type="checkbox"/> CURRENTLY FREE? <input type="checkbox"/> PREV ADOPTED? <input type="checkbox"/> ADOPT DISS <input type="checkbox"/> AGE AT PREVIOUS ADOPTION					16. HIV ST		17. IS CLIENT PARENT? Y/N # OF CHDRN		18. SP. POP.															
	III. PLACEMENT AUTHORITY (Complete for all Children)																																		
AUTHORITY	19. TYPE OF AUTHORITY		20. REASON <input type="checkbox"/> NEGLECT <input type="checkbox"/> ALC. (CHILD) <input type="checkbox"/> DEATH OF PAR. <input type="checkbox"/> ABANDONMENT <input type="checkbox"/> CHILDS DISABILITY <input type="checkbox"/> PHYS. ABUSE <input type="checkbox"/> ALC. (PARENT) <input type="checkbox"/> DRUG (CHILD) <input type="checkbox"/> INCARCERATION <input type="checkbox"/> RELINQUISHMENT <input type="checkbox"/> SEX. ABUSE <input type="checkbox"/> DRUG (PARENT) <input type="checkbox"/> CH. BEHAVIOR <input type="checkbox"/> COPING <input type="checkbox"/> INADEQUATE HOUSING										21. BEGIN DATE MO DAY YEAR					22. OUT OF STATE PLACEMENT					23. TERMINATION REASON					24. TERM DATE MO DAY YEAR							
	IV. PRINCIPAL CARETAKER(S) INFORMATION (Complete for all Children)																																		
CARETAKER	25. FAMILY STRUCTURE		27. # OF CHILDREN IN HOME					1ST CARETAKER					28. AGE OR YEAR OF BIRTH					29. RACE					30. RELATIONSHIP												
	26. FAMILY PRES.		2ND CARETAKER					31.					32.					33.																	
V. PERMANENT PLAN (Complete for all Children)																		VI. PARENTAL RIGHTS TERMINATION																	
PLAN	34. PLAN GOAL		35. DATE PLAN MADE MO DAY YEAR					36. BARRIERS					37. PLAN REALIZED MO DAY YEAR					38. MOTHER MO DAY YEAR					39. FATHER MO DAY YEAR												
	VII. REVIEWS (Complete for all Children)																																		
REVIEW	AGENCY TEAM REVIEW 40. 1ST REVIEW MO DAY YEAR 41. NEXT REVIEW DUE MO DAY YEAR										COURT REVIEW 43. 1ST REVIEW MO DAY YEAR 44. NEXT REVIEW DUE MO DAY YEAR										42. REVIEW NOT REQUIRED 45. NEXT REVIEW DUE MO DAY YEAR														
	VIII. LIVING ARRANGEMENT (Complete for all Children)																		IX. PAYMENT (Complete for all Children for whom PC Payment is made)																
PLACEMENT	45. TYP.		46. PERM		47. BEGINNING DATE MO DAY YEAR					48. ENDING DATE MO DAY YEAR					49. FACILITY ID					50. MONTHLY RATE					51. PAYMENT AMOUNT (If diff. from mo. rate)										
	45.		46.		47.					48.					49.					50.					51.										
X. ELIGIBILITY (Complete for all Children for whom FC payments are made)																		XI. FED. ASSISTANCE																	
ELIGIBILITY	ELIGIBILITY REVIEW PERIOD 52. FROM MO DAY YEAR										53. THRU MO DAY YEAR					54. TEA ELIG					55. FUNDING SOURCE <input type="checkbox"/> IV-E <input type="checkbox"/> STATE <input type="checkbox"/> TEA					56. CHILDS RESOURCES					57. IV-A (TANF)				
	XII. SUBSTITUTE PARENT INFO. (Complete for Children in FAMILY FOSTER HOMES)																		COMPLETE FOR CH. IN FC CHECK ALL THAT APPLY																
FOSTER PARENT	62. FAMILY STRUCTURE										YEAR OF BIRTH					RACE					59. XIX MEDICAID					60. SSI					61. IV-E ADOPT. ASST.				
	1ST SUBSTITUTE PARENT										63.					64.					65.					66.									

Field List

1. County
2. Case manager name
3. Case manager SSN: unneeded
4. **County Case #**: unneeded
5. **Client ID**: used to verify SSNs are accurate unique
6. **Client Name**
7. **Client SSN**: used to ensure unique linking. See Appendix X.
8. **Date of birth**
9. **Special areas**: NC DSS / State Center for Health Statistics suggested this field isn't extracting properly or used consistently. This was not used.
10. **Sex**
11. **Race**
12. **School**: May only be filled out for new records. Unlikely to be useful without linking to DPI database (see "Next Steps.")
13. **Grade**: see above
14. **Disability**: may not have been used widely in 2007.
15. Adoption status
16. **HIV status**: Possibly very seldom used, 1/500.
17. **Is client parent**: same as above.
18. **Special population**: Heather suggested there was a "problem" with this field.
19. **Type of authority**
20. **Reason**
21. **Begin date**: Only the beginning of the current entrance or re-entrance into system. Does not reflect "first" time in system. Unlikely to be useful.
22. Out of state placement
23. Termination reason
24. Term date
- Caretaker**
25. Family structure
26. Family pres.
27. # of children in home
28. 1st caretaker age
29. 1st caretaker race
30. 1st caretaker relationship
31. 2nd caretaker age
32. 2nd caretaker race
33. 2nd caretaker relationship
- Permanent Plan**
34. **Plan goal**: Along with barriers (36), most likely to be updated... even though a highly subjective field, and likely to be different between counties. Connected to solid questions.

- 35. Date plan made
- 36. Barriers
- 37. Plan realized

Parental Rights Termination

- 38. Mother
- 39. Father

Reviews

- 40. Last agency team review: Suspected to be useless and highly inflating information. Is “count of court reviews” meaningful?
- 41. Next agency team review due
- 42. Court review not required
- 43. Last court review
- 44. Next court review due
- 45. **Living arrangement type**: How to count “moves”, and what is a move? Not all moves will show up with facility IDs. Get everything, then cull for stays 2 days or less?
- 46. Living arrangement permanent
- 47. Living arrangement beginning date
- 48. Ending date
- 49. Facility ID
- 50. **Monthly rate**: Highly variable and database inflating. Throw out.
- 51. Payment amount

Eligibility

- 52. **Eligibility review period from**: Suggested to be highly county-by-county norm subjective. Throw out?
- 53. Eligibility review period thru
- 54. TEA eligibility
- 55. Funding source
- 56. **Childs resources**: Social worker suggested this field has newly meaningful consequences for linking private money stores with outcomes. True?

Fed Assistance

- 57. IV-A (TANF)
- 58. IV-D (Ch. Support)
- 59. XIX Medicaid
- 60. SSI
- 61. IV-E Adopt asst.

Foster Parent

- 62. Family structure
- 63. 1st substitute parent birth year
- 64. 1st substitute parent race
- 65. 2nd substitute parent birth year
- 66. 2nd substitute parent race

URL: http://info.dhhs.state.nc.us/olm/manuals/dss/csm-80/man/CPPS_Manual-02.htm

Keeping SSN's safe in Data Sharing: Best Practices & Options

The specific options for the data sharing agreement with Second Family Foundation and a general primer for DSS to boot!



Friendly Overview:

Hi there! This is Mike, the lead researcher on the Second Family Foundation foster care project. I'm writing to clarify the need for SSNs in data sharing projects like ours, share some specific best practices we already have in place, and offer a few higher strength options for our project that could be applied to future DSS data sharing / evaluation projects.

In general, don't share SSNs. 😊 However, researchers and evaluators often need them as a linking record between two databases since it's often the most reliable, common and unique numerical identifier to combine two records of the same person from two different databases. Note that in that case (and in our case) we don't actually need the specific SSNs...we just need them to be present to enable us to link other data in to the right records to pull more interesting data reports. Regardless, SSNs obviously must be kept as safe as possible.

Best Practices:

- **Physically lock down the computer, at least.** Modern computers can be walked off with, especially laptops, without cabling.
- **Require transporting/transportable CDs, etc. to be destroyed after the data is moved to the new safe location.** What good is a secure work station if the CD used to install the data is still transportable?
- **Investigate office locking, traffic procedures. Minimize traffic in front of the computer. Monitor who enters and leaves the room, who has keys, etc.** This includes cleaning staff, building management, organization upper management, etc.
- **Utilize a biometric (fingerprint/iris scan) hard drive to house the data.** These hard drives are now much more inexpensive and reliable than in the past, often under \$200.
- **Request a researcher that has experience dealing with sensitive information, particularly SSNs.**

Second Family Foundation is already utilizing all of these best practices. The computer is physically bound with high strength cable to the desk, making “walking off” with it very difficult. The data itself will be housed on an already prepared fingerprint reading hard drive with access to only the two people ok’ed in the data agreement. Once the data is on that drive, the transporting CD, ftp link, etc will be unrecoverably destroyed or deleted. Thus, even if someone did take the computer, that would only contain the programs used to manipulate the data, not the data itself. We have a small office, consistently locked when we’re not available. Our cleaning staff person (which also has a key) is consistent week-to-week, and we know her by name (vs. any one of a dozen cleaning staff)...and again, regardless, the data is impossibly encrypted by fingerprint without Second Family Foundation’s staff present. Lastly, our lead researcher (Mike Dolan Fliss) has dealt with large summary data that includes batches of thousands of SSNs before and has experience working under a government “secret” level clearance due to project data sensitivities such as these.

Stronger Protection Strategies Available to DSS/Second Family Foundation:

- **1:1 “Hashing” of the SSNs, researcher has key** – In short, this involves changing the unique SSN number into another unique number by using a key code. For instance, SSNs might be reversed and have their middle numbers switched: 123-45-6789 becomes 987-56-4321 for every record in the database. If the researcher did this switching as soon as the data came in, and they were the only who knew the code, then SSNs would not be in danger of being seen by others... but data could still be linked using these new, unique numbers. The strength to this method is that other organizations do not need to have the database skills to do this switching – and only one third party person, in this case, the lead researcher, would be able to view SSNs.
- **1:1 “Hashing” of the SSNs, DSS has key** – This is the same method, but a tech point person at DSS knows and applies the key code before the data leaves DSS. The strength to this is that no third parties at all can reconstitute the actual SSNs because the “key” and the “data” are separate. However, this means that all organizations that have data to be linked by SSN must (a) have the technical skill to apply the key code to their SSNs before giving it out and (b) contact DSS to understand the particular key code being used. No organizations have each others data, and the third party data collector only has encoded SSNs.
- **Create secondary, unique keys from common fields** – This method is related to the “hashing” method, but is not quite as strong or desirable. Common, but more unique fields like birthdays, birth cities and names can be combined to produce a number with a high likelihood of being unique. This keeps the SSNs out of the picture entirely... but is not as reliable and should not be used with large batches of data.

Recommendation

Overall, I recommend first sending the data without the SSNs on a CD or ftp address to be transferred to the fingerprint hard drive. If you are interested in learning about the stronger hashing strategy, simultaneously put our lead researcher in touch with the tech-savvy point person for the database to iron out “hashing” details. From there we’ll coordinate getting the data a second time with SSN numbers masked. That DSS point person will then be the contact for future organizations that need to “hash” their SSNs under the same project. A “hash key code” will be unique for each project.

Appendix C: Chi-Square Details

Placement Authority

Type of Authority	Actual			Expected	
	2010	2007		2010	2007
(Reserved for later use.) Do not use this code! <-left out of chi-square analysis.	0	1			
Contractual Agreement for Residential Services (CARS).	1	256	257	99.65	157.35
Court ordered legal custody with DSS having placement authority.	1004	1440	2444	947.64	1496.36
Court ordered legal custody, but DSS does not have placement authority.	35	52	87	33.73	53.27
DSS ordered to assume responsibility for nonsecure custody by a court of competent jurisdiction (G.S. 7B-502).	1514	2314	3828	1484.27	2343.73
Interstate Compact Placement Agreement into North Carolina.	21	8	29	11.24	17.76
Relinquishment for adoption by parent(s) or guardian of the child.	16	25	41	15.90	25.10
Transfer in from another North Carolina county.	8	12	20	7.75	12.25
Voluntary Placement Agreement with parent(s) or legal guardian(s).	102	158	260	100.81	159.19
Grand Total	2701	4265	6966		

Chi Square Test

2.053E-35 w/ contractual agreement
0.0023636 w/o contractual agreement
Reject H₀ at over 99.9% probability

Placement Authority Reason

	2007			2010			Change
	%Y	Y	N	%Y	Y	N	
Rsn Abandonment	6.0%	256	4010	6.1%	165	2536	0.1%
Rsn Abuse Physically	8.4%	360	3906	8.7%	236	2465	0.3%
Rsn Abuse Sexually	6.1%	262	4004	7.6%	204	2497	1.4% *
Rsn Alcoholic Child	0.7%	28	4238	1.1%	29	2672	0.4%
Rsn Alcoholic Parent	7.9%	339	3927	7.9%	214	2487	0.0%
Rsn Child Behavior Problem	23.2%	991	3275	23.0%	620	2081	-0.3%
Rsn Child Drug Addict	3.0%	130	4136	1.7%	45	2656	-1.4% *
Rsn Childs Disability	1.6%	67	4199	1.6%	43	2658	0.0%
Rsn Coping	25.1%	1071	3195	23.1%	624	2077	-2.0%
Rsn Death Of Parent	1.3%	56	4210	1.9%	52	2649	0.6% *
Rsn Inadequate Housing	11.7%	500	3766	9.1%	247	2454	-2.6% *
Rsn Incarceration	3.9%	167	4099	4.7%	126	2575	0.8%
Rsn Neglect	67.2%	2868	1398	73.7%	1991	710	6.5% *
Rsn Parent Drug Addict	19.2%	820	3446	18.7%	504	2197	-0.6%
Rsn Relinquishment	1.0%	41	4225	1.2%	33	2668	0.3%
	4266			2701			

* indicates significance at at least 95% chi-square.

Placement Authority Reason, cont.

Rsn Abandonment	Actual			Expected		Chi-Square 0.863 Cannot reject null at 95% confidence. Difference may be due to chance.
		2007	2010	2007	2010	
	Y	256	165	257	163	
	N	4010	2536	4008	2537	
		4266	2701			
Rsn Abuse Physically	Y	360	236	364	231	Chi-Square 0.685 Cannot reject null at 95% confidence. Difference may be due to chance.
	N	3906	2465	3901	2469	
		4266	2701			
Rsn Abuse Sexually	Y	262	204	285	180	Chi-Square 0.02001 Can reject null at 95% confidence. Difference is statistically significant
	N	4004	2497	3980	2520	
		4266	2701			
Rsn Alcoholic Child	Y	28	29	34	22	Chi-Square 0.069 Cannot reject null at 95% confidence. Difference may be due to chance.
	N	4238	2672	4231	2678	
		4266	2701			
Rsn Alcoholic Parent	Y	339	214	338	214	Chi-Square 0.954 Cannot reject null at 95% confidence. Difference may be due to chance.
	N	3927	2487	3927	2486	
		4266	2701			
Rsn Child Behavior Problem	Y	991	620	986	624	Chi-Square 0.794 Cannot reject null at 95% confidence. Difference may be due to chance.
	N	3275	2081	3279	2076	
		4266	2701			
Rsn Child Drug Addict	Y	130	45	107	67	Chi-Square 0.00041 Can reject null at 99% confidence. Difference is statistically significant
	N	4136	2656	4158	2633	
		4266	2701			
Rsn Childs Disability	Y	67	43	67	42	Chi-Square 0.87676 Cannot reject null at 95% confidence. Difference is statistically significant
	N	4199	2658	4198	2658	
		4266	2701			
Rsn Coping	Y	1071	624	1037	657	Chi-Square 0.05522 Cannot reject null at 95% confidence. Difference may be due to chance.
	N	3195	2077	3228	2043	
		4266	2701			
Rsn Death Of Parent	Y	56	52	66	41	Chi-Square 0.03325 Can reject null at 95% confidence. Difference is statistically significant, but n is small.
	N	4210	2649	4199	2659	
		4266	2701			
Rsn Inadequate Housing	Y	500	247	457	289	Chi-Square 0.00074 Can reject null at 99% confidence. Difference is statistically significant
	N	3766	2454	3808	2411	
		4266	2701			
Rsn Incarceration	Y	167	126	179	113	Chi-Square 0.12156 Cannot reject null at 95% confidence. Difference may be due to chance.
	N	4099	2575	4086	2587	
		4266	2701			
Rsn Neglect	Y	2868	1991	2975	1883	Chi-Square 0.0000000088 Can reject null at 99% confidence. Difference is statistically significant
	N	1398	710	1290	817	
		4266	2701			
Rsn Parent Drug Addict	Y	820	504	810	513	Chi-Square 0.55382 Cannot reject null at 95% confidence. Difference may be due to chance.
	N	3446	2197	3455	2187	
		4266	2701			
Rsn Relinquishment	Y	41	33	45	28	Chi-Square 0.26159 Cannot reject null at 95% confidence. Difference may be due to chance.
	N	4225	2668	4220	2672	
		4266	2701			

Appendix D: 2007 v 2010 snapshot comparison summary

13-15 year olds in NC foster care

		2007	2010	Δ
Total n:		1743	1234	-29%
Gender:		53.8% M	51.9% M	-1.8%
Race:	White	46.4% W	45.8% W	<1%
	Black	42.7% B	40.6% B	-2.1%
	Hispanic/Lat	4.8% H/L	5.4% H/L	<1%
	Am. Indian	2.2% Am.In.	.9% Am.In.	1.3%
	Mixed W/B	1.7% W/B	3.1% W/B	1.4%
Disability	Yes	19.5%	20.1%	<1%
Ad Stat:	Free for Adoption:	16.9%	16.1%	<1%
	Not Free for Adopt.	81%	81.9%	<1%
	Pending:	1.6%	1.4%	<1%
Ad. Hist	Has been adopt.	3.4%	3.9%	<1%
	Has NOT been adopt	96%	95.5%	<1%
Client is parent		.6%	.8%	<1%
Type of Auth	Court: non-sec custody	59.9%	55.4%	-4.5%
	Court: DSS w/ plac auth	34.4%	38.5%	4.1%
Reasons	Rsn Neglect	73.5%	75.0%	1.5%
	Rsn Coping	24.4%	23.3%	1.0%
	Rsn Child Behv Problem	23.2%	23.3%	<1%
	Rsn Parent Drug Addict	21.9%	18.6%	-3.4%
	Rsn Abuse Physically	9.7%	8.4%	1.3%
	Rsn Alcoholic Parent	9.0%	7.8%	1.2%
	Rsn Inadeq Housing	9.0%	9.8%	<1%
	Rsn Abuse Sexually	7.6%	8.5%	<1%
	Rsn Abandonment	6.5%	6.2%	<1%
	Rsn Incarceration	4.2%	4.1%	<1%
	Rsn Child Drug Addict	2.6%	1.5%	<1%

Appendix E: Moves Analysis

13-15 year olds in NC foster care in 2010 w/ multi-year records

Adjusted Count-of-Moves totals / county

(Moves 5-25 days, 32 days+; sort by Avg Months between moves)

County	Cases	Max Moves	Max Duration (Yr)	Avg Duration "in system" (Yr)	for cases with >6mo duration		
					Avg Mos Btwn Moves	Avg Moves /Yr	Max Moves /Yr
Surry	4	8	9.2	4.3	40.4	0.8	1.8
Guilford	45	16	16.8	5.4	40.3	0.6	2.3
Yadkin	5	1	5.8	3.3	40.1	0.4	0.6
Rutherford	14	11	14.7	7.2	30.8	1.0	3.9
Vance	14	7	12.9	5.9	29.1	0.9	2.3
Bertie	7	5	16.9	5.7	28.5	0.7	1.4
Rockingham	18	9	14.6	5.0	27.3	1.1	3.1
Henderson	11	16	13.5	4.1	25.9	1.8	3.6
Franklin	5	17	7.0	4.6	25.7	1.1	2.4
Pasquotank	4	4	7.0	5.4	24.5	0.5	0.7
New Hanover	42	31	15.3	5.7	24.2	1.5	5.9
Wilkes	23	9	14.2	5.8	23.9	0.9	3.7
Polk	3	7	4.7	2.6	23.8	1.5	3.4
Yancey	13	7	8.3	3.8	22.4	0.9	2.0
Buncombe	30	33	16.2	5.6	20.9	1.5	6.2
Davidson	15	17	12.7	5.2	20.4	1.9	5.3
Craven	11	12	10.0	3.6	19.8	1.8	3.6
Mecklenburg	121	26	17.3	5.0	19.2	1.3	4.6
Wilson	15	10	14.8	4.0	19.1	1.1	3.8
Beaufort	9	6	14.4	3.9	18.6	1.6	3.4
Halifax	8	8	12.5	4.9	17.7	1.5	3.8
Cumberland	82	32	15.2	5.2	17.7	2.1	7.4
Northampton	3	10	3.3	3.0	17.1	1.7	3.5
Pender	17	20	13.1	4.6	17.0	1.5	4.8
Nash	9	7	6.9	2.3	16.8	1.2	4.0
Orange	17	8	7.7	3.1	16.3	1.5	3.6
Johnston	7	12	14.2	7.2	15.9	1.4	2.9
McDowell	8	14	11.7	4.5	15.4	1.3	2.9
Edgecombe	10	11	11.7	4.0	15.4	2.5	6.7
Cabarrus	9	14	9.6	5.4	15.3	1.0	1.8
Iredell	20	10	14.0	5.3	14.9	1.2	3.3
Wake	56	15	15.6	3.5	14.7	1.3	4.9
Robeson	17	12	8.1	3.5	14.7	1.9	6.3
Burke	18	15	10.7	4.3	14.5	1.2	2.4
Union	4	6	15.9	5.2	14.4	1.7	3.0
Alexander	6	39	6.9	4.4	14.2	2.7	5.8
Caldwell	28	20	12.3	3.4	13.8	1.5	4.2

Top 10 Average Months Between Moves

Appendix E: Moves Analysis, continued

13-15 year olds in NC foster care in 2010 w/ multi-year records

Adjusted Count-of-Moves totals / county

(Moves 5-25 days, 32 days+; sort by Avg Months between moves)

County	Cases	Max Moves	Max Duration (Yr)	Avg Duration "in system" (Yr)	for cases with >6mo duration		
					Avg Mos Btwn Moves	Avg Moves /Yr	Max Moves /Yr
Caldwell	28	20	12.3	3.4	13.8	1.5	4.2
Dare	4	8	12.4	6.5	13.6	1.4	2.5
Ashe	2	6	5.7	3.8	13.2	1.9	3.2
Duplin	5	3	4.1	3.0	12.7	1.0	1.4
Randolph	20	16	12.9	4.9	12.4	1.7	3.9
Chatham	13	24	13.0	4.5	12.4	2.0	5.7
Richmond	5	8	13.7	4.2	11.2	3.9	13.2
Gaston	42	17	16.0	3.3	10.6	1.9	5.7
Person	7	9	8.8	4.5	10.5	1.6	3.6
Currituck	3	6	5.3	2.3	10.1	1.2	1.3
Lincoln	8	7	5.9	3.9	10.0	1.4	2.4
Rowan	24	28	16.8	3.8	9.9	3.1	7.9
Forsyth	21	28	13.1	4.0	9.8	2.1	6.9
Alamance	17	18	9.6	2.9	9.7	2.2	5.4
Carteret	3	32	6.8	4.8	9.6	3.2	5.7
Catawba	26	29	8.1	3.6	9.5	1.8	4.2
Sampson	19	19	14.7	3.8	9.3	2.7	7.7
Brunswick	13	35	7.2	3.7	9.1	2.7	4.9
Harnett	7	6	5.9	2.6	8.8	1.6	3.0
Hoke	8	14	11.3	4.1	8.7	2.3	5.2
Wayne	9	25	13.7	5.0	8.7	1.9	3.8
Moore	10	12	12.4	5.4	8.6	1.7	3.1
Scotland	6	18	14.5	6.6	8.6	2.0	4.1
Onslow	25	25	16.7	4.3	8.4	2.6	9.4
Avery	1	2	1.4	1.4	8.4	1.4	1.4
Cherokee	8	18	16.5	3.5	8.4	1.9	3.9
Durham	32	37	16.7	4.9	8.3	2.2	8.7
Mitchell	2	6	2.1	1.9	8.1	2.2	3.4
Pitt	25	24	14.7	5.3	8.1	3.3	7.8
Swain	3	8	2.3	1.9	8.1	1.9	3.5
Davie	10	14	12.8	5.2	8.0	1.9	2.9
Madison	12	12	10.0	3.2	7.9	1.9	3.7
Cleveland	26	32	12.5	3.4	7.6	4.2	17.9
Stokes	5	8	4.7	2.9	7.0	1.9	2.9
Haywood	8	13	8.6	3.0	6.9	2.1	4.5
Stanly	1	7	4.0	4.0	6.9	1.7	1.7
Columbus	8	23	14.2	6.6	6.8	2.1	3.6
Macon	6	15	6.5	3.6	6.3	2.1	3.0

Appendix E: Moves Analysis, continued

13-15 year olds in NC foster care in 2010 w/ multi-year records

Adjusted Count-of-Moves totals / county

(Moves 5-25 days, 32 days+; sort by Avg Months between moves)

County	Cases	Max Moves	Max Duration (Yr)	Avg Duration "in system" (Yr)	for cases with >6mo duration		
					Avg Mos Btwn Moves	Avg Moves /Yr	Max Moves /Yr
Macon	6	15	6.5	3.6	6.3	2.1	3.0
Bladen	2	7	5.0	3.5	6.3	2.2	3.0
Transylvania	4	9	7.8	3.7	6.1	3.3	7.6
Greene	3	8	2.5	2.4	6.1	2.2	3.4
Hyde	1	16	8.1	8.1	6.1	2.0	2.0
Graham	1	15	7.2	7.2	5.8	2.1	2.1
Jackson	2	3	1.4	0.9	5.6	2.1	2.1
Pamlico	3	11	4.0	2.2	5.6	2.3	2.7
Clay	5	9	4.2	2.3	5.5	2.2	2.7
Anson	4	6	3.2	1.3	5.3	2.4	3.0
Hertford	6	31	13.3	6.3	5.1	2.8	4.1
Granville	10	19	15.5	3.8	5.0	3.7	8.3
Lenoir	9	21	4.0	2.2	4.8	3.8	8.7
Watauga	7	12	3.7	2.2	3.7	3.6	5.4
Alleghany	1	10	2.8	2.8	3.4	3.5	3.5
Camden	1	14	3.4	3.4	2.9	4.1	4.1
Lee	1	7	0.9	0.9	1.6	7.5	7.5
Martin	1	5	0.7	0.7	1.6	7.5	7.5
Grand Total	1233	39	17.3	4.4	16.0	1.8	17.9

Bottom 10 Average Months Between Moves

Adjusted Count-of-Moves totals / county

Moves 5-25 days, 32 days+; conditional format on avg months & avg mo between moves,

County	Cases	Max Moves	Max Duration (Yr)	Avg Duration "in system" (Yr)	for cases with >6mo duration		
					Avg Mos Btwn Moves	Avg Moves /Yr	Max Moves /Yr
Alamance	17	18	9.6	2.9	9.7	2.2	5.4
Alexander	6	39	6.9	4.4	14.2	2.7	5.8
Alleghany	1	10	2.8	2.8	3.4	3.5	3.5
Anson	4	6	3.2	1.3	5.3	2.4	3.0
Ashe	2	6	5.7	3.8	13.2	1.9	3.2
Avery	1	2	1.4	1.4	8.4	1.4	1.4
Beaufort	9	6	14.4	3.9	18.6	1.6	3.4
Bertie	7	5	16.9	5.7	28.5	0.7	1.4
Bladen	2	7	5.0	3.5	6.3	2.2	3.0
Brunswick	13	35	7.2	3.7	9.1	2.7	4.9
Buncombe	30	33	16.2	5.6	20.9	1.5	6.2
Burke	18	15	10.7	4.3	14.5	1.2	2.4
Cabarrus	9	14	9.6	5.4	15.3	1.0	1.8
Caldwell	28	20	12.3	3.4	13.8	1.5	4.2
Camden	1	14	3.4	3.4	2.9	4.1	4.1
Carteret	3	32	6.8	4.8	9.6	3.2	5.7
Catawba	26	29	8.1	3.6	9.5	1.8	4.2
Chatham	13	24	13.0	4.5	12.4	2.0	5.7
Cherokee	8	18	16.5	3.5	8.4	1.9	3.9
Clay	5	9	4.2	2.3	5.5	2.2	2.7
Cleveland	26	32	12.5	3.4	7.6	4.2	17.9
Columbus	8	23	14.2	6.6	6.8	2.1	3.6
Craven	11	12	10.0	3.6	19.8	1.8	3.6
Cumberland	82	32	15.2	5.2	17.7	2.1	7.4
Currituck	3	6	5.3	2.3	10.1	1.2	1.3
Dare	4	8	12.4	6.5	13.6	1.4	2.5
Davidson	15	17	12.7	5.2	20.4	1.9	5.3
Davie	10	14	12.8	5.2	8.0	1.9	2.9
Duplin	5	3	4.1	3.0	12.7	1.0	1.4
Durham	32	37	16.7	4.9	8.3	2.2	8.7
Edgecombe	10	11	11.7	4.0	15.4	2.5	6.7
Forsyth	21	28	13.1	4.0	9.8	2.1	6.9
Franklin	5	17	7.0	4.6	25.7	1.1	2.4
Gaston	42	17	16.0	3.3	10.6	1.9	5.7
Graham	1	15	7.2	7.2	5.8	2.1	2.1
Granville	10	19	15.5	3.8	5.0	3.7	8.3
Greene	3	8	2.5	2.4	6.1	2.2	3.4
Guilford	45	16	16.8	5.4	40.3	0.6	2.3
Halifax	8	8	12.5	4.9	17.7	1.5	3.8
Harnett	7	6	5.9	2.6	8.8	1.6	3.0
Haywood	8	13	8.6	3.0	6.9	2.1	4.5
Henderson	11	16	13.5	4.1	25.9	1.8	3.6
Hertford	6	31	13.3	6.3	5.1	2.8	4.1
Hoke	8	14	11.3	4.1	8.7	2.3	5.2

Top 10 Average Months Between Moves

Adjusted Count-of-Moves totals / county

(Moves 5-25 days, 32 days+; conditional format on avg months & avg mo between moves)

County	Cases	Max Moves	Max Duration (Yr)	Avg Duration "in system" (Yr)	for cases with >6mo duration		
					Avg Mos Btwn Moves	Avg Moves /Yr	Max Moves /Yr
Haywood	8	13	8.6	3.0	6.9	2.1	4.5
Henderson	11	16	13.5	4.1	25.9	1.8	3.6
Hertford	6	31	13.3	6.3	5.1	2.8	4.1
Hoke	8	14	11.3	4.1	8.7	2.3	5.2
Hyde	1	16	8.1	8.1	6.1	2.0	2.0
Iredell	20	10	14.0	5.3	14.9	1.2	3.3
Jackson	2	3	1.4	0.9	5.6	2.1	2.1
Johnston	7	12	14.2	7.2	15.9	1.4	2.9
Lee	1	7	0.9	0.9	1.6	7.5	7.5
Lenoir	9	21	4.0	2.2	4.8	3.8	8.7
Lincoln	8	7	5.9	3.9	10.0	1.4	2.4
Macon	6	15	6.5	3.6	6.3	2.1	3.0
Madison	12	12	10.0	3.2	7.9	1.9	3.7
Martin	1	5	0.7	0.7	1.6	7.5	7.5
McDowell	8	14	11.7	4.5	15.4	1.3	2.9
Mecklenburg	121	26	17.3	5.0	19.2	1.3	4.6
Mitchell	2	6	2.1	1.9	8.1	2.2	3.4
Moore	10	12	12.4	5.4	8.6	1.7	3.1
Nash	9	7	6.9	2.3	16.8	1.2	4.0
New Hanover	42	31	15.3	5.7	24.2	1.5	5.9
Northampton	3	10	3.3	3.0	17.1	1.7	3.5
Onslow	25	25	16.7	4.3	8.4	2.6	9.4
Orange	17	8	7.7	3.1	16.3	1.5	3.6
Pamlico	3	11	4.0	2.2	5.6	2.3	2.7
Pasquotank	4	4	7.0	5.4	24.5	0.5	0.7
Pender	17	20	13.1	4.6	17.0	1.5	4.8
Person	7	9	8.8	4.5	10.5	1.6	3.6
Pitt	25	24	14.7	5.3	8.1	3.3	7.8
Polk	3	7	4.7	2.6	23.8	1.5	3.4
Randolph	20	16	12.9	4.9	12.4	1.7	3.9

Adjusted Count-of-Moves totals / county

(Moves 5-25 days, 32 days+; conditional format on avg months & avg mo between moves)

County	Cases	Max Moves	Max Duration (Yr)	Avg Duration "in system" (Yr)	for cases with >6mo duration		
					Avg Mos Btwn Moves	Avg Moves /Yr	Max Moves /Yr
Richmond	5	8	13.7	4.2	11.2	3.9	13.2
Robeson	17	12	8.1	3.5	14.7	1.9	6.3
Rockingham	18	9	14.6	5.0	27.3	1.1	3.1
Rowan	24	28	16.8	3.8	9.9	3.1	7.9
Rutherford	14	11	14.7	7.2	30.8	1.0	3.9
Sampson	19	19	14.7	3.8	9.3	2.7	7.7
Scotland	6	18	14.5	6.6	8.6	2.0	4.1
Stanly	1	7	4.0	4.0	6.9	1.7	1.7
Stokes	5	8	4.7	2.9	7.0	1.9	2.9
Surry	4	8	9.2	4.3	40.4	0.8	1.8
Swain	3	8	2.3	1.9	8.1	1.9	3.5
Transylvania	4	9	7.8	3.7	6.1	3.3	7.6
Union	4	6	15.9	5.2	14.4	1.7	3.0
Vance	14	7	12.9	5.9	29.1	0.9	2.3
Wake	56	15	15.6	3.5	14.7	1.3	4.9
Watauga	7	12	3.7	2.2	3.7	3.6	5.4
Wayne	9	25	13.7	5.0	8.7	1.9	3.8
Wilkes	23	9	14.2	5.8	23.9	0.9	3.7
Wilson	15	10	14.8	4.0	19.1	1.1	3.8
Yadkin	5	1	5.8	3.3	40.1	0.4	0.6
Yancey	13	7	8.3	3.8	22.4	0.9	2.0
Grand Total	1233	39	17.3	4.4	16.0	1.8	17.9

Bottom 10 Average Months Between Moves