Analysis of Re-Entry Data
02.26.15

Executive Summary

Summary of the results:

1. Overall, the re-entry rate still demonstrates a relatively stable trend for the whole period between 2005 and 2013.
2. The trend for the recent 4 years (between 2010 and 2013) does show an increasing tendency, but the number of children who re-enter care has generally continued to decline. Moreover, a decreasing denominator does more greatly impact the percentage and is a factor that must be considered when looking at 2013 in comparison to other years
3. Older age at discharge, predominant care being foster care and longer time in foster care were significantly associated with lower odds of re-entry, while having a previous episode was significantly associated with higher odds of re-entry.
4. Gender and race/ethnicity were not associated with re-entry.
5. None of the identified four characteristics (see item 3 above) associated with re-entry contribute to the increasing trend from 2010 to 2013.

Recommendation:

Additional research is needed to determine the possible factors contributing to the trend from 2010 to 2013. More factors will need to be examined. Examples of these factors could include children's physical and mental health problems, parent substance use and unmet needs or unresolved problems at the point of reunification.

This is particularly important as our Differential Response System (DRS) began in the Spring of Calendar Year 2012. DRS allows families who come to the attention of the Department who are assessed to be of low risk and do not have observed safety issues to be served by a DRS contracted community partner agency. Thus, the population of families currently served by the Department and those in 2013 would likely have a host of more complex issues that might impact the re-entry percentage when reunification is attempted for those families.

Results of Analysis of Re-Entry Data

We examined 10,568 children who were legally discharged to reunification between 1/1/05 and 12/31/13. Figure 1 demonstrates the percentage of re-entry within one year of discharge from reunification, which fluctuates by year of discharge. For example, 13.9% reunified children in 2005 re-entered DCF care within one year of their reunification; in 2010 and 2013, 10.4% and 15.2% children re-entered into care within one year, respectively. Overall, the re-entry rate still demonstrates a relatively stable trend for the whole period between 2005 and 2013. The trend for the recent 4 years (between 2010 and 2013) does show an increasing tendency, but the number of children who re-enter care has generally continued to decline. Moreover, a decreasing denominator does more greatly impact the percentage and is a factor that must be considered when looking at 2013 (N = 687) in comparison to other years (e.g., 2005 N= 1239 or 2012 N=808). See Figure 2.

Figure 1. Percentage of re-entry within one year of discharge by year of discharge, 2005-2013 (N = 10,568)
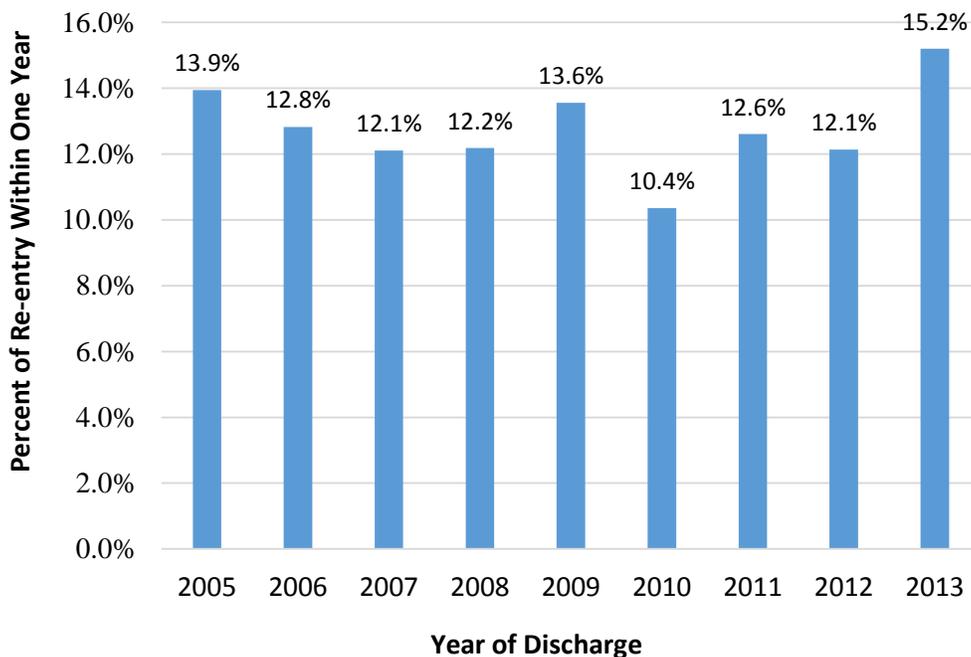
Research suggests that certain child, family, and child welfare service characteristics are associated with re-entry into care (Kimberlin, 2009). For example, short initial stays in foster care are associated with an increased risk of re-entry into care.

DCF examined whether there were factors were associated with re-entry among reunified Connecticut children and whether there was a linear time trend for re-entry using logistic regression procedures. Logistic regression is a widely used technique in statistics to determine factors associated with binary outcomes, adjusting for other confounders. In logistic regressions,

Figure 2.

REUNIF CY	NO RE-ENTRY<=365 DAYS	RE-ENTRY <=365 DAYS	Grand Total
#			
2005	1262	205	1467
2006	1218	180	1398
2007	1213	168	1381
2008	1096	154	1250
2009	1173	185	1358
2010	1075	126	1201
2011	822	121	943
2012	709	99	808
2013	583	104	687
%			
2005	86.0%	14.0%	100.0%
2006	87.1%	12.9%	100.0%
2007	87.8%	12.2%	100.0%
2008	87.7%	12.3%	100.0%
2009	86.4%	13.6%	100.0%
2010	89.5%	10.5%	100.0%
2011	87.2%	12.8%	100.0%
2012	87.7%	12.3%	100.0%
2013	84.9%	15.1%	100.0%
Total #	9151	1342	10493
Total %	87.2%	12.8%	100.0%

odds ratios (ORs) are commonly used to measure the associations between factors and outcomes. An OR is the ratio of the odds of an outcome in the group with a factor to the odds of the outcome in the group without the factor. It is important to calculate a confidence interval (CI) for each OR. A CI that includes 1.0 means that the association between the factor and outcome could have been found by chance alone and that the association is not statistically significant.

Table 1 demonstrates the characteristics of the 10,568 children who were reunified between 2005 and 2013. The average age at initial removal and at discharge to reunification was 7.9 and 8.9 years, respectively. The average time in care was 12.7 months. The majority of children (71%) were predominantly in foster care (defined as more than half of time in care being foster care), while 29% were predominantly in congregate care (defined as more than half of time in care being congregate care). About 16% of the children had at least one previous episode. When the characteristics for children who re-entered care within one year and those who did not re-enter were compared, no significant differences were observed for gender, race/ethnicity and time in congregate care.   On the other hand, significant differences were observed for other characteristics, including age at initial removal, age at discharge, having previous episode, predominant foster care, predominance in congregate care, time in foster care, and total time in initial care. Therefore, it is important to further determine whether the differences between the two groups were true or caused by confounders. A confounder (also called confounding variable, confounding factor, or confound) is an extraneous variable that correlates (directly or inversely) with both the dependent variable and the independent variable. The confounders can create a spurious relationship that can be adjusted/controlled by using logistic regression modelling.

Table 1. Characteristics of children who were discharged to reunification between 2005 and 2013 (N = 10,568) [a]

Characteristics	Overall	Re-entry within 1-year	No re-entry within 1-year	P-value [b]
Age at initial removal (year)	7.9 (5.6, 0.0-18.0)	7.7 (5.8, 0.0-17.6)	7.9 (5.6, 0.0-18.0)	0.002
Age at discharge (year)	8.9 (5.9, 0.0-22.6)	8.5 (6.0, 0.0-17.9)	9.0 (5.8, 0.0-22.6)	< 0.0001
Female gender	48.4%	49.9%	48.2%	0.24
Race/ethnicity				0.48
Non-Hispanic white	33.8%	33.9%	33.8%	
Non-Hispanic black	25.7%	24.8%	25.8%	
Hispanic	34.0%	33.9%	34.0%	
Other	6.5%	7.5%	6.4%	
Having previous episode	16.3%	20.0%	15.8%	0.0001
Predominant foster care	70.9%	63.9%	72.0%	< 0.0001
Predominant congregate care	29.0%	36.0%	28.0%	< 0.0001
Time in foster care	7.5 (11.7, 0.0-166.1)	4.7 (8.5, 0-81.9)	7.9 (12.0, 0-166.1)	< 0.0001
Time in congregate care	3.6 (8.6, 0.0-131.3)	3.8 (8.3, 0-72.3)	3.6 (8.7, 0-131.3)	0.14

| Total time in initial care (months) | 12.7 (16.2, 0.0-198.8) | 9.6 (13.3, 0.0-145.2) | 13.2 (16.6, 0.0-198.8) | < 0.0001 |

[a] The numbers in the table for continuous variable including age at initial removal, age at discharge, time in foster care, time in congregate care, and total time in care are mean (standard deviation, range); for other variables are percentages.

[b] P-value was obtained using Student's t test for continuous variables (log-transformed due to skew-ness) and Chi-square test for categorical variables.

Table 2 demonstrates results from simple and multiple logistic regression. Simple logistic regression is commonly employed for unadjusted significance tests including only a single independent variable, multiple logistic regression for adjusted tests including additional covariates. Non-significant covariates are generally not included in the final multiple logistic regression. The final multiple logistic regression model in the present analysis shows that age at discharge, having previous episode, predominant foster care and time in foster care were significantly associated with re-entry. More specifically, older age at discharge, predominant care being foster care and longer time in foster care were significantly associated with lower odds of re-entry, while having a previous episode was significantly associated with higher odds of re-entry. Moreover, there was no linear time trend for re-entry between 2005 and 2013 (p = 0.72).

Table 2. Associations between characteristics and re-entry using logistic regression, 2005-2013 (N = 10,568) [a]

Characteristics	Odds ratio (95% confidence interval), p-value	
	Simple logistic regression	Multiple logistic regression
Age at initial removal (year) [b]	0.99 (0.98-1.00), p = 0.17	NI
Age at discharge (year)	0.99 (0.98-1.00), p = 0.002	0.97 (0.96-0.98), p < 0.0001
Female gender	1.07 (0.96-1.20), p = 0.24	—
Race/ethnicity		
Non-Hispanic white	Reference group	—
Non-Hispanic black	0.96 (0.83-1.12), p = 0.60	—
Hispanic	1.00 (0.87-1.14), p = 0.95	—
Other	1.17 (0.92-1.47), p = 0.20	—
Having previous episode	1.33 (1.15-1.54), P = 0.0001	1.42 (1.22-1.65), p < 0.0001
Predominant foster care	0.69 (0.61-0.78), p < 0.0001	0.73 (0.63-0.86), p = 0.0001
Predominant congregate care [c]	1.45 (1.28-1.63), p < 0.0001	NI
Time in foster care	0.96 (0.96-0.97), p < 0.0001	0.97 (0.96-0.98), p < 0.0001
Time in congregate care	1.00 (1.00-1.01), p = 0.45	—
Total time in initial care (months)	0.98 (0.98-0.99), p < 0.0001	—
Year of discharge	1.00 (0.97-1.02), p = 0.72	—

[a] Characteristics with a p > 0.2 in the simple logistic regression were excluded from the final multiple logistic regression model building process;

[b] Due to the fact that age at discharge is a linear combination of age at initial removal and total time in initial care, age at initial removal was not included in the final model building process. NI: Not included.

[c] Due to the fact that almost all children who were not in predominant congregate care were in predominant foster care, only one of the two variables can be included in the final model.

Finally, considering the observed increasing trend of re-entry in recent 4 years (from 2010 to 2013), we examined whether the identified four characteristics associated with re-entry in Table 2 contribute to the increasing trend from 2010 to 2013. If a characteristic contributes to the increasing trend from 2010 to 2013, the regression coefficient and odds ratio for year of discharge should decrease when such a factor is included in the model. Results from Table 3 show that none of the four coefficients in Model 2-5 decreased, as comparing to the coefficient in Model 1. This suggests that other uninvestigated factors may have contributed to the observed increasing trend of re-entry from 2010 to 2013. Additional research is needed to determine factors contributing to this trend. More factors should be collected and examined. Examples of these factors could include physical and mental health problems of the children, parent substance use and unmet needs or unresolved problems at the point of reunification.

This is particularly important as our Differential Response System (DRS) began in the Spring of Calendar Year 2012. DRS allows families who come to the attention of the Department who are assessed to be of low risk and do not have observed safety issues to be served by a DRS contracted community partner agency. Thus, the population of families currently served by the Department and those in 2013 would likely have a host of more complex issues that might impact the re-entry percentage when reunification is attempted for those families.

Table 3. Comparison of regression coefficients and odds ratios for year of discharge (2010-2013) in five different models (N = 3,684)

Model	Regression coefficient	Odds ratio	P-value
Model 1, only year of discharge	0.1276	1.14 (1.04-1.24)	0.0045
Model 2, year of discharge + age at discharge	0.1294	1.14 (1.04-1.24)	0.0040
Model 3, year of discharge + having previous episode	0.1394	1.15 (1.05-1.26)	0.0020
Model 4, year of discharge + predominant foster care	0.1361	1.15 (1.05-1.25)	0.0025
Model 5, year of discharge + time in foster care	0.1445	1.16 (1.06-1.26)	0.0014