OFFICE OF CHILD ABUSE AND PREVENTION FDM/ PATHWAYS
PROJECT EVALUATION REPORT
2008-2011

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INTRODUCTION

The FDM/Pathways project is comprised by two program components: The Family development Matrix (FDM), and the Pathways Model. Even though the conjunction of these two components serves a common purpose and objective, our evaluation design considered each component separately to evaluate different aspects of the overall program as they relate to how agencies contribute to the betterment of children and families. To achieve this we began from the original objectives for each of the program components. The FDM, for instance, was created as a tool that agencies use for programmatic strategic planning, quality improvement activities and as an information system that helps justify the establishment of new programs. The Pathways Model, on the other hand, was conceived as a tool that could be used by agencies to assist families in the assessment of their strengths, growth, outcomes, and the achievement of their goals. The Pathway Model was specially conceived for families facing risk of child abuse/neglect as part of a case management approach that empowered and supported families.

The evaluation considered the related, but conceptually different objectives of these components and evaluated them separately. Thus, the evaluation of the FDM was centered on measuring the effectiveness of the FDM as a tool for generating information for evaluative and planning purposes at the agency level. The Pathway Model evaluation, on the other hand, was centered on measuring the outcomes for families that were served by the family resource centers that used FDM/Pathway Model since the summer of 2009.

This Report is organized as follows: The first section presents the evaluation design and findings for the Family Development Matrix (FDM) model as an information system. The second section presents an analysis of outcomes for families that participated in the FDM/Pathways project from the summer of 2009 to the summer of 2011. The third section provides an overall conclusion and considerations for future work in the evaluation of the FDM/Pathway project in 2011-2014.

1. EVALUATION OF THE FDM

The FDM component was assessed in terms of its initial goal: *To serve as a multi-level (county and agency) information system tool for evaluative and planning purposes as well as increased agency efficiency.* For this purpose, the evaluation used a survey questionnaire designed to capture how agency directors assessed their own agencies' information systems in three areas:

(1) Their system capabilities for collecting and sharing information within the agency

(2) Their system capabilities to input and retrieve valuable information about families' and workers' activities

(3) Their system capabilities to serve as an information system that allows them to evaluate their work

The survey tool used to assess agency perceptions in the above areas contained 17 questions. Each of the questions provided a 1-10 scale that respondents could use to assess specific aspects of their information systems capabilities and use under the three main areas described above. Each agency was given a score in each of the three areas by adding the responses for each question within an area to create evaluation measures. These three measures proved to be reliable using standard reliability and robustness checks[1]. Table 1 presents the survey question under each of the three areas and the scale range for each of the FDM evaluation measures.

1.1 Evaluation design

Between the summer of 2009 and the spring of 2011 a total of 90 agencies used the FDM system at some point. Not all agencies used the FDM for the same amount of time. Some started in the summer of 2009, while others started in the winter of 2009 and yet others came on board in 2010 and in 2011.

We designed the FDM evaluation around the convenient fact that there were early and late implementers of the FDM. Early implementers started using the FDM by June of 2009 while late

[1] The Cronbach's alpha measure of reliability provided evidence that the group of questions in each section were measuring a related concept. The alpha coefficients were .95; .92; and .96 for each section respectively. In addition we used factor analysis to confirm if each group of questions was measuring only 1 construct and to assess if the factor loadings for each item were proportional in each of the measures.

implementers logged-in for the first time at least 6 months later. In addition, there was a set of agencies that used an old version of the FDM before 2009, a group of agencies that adopted the FDM for the first time after 2009, and a set of agencies that served as a control group by participating in the evaluation but did not implement the FDM in the 2009-2011 period. Table 2 shows the 5 groups agencies were assigned to for evaluation purposes by implementation timing and by experience using an older version of the FDM.

Table 1
FDM Evaluation Measures

FDM Evaluation Measures	**Survey questions used in the creation of scales**	**Scale range**
(1) System capabilities for collecting and sharing information within the agency	**I. In our agency, we have/use a systematic method:**	0-60
	a. for recording a family's strengths and issues of concern	
	b. to help families set goals.	
	c. for measuring progress on the family's goal attainment at regular intervals.	
	d. for collecting information that helps us understand the issue families and children face in a variety of areas.	
	e. for measuring the impact of our agency's activities.	
	f. for collecting information to make programmatic decisions.	
(2) System capabilities to input and retrieve valuable information about families' and workers' activities	**2. In our agency we:**	0-40
	a. use information from case assessments to train our staff.	
	b. record worker activities during case management.	
	C. record families' activities as they work on family goals.	
	D. have an information system that helps us communicate to others the work we do and what we have accomplished.	
(3) System capabilities to serve as an information system that allows them to evaluate their work	**3. Our agency has an information system that:**	**0-70**
	A. helps us evaluate the overall program performance based on family outcomes.	
	B. allows us to compare family outcomes from different services.	
	C. allows us to compare family outcome results with those of previous years.	
	D. compares outcomes results for different types of families.	
	E. allows us to evaluate the effectiveness of particular interventions.	
	F. allows us to evaluate our case management practices.	
	G. helps us identify particular issues that we need to address in our staff's professional development activities.	

Table 2
Evaluation groups

Implementation time	Experience using an older version of the FDM	Group Name
Summer 2009	Users that did not use older version of the FDM	Early / New
December 2009 or later		Late / New
Summer 2009	Users that used an older version of the FDM	Early / Old
December 2009 or later		Late / Old
No (control group)	NON-FDM Users	Control

The differences in implementation dates provided an ideal opportunity to measure the effect of the FDM on how agency managers perceived their information system using the three evaluation measures captured by the survey instrument described in the previous section. All agencies were first sent the survey electronically on May 2009 before the new FDM system was made available to them. 74 agencies responded to the first round of surveys which provided a baseline that was used to compare their scores after they implemented the FDM. A second round of surveys was sent electronically to all agencies on December 2009, and a third round of surveys in May 2010,exactly a year after the baseline survey.

The data collected in three waves of surveys was used to compare average scores in each of the three evaluation measures across groups to determine the effect of FDM use on agency manager's perceptions of their own systems. It is important to note that this design fits the classification of a quasi-experimental design because it lacks random assignment of agencies into particular groups (Campbell and Stanley, 1963). For the most part, agencies expressed a desire to be in either the control, early or late adopter groups and their wishes were granted. To account for potential bias introduced by this self-selection issue, the survey tool included a set of 8 measures that captured observable agency characteristics such as agency type, size (in terms of budget and employees) age, and computer accessibility.

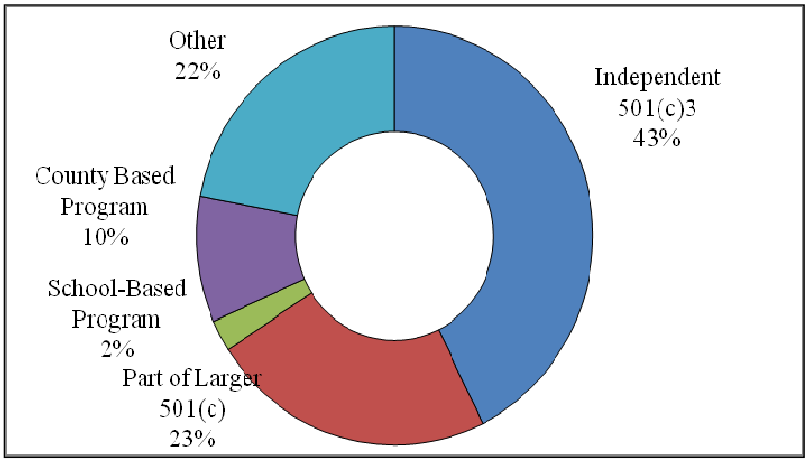
1.2 Evaluation findings: What are the main characteristics of participating agencies?

The three waves of surveys were crucial to measure how agency managers perceived their information systems at different points in time. The surveys, however, also provided valuable information on agency characteristics that informed the FDM/Pathways project on the type organizations using the FDM.

The survey revealed that the majority of family resource centers using the FDM (66%) identify themselves as either independent 501(c) 3 agencies or as part of a larger 501(c) 3

agency. Additionally, as shown in Figure 1, 10% of the agencies classified themselves as county based programs, and 2 percent were school based programs.

Figure 1
Distribution of agencies by type



When asked about the agencies age, the majority of agencies responded being relatively young, with 69% of them reporting being younger than 11 years old, and only 6% being older than 30years old. The entire distribution of agency age is depicted in Figure 2.

Figure 2
Distribution of agencies by age

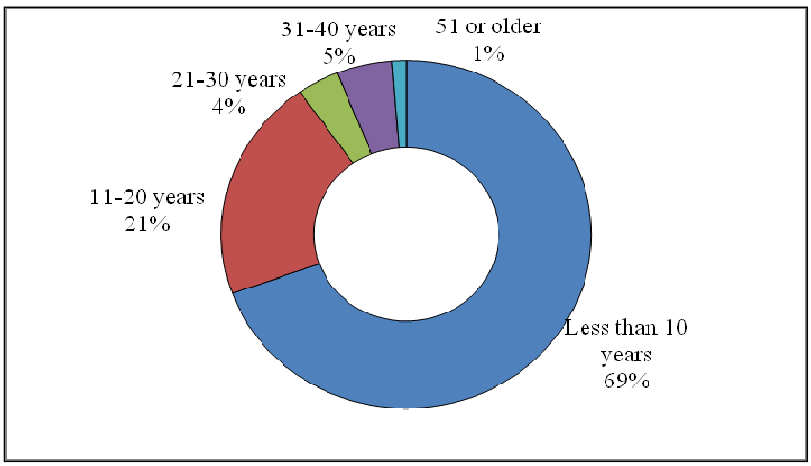
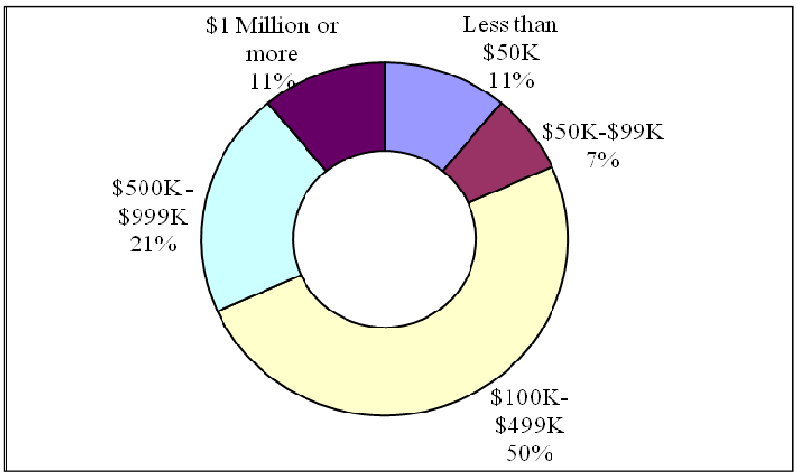


Figure 3 shows that most of the Family Resource Centers using the FDM tend to be small in scale when looking at their annual budgets. Seven out of ten agencies responded operating on

annual budgets lower than $500K, and 18% percent operate annual budgets under $100K. Only about 1 in 10 agencies reported annual budgets of $1 Million or more.

Figure 3
Distribution of agencies by yearly budget size



Budget size tends to be correlated with the number of fulltime employees in an agency. Figure 4 shows that most agencies using the FDM work with less than 6 full time employees (59%), while 24 percent of agencies reported having 10 or more full time employees on their staff. Agencies were not likely to report a large number of part time employees either. As Figure 5 shows, about 76% of agencies reported having less than 4 part time employees in their staff.

Figure 4
Distribution of agencies by number of full time employees

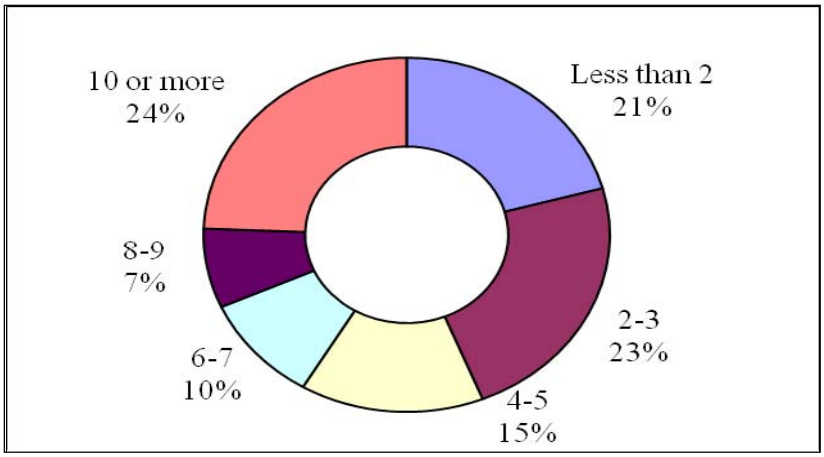
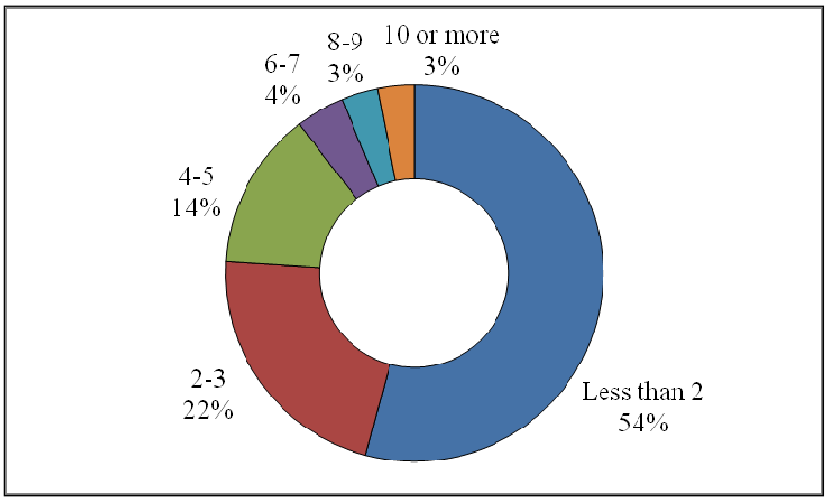
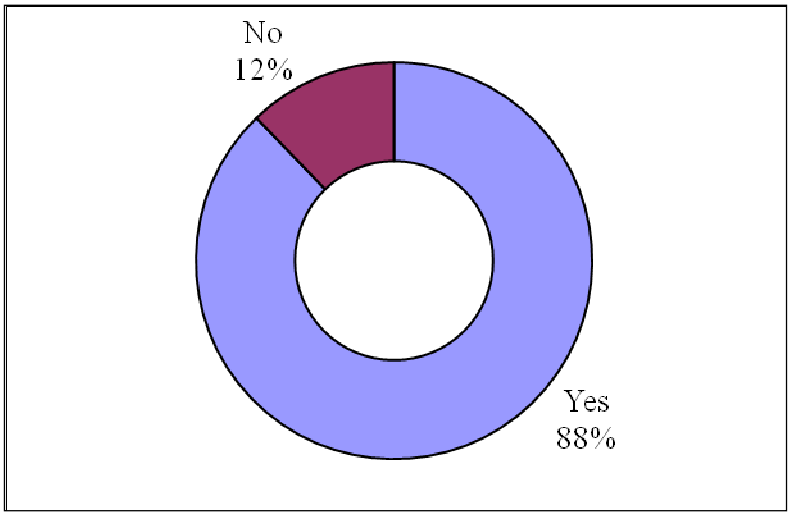


Figure 5
Distribution of agencies by number of part-time employees



Finally, since the FDM is an on-line system, the survey instrument asked if all family workers in an agency had access to a computer that had the FDM system. Close to 90% of respondents answered positively.

Figure 6
Distribution of agencies by computer accessibility for all employees



1.3 Evaluation findings: Did the FDM change agencies' perceptions about their information systems?

Table 3 presents average scores for the 3 surveys by evaluation design group. The average scores presented in Table 3 represent the 53 agencies that responded to all the surveys. Those that did not respond to at least one of the surveys were excluded from the analysis[2].

One of the most notable findings in Table 3 can be found by comparing columns 9 to 11. This comparison reveals a large increase in scores for all FDM implementers in third evaluation measure (capability of the information system for evaluation purposes) from the first to the third survey. More striking is the fact that this increase for FDM users was accompanied by a decrease in scores for that measure in the control group. A similar pattern emerges when looking at the evaluation's second measure (availability of an information system that tracks family and worker activities). A comparison of columns 6 and 8 shows that the FDM users increased their average scores modestly for that measure while the control group had a decrease in average scores.

Finally, a comparison of scores in the first measure of the evaluation (existence of an information system to share information within the agency) revealed some expected results: users that had never used the FDM before increased their average scores while agencies that had experience with a previous FDM presented no statistically significant change in scores. This result was not surprising because old users started with relatively high scores in this measure and the new FDM was pretty similar to the new FDM in its capabilities for that measure. Interestingly, however, the control group had a decrease in average scores for the first measure as well.

The upward trajectory of FDM users and downward trajectory of the control group during the study time was also observed when looking at median scores by group and survey, suggesting that outlier scores and small sample sizes were not the cause of these trends. It would be difficult to explain with certainty why the control group showed a decrease in average scores in all measures in the past year with the data available. We speculate, however, that the drop can be explained by a change in a perceptions gap. Our measures are related to perceptions of availability of an information system that is useful for tracking information that can be used to evaluate their programs, and the need for evaluation tools has become a lot greater during the study period due to a focus on outcomes reporting and state financial hardships. Thus, as the

[2] Average baseline scores for agencies that did not respond to the second or third or survey were not (statistically) significant to those of agencies that did respond to both second and third

need to evaluate increased during the study period, agencies in the control group may have developed a more critical view of their information systems when they were put to the test.

Another important finding was the comparison between early and late implementers among the new FDM users. Between the first and second surveys, the early implementers showed score gains in all measures while late implementers (the group that had not implemented the FDM to that point) showed no significant changes. By the third survey, the early implementers had used the FDM for a year while the late implementers had only used for 6 months. Both groups show score gains in all measures from the first survey, but the early implementers had slightly higher scores.

Table 3
Average Scores by group and survey

Group	N	Section 1: Info-Sharing System			Section 2: Family/worker Involvement Tracker			Section 3: Evaluation System		
		Survey 1	Survey 2	Survey 3	Survey 1	Survey 2	Survey 3	Survey 1	Survey 2	Survey 3
Early / New	13	42.43	47.21	50.23	28.71	30.93	32.15	41.07	48.36	52.15
Late / New	7	46.43	43.86	47.29	29.29	28.57	31.71	41.43	37.71	46.57
Early / Old	14	52.2	49.07	51.57	32.4	32.73	33.57	46.33	47.13	50.00
Late / Old	14	55.93	46.79	55.71	34.86	29.79	37.00	58.14	49.57	62.86
Control	8	47	43.75	42.29	30.58	29.67	28.00	44.83	39.08	39.86

The raw change in scores in Table 3 show useful information of how scores changed within a particular group, but given the quasi-experimental design guiding the evaluation, comparisons between groups offer more meaningful estimates of the FDM's true effect on the evaluation measures. As explained in the previous section, this evaluation uses a quasi-experimental design because agencies were not selected into groups randomly. Each agency was allowed to choose between being an early or late implementer of the new FDM. Several unobservable factors such as agency readiness to implement the FDM or need to implement the FDM may have influenced the decision to participate in a particular group. If these unobservable factors are reflected on an agency's baseline scores and other observable characteristics, then a more accurate way to assess the true effect of FDM use would be obtained by comparing how agencies that had the same scores in the first survey and with similar observable characteristics responded on the third survey. We do this mathematically using a multiple regression analysis model:

$$Score3_i = \alpha + \beta\ (baseline\ score) + \boldsymbol{\Gamma}'\ (Group) \qquad (1)$$

Where $Score3_i$ represents the score an agency obtained in section *i* in the third survey, *baseline score* is the score the agency obtained in the first survey (before implementing the new FDM) and *Group* is a vector of binary variables indicating if the agency was in group 1,2,3,4 or the control group. Using this framework we are able to estimate the difference in scores in the third survey across groups by looking at the estimates of $\boldsymbol{\Gamma}$ while holding the effect of baseline scores fixed. In other words we can answer the question of how agencies that scored at the same level in the first survey differ (on average) in their scores in the third survey across groups[3]. Table 4 shows estimates of model 1 for the 3 survey sections. The first row of coefficients can be interpreted as the effect of an additional point in the baseline score on the score in the same measure in the third survey holding the group constant. Comparing agencies within the same group, an additional point in the baseline score was translated in about 0.6 additional points in the third survey for sections 1, 2, and 3. The second row of coefficients in Table 4 represents the difference in scores between agencies that were in the first group (Early/New) and agencies in the control group while holding the baseline scores fixed. Thus, the second row in Table 3 shows that, comparing agencies that started at the same level in each section, those that were in group 1 (Early/New) ended up scoring, on average, 12.39, 6.36, and 16.08 points higher in sections 1, 2 and 3 respectively than agencies in the control group a year later. Similarly (looking at the third row of coefficients in Table 4), agencies in the second group (Late/New) scored, on average, 6.56, 5.98, and 11 points higher than agencies in the control group in sections 1,2, and 3 respectively, in the third survey comparing agencies that started at the same level in the first survey. The fourth and fifth rows in Table 4 show that agencies in groups 3 and 4 did better than agencies in the control group in the third survey as well. But it is noteworthy that agencies that were completely new to the FDM program (just like the control group was at the time of the first survey) experienced a remarkable gain in scores over their control group counterparts[4].

In summary, the results of our quasi-experimental design show that FDM users increased their scores much higher than comparable agencies in the control group in each of the three evaluation measures. Part of the difference is accounted by an increase in scores for FDM users and the other part of the difference is explained by a decrease in scores for agencies in the control group that may be explained by a change in perceptions during the study caused by a more pressing need for outcomes based evaluations. The greatest positive gains were experienced by agencies that implemented the FDM for the first time and had an entire year to use it. These agencies did better than comparable agencies that started at the same level but only had 6 months to use the FDM. This suggests that there is a significant learning period that takes

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[3] To estimate model 1 we keep the control group as the comparison group so that all estimates of Γ can be interpreted as differences between a particular group and the control group holding the baseline score fixed.

[4] We estimated, model 1 including other controls such as agency age (in years) and agency size (in budget $) and obtained virtually the same results. This suggests that after controlling for baseline scores, agency size and age had no significant impact on an agency's group choice or change in scores for any measure.

place before an agency head increases perceptions of FDM effectiveness in the three evaluation measures. We explored these effects further by looking at the effect of time on these perceptions.

Table 4
Regression Estimates of Group Differences
(Comparison to control group)

	Section 1: Info sharing system	Section 2: Family/worker involvement tracker	Section 3: Evaluation system
Baseline score	0.56**	0.60**	0.58**
Early / New	12.39**	6.36**	16.08**
Late / New	6.56*	5.98*	11.00*
Early / Old	7.38**	5.90**	12.00**
Late / Old	9.62**	7.90**	17.63**
Constant	14.51	8.06	11.64
N	56	56	56
R Squared	0.43	0.41	0.5

* Statistically significant at the .1 level, ** statistically significant at the .05 level

1.4 Evaluation findings: What was the effect of time using the FDM on perceptions of its effectiveness?

Table 4 showed that users of the FDM had higher scores in all measures than those not using the FDM. Every group in the evaluation design had higher average scores in all measures in the third survey controlling for baseline scores. In this section we estimate a different model to measure how much the time an agency uses the new FDM affected their scores in the third survey - again controlling for baseline scores. We estimated the following model:

$$Score3_i = \alpha + \beta\ (baseline\ score) + T\ (time\ since\ go\ live) \qquad (2)$$

$Score3_i$ and baseline score keep the same definitions of the models in table 3. *Time since go live* indicates the number of days since the agency first opened the FDM system and the day the last survey was analyzed (August 1st 2010). The first row of estimates in Table 5 shows that comparing agencies that went live on the same day, those that started at a higher level in the first survey ended up at a higher level in the third survey in every measure. The coefficients of interest (second row) indicate that comparing agencies that started at the same level in the first survey, those that had an additional day of use with the FDM had an increased score of .03, .02,

and .04 in sections 1, 2, and 3 respectively in the third survey. The stronger effect was observed in section 3 were an additional month of FDM use had an effect of 1.5 points in the third survey.

Table 5

Regression estimates of the effect of time using the FDM

	Section 1: Info sharing system	Section 2: Family/worker involvement tracker	Section 3: Evaluation system
Baseline score	0.51**	0.63**	0.62**
Days since go live date*	0.03**	0.02**	0.04**
Constant	18.38	8.31	11.64
N	54	54	54
R Squared	0.36	0.39	0.46

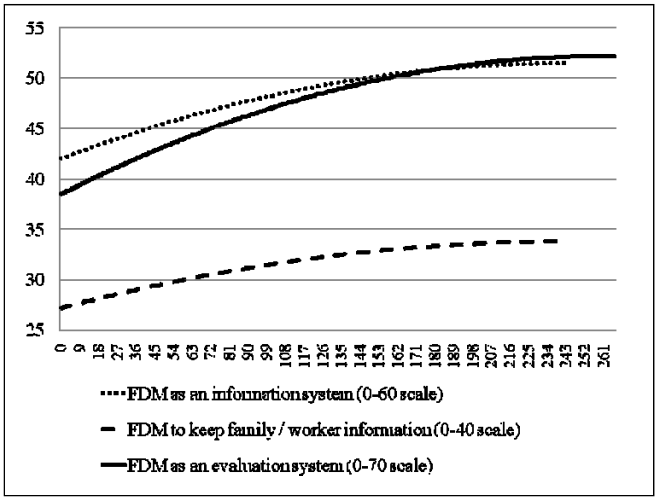
*Agencies in the control group were assigned a 0 for this variable

** Statistically significant at the .5 level

A third model was estimated to allow for the effect of time to be non-linear. It makes sense to hypothesize that the effect of a new system is greater at the beginning and its positive effect decreases. Thus, we estimated equation 2 adding a quadratic term of time since go live to calculate the average optimum effect of time using the FDM on scores in each of the sections. Results for these estimates are not shown in the report but available upon request. The coefficient on the quadratic term was negative for the three models suggesting that time has a positive effect on scores but that positive effect decreases its importance as times increases. Figure 7 presents the estimated score in each of the scales as a function of time in days. The maximum average impact on scores for measures 1, 2, and 3 were 243, 244, and 268 days respectively. Thus, it tends to take between 8 and 9 months of use of the new FDM for the agency manager to maximize perceptions of FDM capabilities in these three measures.

Figure 7

Estimated effects of time on perceptions of FDM capabilities*



In conclusion, our results of the quasi-experimental design analysis show that FDM system increases the perceptions of agency managers in regards to their own information and evaluation systems. Our results show that time plays a significant role in the way the FDM increases agency perceptions of effectiveness of their information and evaluation systems. As agencies input data in their systems and are able to track client outcomes, they seem to have increased the perceptions of their information systems significantly. As of May 31st 2011 agencies had entered data on more than 5,500 families in the FDM system. A significant portion of them had more than 1 assessment. We turn to the analysis of these data in the next section.

2. ANALYSIS OF FAMILY OUTCOMES USING FDM DATA

This portion of the report presents data from families that received case management services from family resource centers that used the FDM/Pathways system. We first present a descriptive analysis of families that receive a first assessment and their baseline status on 20 indicators within the first thirty days or three client visits from agency intake. We then look at families that received a second assessment by analyzing the changes these families experienced after three months of case management with an FRC. Finally we look at the relationship between family and worker engagement and change and the types of interventions FRCs prescribed to families as part of their case management as a preliminary test of the FDM/Pathways theory of change.

2.1 First assessment data: What type families are FDM agencies serving?

As of May 31st 2001 participating agencies entered data on 5,579 families that received an assessemnt using the FDM/Pathways system. The 5,579 families in the FDM reported a total of 12,439 children. As Figure 8 shows, about 95% of these families had at least 1 child, and 50% of the families had between 2 and 3 children younger than 18 years of age at the time of the assessment. Figure 9 presents the distribution of FDM families by ethnicity, As the Figure 9 shows, 18.6% of families identified themselves as white while 14% of families indentified themselves as African American. The most represented group among FDM families were those of Hispanic origin (57%) while the least represented group was that of Native Amercans 1.4%.

Interestingly, while 2/3 of all families in the FDM system were not directly refered by child welfare agencies, about 1/3 of the familes in the FDM system were classified in one of the 3 Differential Response paths. Out of the 3 Differential Response paths, Path 2 was the most common, representing about 23% of all families in the FDM system. Families in Differential Response Paths 1 and 3 represented only 5.45% and 3.91% of all families respectively. The distribution of families by Differential Response path is presented in Figure 10.

Figure 8
Distribution of FDM families by total number of children (0-18)
(bars represent percentatges)

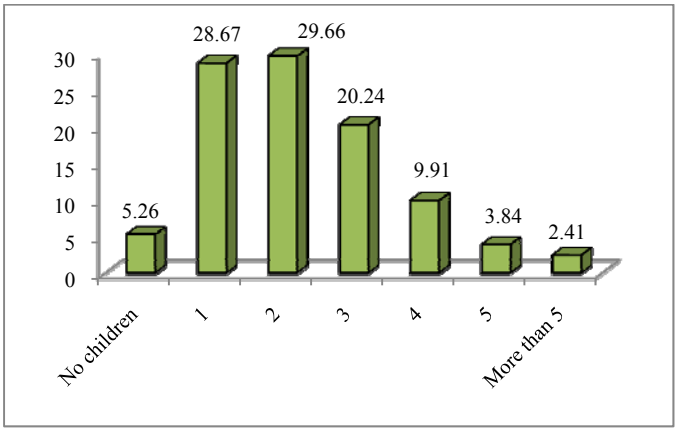


Figure 9
Distribution of FDM families by ethnicity
(bars represent percentatges)

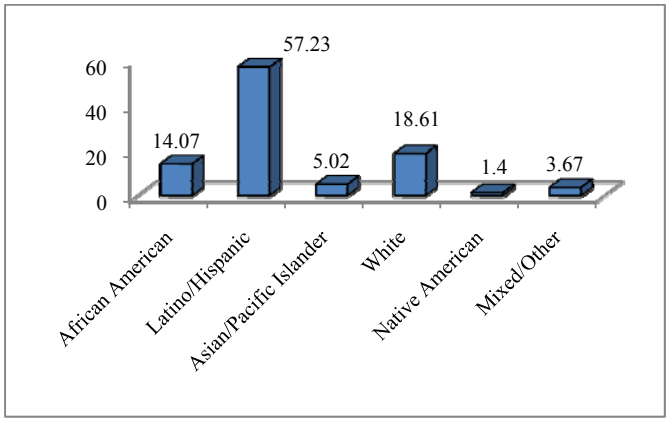
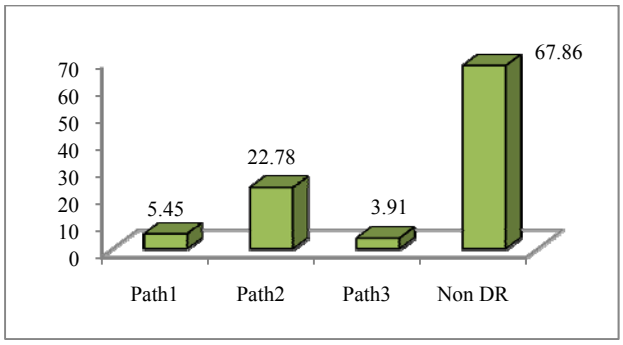


Figure 10
Distribution of FDM families by Differential Response path
(bars represent percentatges)



2.2 First assessment data: How did families score in the first assessment?

The worker and family together complete an assessment within the first thirty days or three visits of intake to determine how the family is doing in 20 indicators reflecting a complete picture of areas of strengths and concerns.. Each indicator has 4 stuatus levels ordered by level of severity: in each particular indicator, a family can be "In Crisis," "At Risk," "Stable," or "Self Sufficient". Figure 11 presents distributions of status levels for the 20 core indicators collected by the FDM system. Each horizontal bar in Figure 11 presents the percentatge of clients assessed as in crisis (blue portion of the bar or first from the left), at risk (red portion of the bar or second from the left), stable (green portion of the bar or third from the left), or self sufficient (purple portion of bar of fourth from the left).

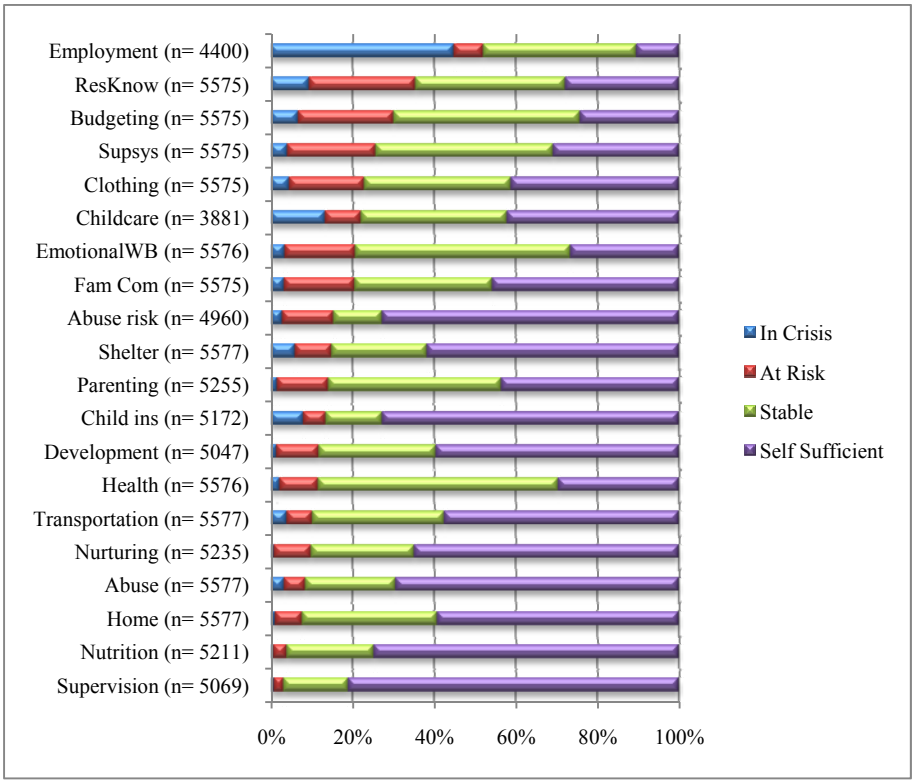
As Figure 11 shows, employment was the most likely indicator to be an area of concern. About 45% of families assessed as being in crisis and only 10% were at a stable level in the employment indicator. "Knowledge of available resources" and "budgeting" were the second and third most likely indicators to be areas of concern for FDM client families, where 36% and 30% of them scored either in crisis or at risk respectively.

Looking at families' overall scores revealed that on the aggregate they were at a high level in the first assessment. The total average score across all indicators was 3.3 and the median overall score was a 3.2 (that score falls between between the "stable" and "self sufficient" status).

This suggests that most clients seem to enter the FRCs looking for assistance with specific areas of concern and may be slow to reveal other personal or family issues until they have developed a relationship with their family worker. Less than 1% of cases reported being in crisis or at risk in more than 10 indicators in the first assessment. This is consistent with the FDM as an empowerment tool. As families recognize that they have areas of concern where they need help, they learn that they have some strengths as well that they can draw from to work in areas of concern. The three indicators that were most likely to represent areas of strength in the

first assessment were “supervision,” “nutrition,” and “home environment.” Less that 1% of families reported being in crisis for each of those 3 indicators.

Figure 11
Distribution of status levels in first assessment by indicator
(n= number of observations)



2.3 Second assessment data: How many families received a second assessment?

After families receive a first assessment and complete an empowerment plan they meet with their case manger for a second assessment 3 months after the first visit. The FDM protocol suggests that cases for families who have not received a second assessment 6 months after their first assessment should be closed. If a family comes back to the agency 6 months after the first assessment then FRCs open a new case for the family and consider that visit as a first assessment. As Figure 12 shows, out of the 5,579 families that received a first assessment 1,382 (25%) did not receive a second assessment within 6 months after their first assessment. Only 3,398 families received a second assessment within 6 months of the first assessment. Unfortunately, there is no way to explain why families do not return for a second assessment with the available data. Some of them may have entered the FDM again by returning to the FRC

that entered their first assessment. Others may have entered a different FRC or had a case opened by child welfare. Finally another portion may have had their needs met by the FRC in the first meeting and did not return to the FRC to close the case or did not see value in returning. Some may simply have moved away. Currently a group of collaboratives is developing partnerships with child welfare offices to identify clients that did not return for a second assessment had a case opened by child welfare. This effort requires FRCs and child welfare offices to use common codes to track families while keeping family privacy intact. The next phase of the FDM pathway project may evaluate these efforts in terms of results and protocols. For the purpose of this report, we turn next to an analysis that looks at the characteristics of families that do not return for a second assessment.

2.4 Second assessment data: Are families who receive a second assessment systematically different than those that don't?

As figure 12 shows, 3398 families (61 % of all cases that received a first assessment) received a second assessment within 6 months of their first assessment. A comparison of these families to those that did not receive a second assessment within 6 months revealed that families that received a second assessment were less likely to be assessed as in either in crisis or at risk in 13 indicators in their first assessment than families that did not return to a second assessment. These differences, however, were not substantial. Figure 13 depicts a comparison of families that did not receive a second assessment to those that did within 6 months of the first assessment. The red bars show the percent of families that were assessed as at risk or in crisis during the first assessment by indicator for those families that did not receive a second assessment. On the other hand, green bars show the percent of families that were assessed in the first assessment to be either in crisis of at risk for each of the indicators in the vertical axis and did receive a second assessment. As the figure shows, the indicators with the largest differences were "childcare" and "knowledge of community resources" where the percent of families in crisis or at risk in the first assessment within families that did not receive a second assessment was 7 percentage points higher than that of families that did receive a second assessment for both indicators. For the rest of the indicators the differences were either not statistically significant or lower than 7 percentage points in magnitude.[5]

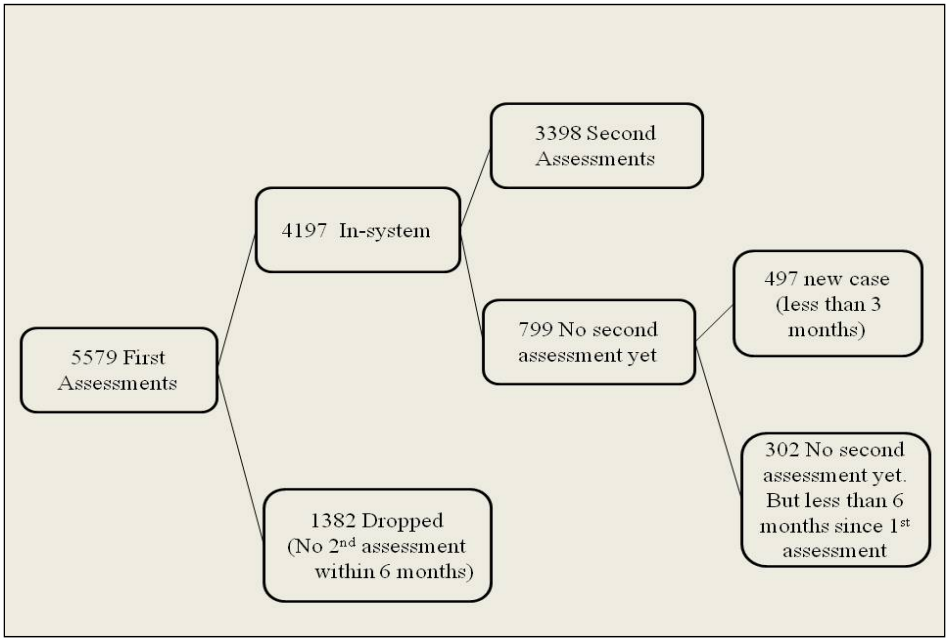
A comparison of families that received a second assessment to those that did not by Differential Response path revealed no difference between groups. Cases in Differential Response were not more or less likely than cases not classified under Differential Response to receive a second assessment. Table 6 presents a cross tabulation that compares families that received a second assessment to those that did not by Differential Response path. As the table

[5] Asterisks next to the indicator name in Figure 9 indicate statistically significant differences.

shows, the percentage of families that received a second assessment does not differ substantially across Differential Response paths.[6]

In conclusion, families that did not receive a second assessment were not substantially different than those that receive a second assessment. Differential Response path was not related to likelihood of receiving a second assessment. Families that did receive a second assessment were slightly less likely to be in crisis or at risk in some indicators. Even though these differences were statistically significant for 13 indicators, they were not substantial.

Figure 12
Summary of cases from first to second assessment



[6] Further, a chi square statistical test revealed no statistical association between Differential Response path and likelihood of receiving a second assessment.

Figure 13
Percentage of clients that were assessed either "at risk" or "in crisis" in first assessment by whether they received a second assessment or not
(n= number of observations)

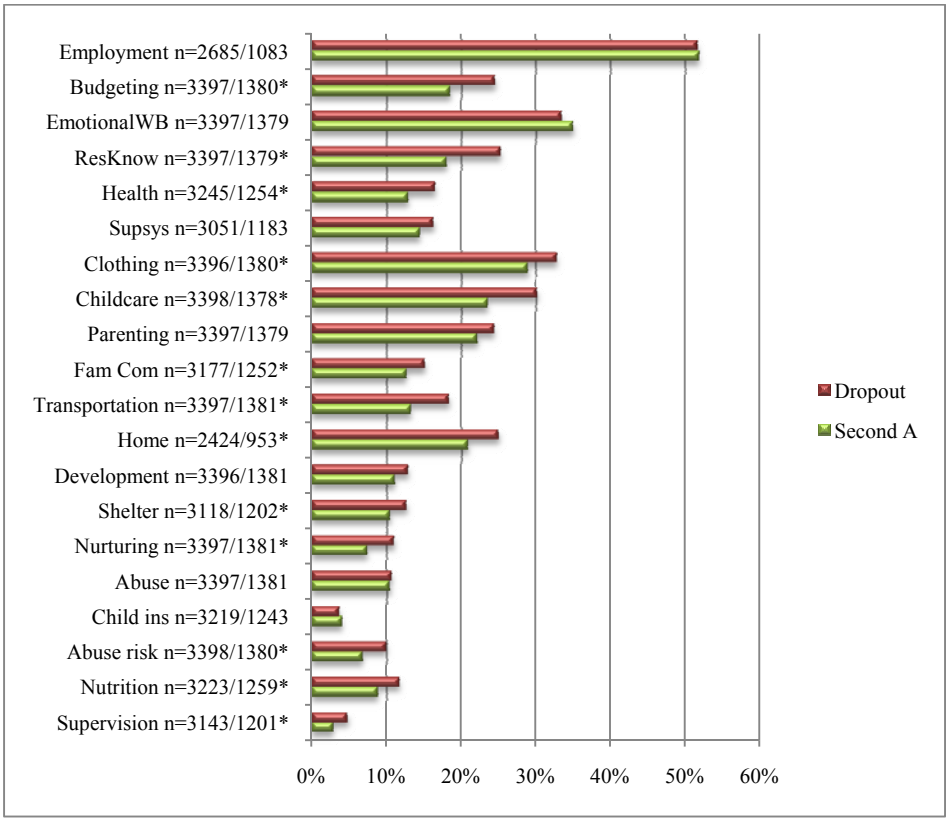


Table 6:
Comparison of families that received a second assessment to families that did not by Differential Response path

	Path 1 %	Path 2 %	Path 3 %	Non-DR %	Total
Second Assessment	65.2	69.44	72.73	71.96	71.09
Dropped	34.8	30.56	27.27	28.04	28.91
N	250	1,047	198	3,285	4,780

Pearson chi2 (3) = 7.0903 Pr = 0.069

2.5 Second assessment data: Are families experiencing change from the first to the second assessment?

As explained in the previous section most families started with relatively high overall scores in the first assessment and most of them came with specific areas of concern. For this reason an analysis of change based on total scores would mask the true impact participating FRCs had on their client families. Thus, we concentrate the analysis on changes for those families that were assessed to be either "at risk" or "in crisis" in their first meeting at the indicator level. Figure 10 presents the distribution of status levels in the second assessment by indicator for families that rated themselves to be "in crisis" in their first assessment. As the figure shows, 1,002 clients that had a second assessment were determined to be "in crisis" in the indicator of "employment." Out of those 1,002 clients, about 70% remained in crisis (i.e. no change from the first assessment). The blue portion of the bar represents the group that remained in crisis. The remaining 30% were able to move at least one level up and, 25% were able to move from "in crisis" to either "stable" or "self sufficient" (green and purple portions of the bar respectively).

While "employment" showed modest change for clients that started in crisis, other indicators showed much more generous changes. In the indicator of "child health insurance", for example, 60% of those clients that started in crisis in the first assessment moved to a position of "self sufficiency" and an extra 22% moved to a position of "stable" in less than 6 months. Similarly, for the 217 families that started "in crisis" in the "Family Communication" indicator, 60% of them moved to a position of "stable or self sufficient" in less than 6 months. In fact, significant positive changes were observed in every indicator with the exception of employment. As Figure 14 shows, families were able to move up from a situation of crisis 60% of the time for every indicator, with the exception of employment, in less than 6 months. This data is testament for the significant positive effects participating FRCs have on their clients.

Figure 14
Distribution of status levels in second assessment for clients that scored "in crisis" in the first assessment
(n= number of observations)

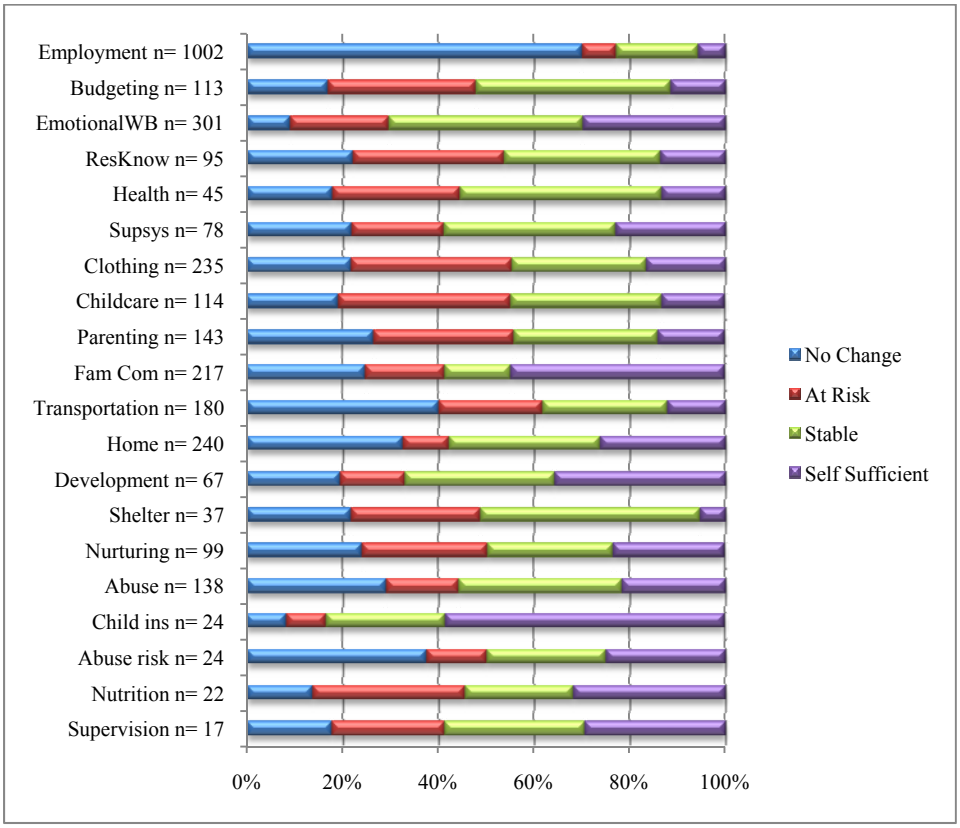
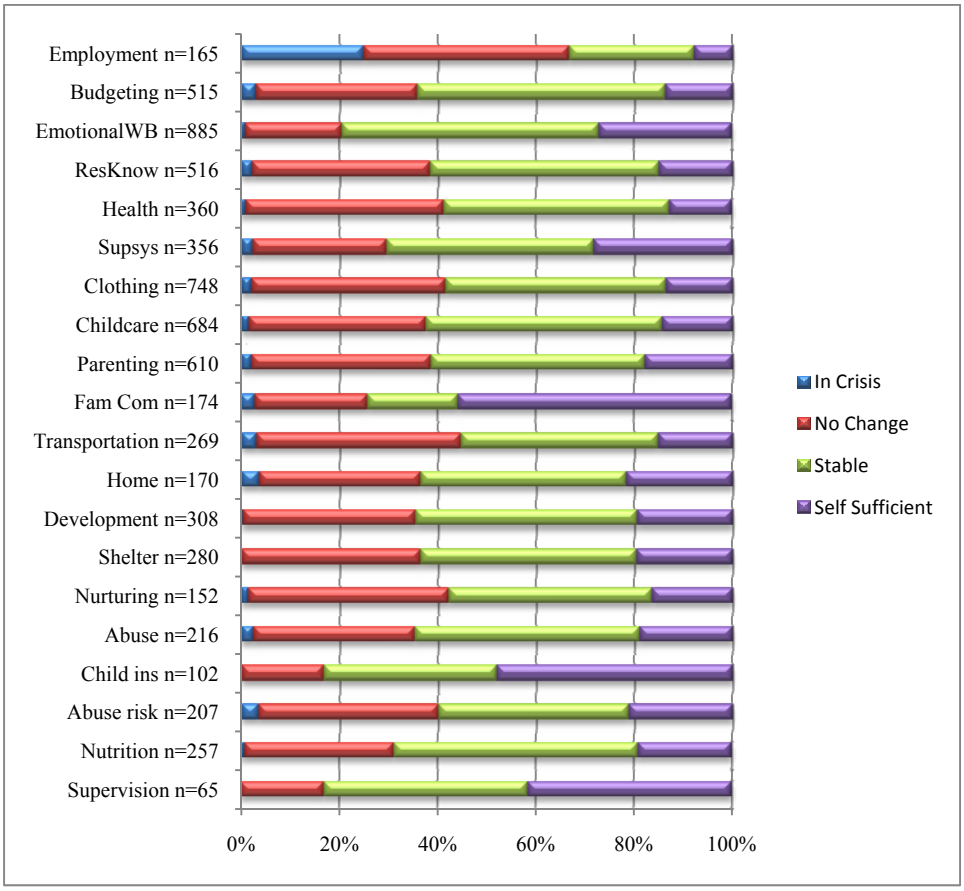


Figure 15 presents the distribution of status levels in the second assessment by indicator for families that scored "at risk" in their first assessment. In this figure, the blue portion of the bars represent the percentage of clients that move down from a position of "at risk" to a position of "in crisis." With the exception of employment, where about 25% of families that started "at risk" moved down to a position of being "in crisis", less than 4% of cases that started "at risk" moved down to "in crisis" in all indicators. As with the clients that started "in crisis", there were significant positive changes for clients that started "at risk" from first to second assessment. For the indicators of "Child health insurance," "Emotional well being," and "Supervision," at least 80% of families that started "at risk" were able to move to a position of "stable" or "self sufficient." For the rest of the indicators, 60% of families that started "at risk' were able to move to a "stable" or "self sufficient" position.

In conclusion, the data shows significant gains in scores for clients that scored"in crisis" or "at risk" from the first assessment to the second assessment. As figures 14 and 15 show, the majority (more than 50%) of clients that started either "at risk" or "in crisis"were able to move

up at least one level in their status in every indicator with the exception of "employment." The indicators for which the greatest positive effects were observed were "family comminication," "emotional wellbeing," "child health insurance," and "supervision." These findings are noteworty because of effect sizes, but they a even more remarkable considering that that the change occurred in less than 6 months and during the one of the worst economic cirsis the nation and the state of California have faced in recent times. Although many factors may have influenced family changes in the FDM indicators, we explore some of the varibales that may be associated with change from the first to second assessment in the next section.

Figure 15
Distribution of status levels in second assessment for clients that scored "at risk" in the first assessment
(n= number of observations)



2.6 Second assessment data: What explains the family changes in status from first to second assessment?

The previous section showed that FRCs reported substantial changes in client outcomes from first to second assessment. This section explores some of the factors that may explain these changes. The model underlying the FDM/Pathways project suggests that a client's changes in attitudes and behavior are a function of three basic components that make a successful intervention: (1) The Case Management adequacy, (2) Family's level of involvement in the intervention, and (3) The appropriateness of an intervention itself given the family's specific areas of concern. The way in which these components relate to each other and the client's change in behavior comprises the theory of change guiding the entire FDM/Pathways project. In this section we look at the first two components and their relationship with change in family outcomes separately.

2.7 Second assessment data: Is family engagement associated with change?

FDM data allowed us to assess some parts of the project's underlying theory of change. This subsection looks at the association between family engagement and change experienced from first to second assessment. The FDM protocol requires case managers to assess each family in terms of their levels of engagement with the process using a set of established items in a questionnaire. The first item in the questionnaire requires case mangers to assess their clients' "participation in the development of a family empowerment plan" using a ordinal scale of three levels: (1) Family is resistant to taking steps to achieve goals; (2) Family is willing to make an attempt at taking steps to achieve goals; and (3) family is committed to taking steps to achieve goals.

Figure 16 compares clients that scored "at risk" or "in crisis" in the first assessment**,** and were reported as being fully committed to the empowerment plan process to those that were perceived to be resistant to the process. Each bar in Figure 16 represents the percentage of clients that started "at risk" or "in crisis" in the first assessment and moved up at least one level by indicator. The red bars (top) show the percentages of families that were committed to the empowerment plan while the blue bars (bottom) represent the families that were perceived to be resistant to the empowerment plan. As the figure shows, families that were committed to the empowerment plan were more likely to move up a level from first to second assessment in all of the indicators than families that showed resistance to the process (red bars are longer than blue bars for all indicators). The differences were statistically significant for 16 indicators as indicated by the asterisks next to the indicator's name.

The second indicator of family engagement in the FDM requires workers to assess if the families "followed through on the empowerment plan" using the following answer choices: (1) No action taken by family, (2) Uneven follow through, (3) Full participation by family. Figure 17 compares clients that scored "at risk" or "in crisis" in the first assessment**,** and were reported as fully participating in following through on the empowerment plan process to those that did not take any action. Each bar in Figure 17 represents, for each indicator, the proportion

of clients that started "at risk" or "in crisis" in the first assessment and moved up at least one level. The red bars (top) represent the percentages for families that had full participation while the blue bars (bottom) represent the families that took no action in following through on the empowerment plan. As the figure shows, families that showed full participation were more likely to move up a level from first to second assessment in all of the indicators than families that that showed no action to the process (red bars are longer than blue bars for all indicators). The differences were statistically significant for 16 indicators as indicated by the asterisks next to the indicator's name.

Figure 16
Percent of clients that started "at risk" or "in crisis" in first assessment and moved up at least one level by participation in the empowerment plan
(n= number of observations)

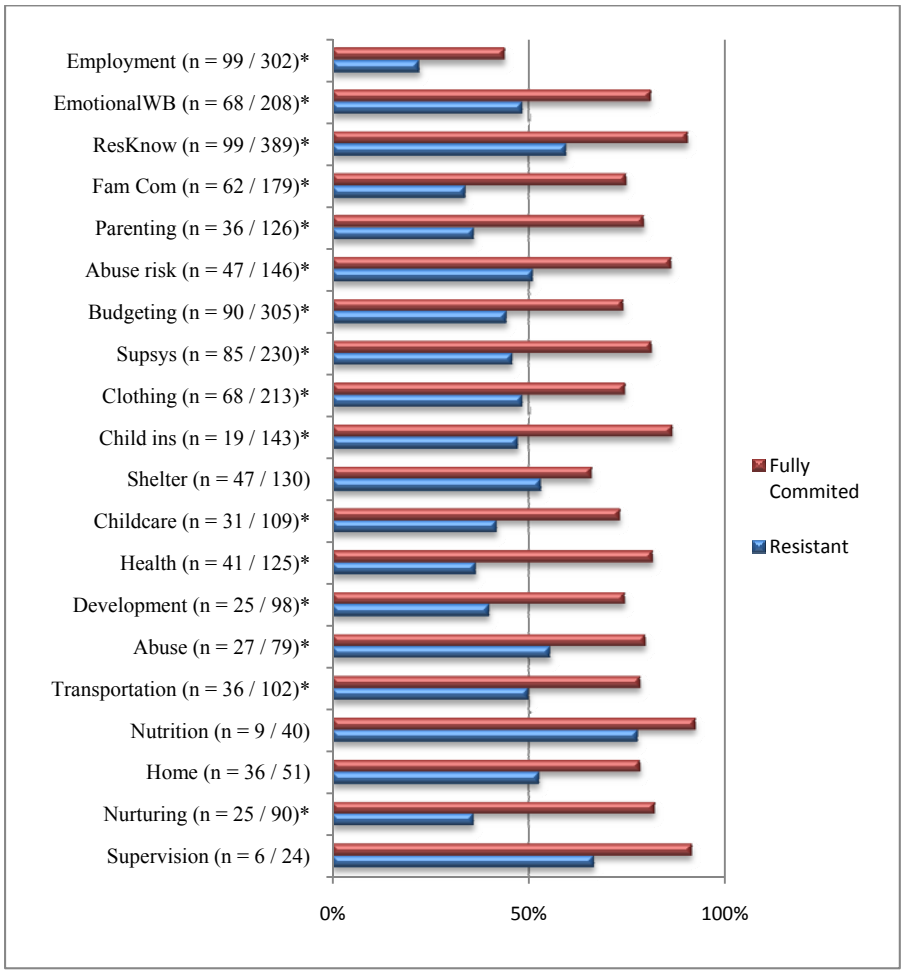
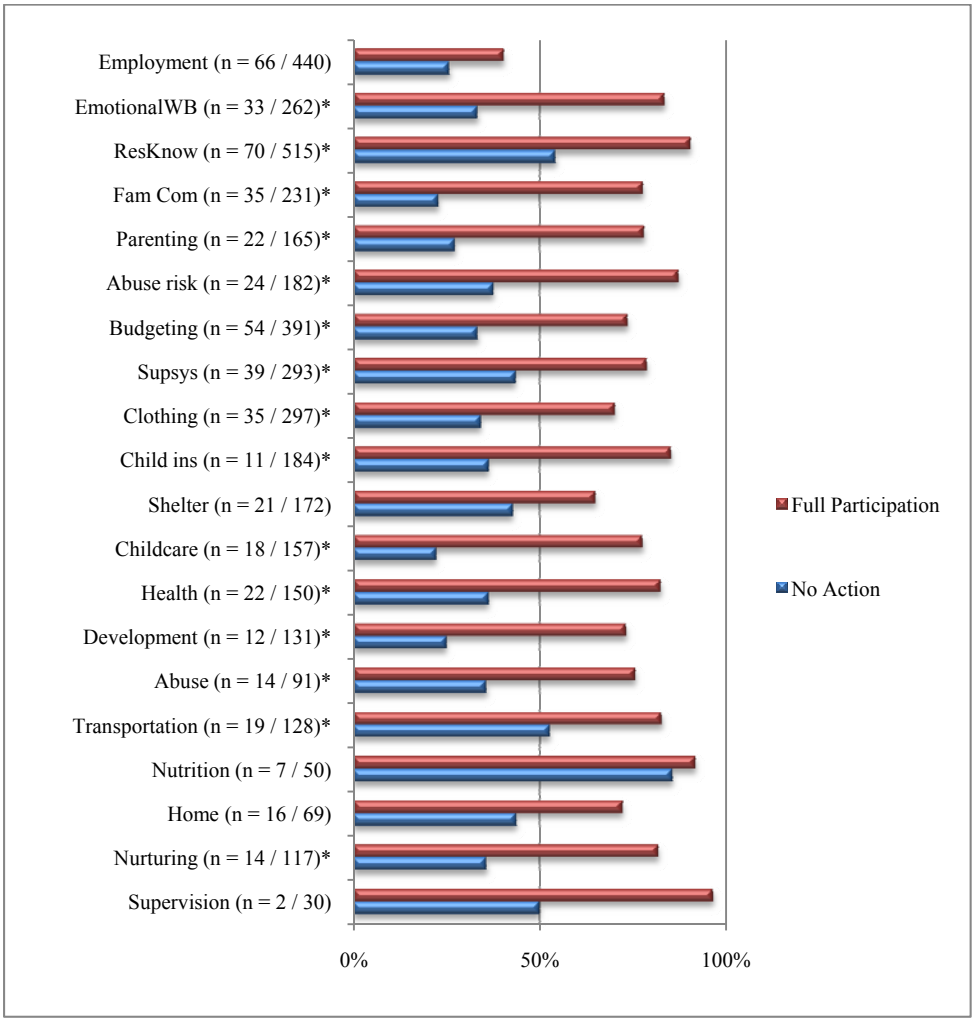


Figure 17
Percent of clients that started "at risk" or "in crisis" in first assessment and moved up at least one level by level of "follow through with the empowerment plan"
(n= number of observations)



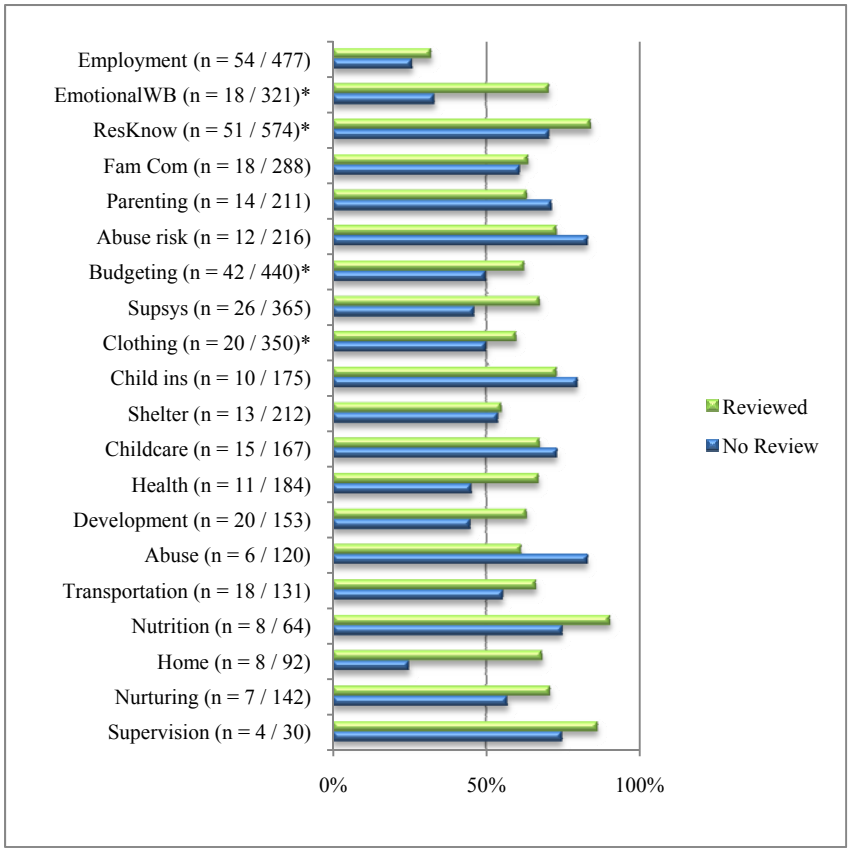
In conclusion, family engagement as measured by the FDM items described in this section is associated with positive change in scores from the first to second assessment. This finding comes as no surprise given the ample research literature on the topic supporting this finding. The fact that the data shows the same effects that the literature however, brings support to the reliability of the FDM data collection tool for measuring family engagement. In the near future we plan to continue to pursue research on this topic to gain greater understanding of what factors contribute to family participation and how participation relates to changes in outcomes.

2.8 Second assessment data: Are case manger activities associated with client outcomes?

The FDM system requires case managers complete a self-assessment on how closely they followed the established protocol during the family empowerment plan. The first item in the case manger's self-assessment, for example asks if the case manager "Reviewed the Matrix Visit Summary to identify strengths, concerns, and interventions" or not. A thorough review of the Matrix Visit Summary is a crucial part of case management using the FDM; therefore the project's theory of change predicts that, other things being equal, close relationship to protocol would make a difference on client outcomes.

Figure 14 compares clients that rated "at risk" or "in crisis" in the first assessment**,** whose case managers reviewed the Matrix Visit Summary to those where the case manager did not review the Matrix Visit Summary. Each bar in Figure 14 represents, for each indicator, the proportion of clients that started "at risk" or "in crisis" in the first assessment and moved up at least one level. The green bars (top) show the percentages for families whose case manger reviewed the matrix visit while the blue bars (bottom) represent the families did not review the Matrix Visit Summary at the end of the first assessment. As Figure 18 shows, the effects of a worker reviewing the Matrix Visit Summary are mixed. Family review of the family visit was associated with positive changes on 4 indicators: "emotional wellbeing," "budgeting," "knowledge of community resources," and "clothing" where the green bars are larger than the blue bars. For other indicators, the differences were not statistically significant. It is important to note that they were very few observations where case managers marked that they had not reviewed the Matrix Visit Summary. This certainly affected the precision of the estimates and the reliability of the statistical tests for many of the indicators that showed no clear effect. As more data is entered into the FDM, the effects of case manger activities will be able to estimate with greater precision. Nevertheless, the fact that we found positive effects of case management and protocol for 4 indicators constitutes preliminary evidence on the importance of case management and protocol on client outcomes.

Figure 18
Percent of clients that started "at risk" or "in crisis" in first assessment and moved up at least one level by whether the case manager "reviewed the Matrix Visit Summary" (n= number of observations)



2.9 Interventions

The theory of change underlying the FDM/pathways project described previously in this section states that the adequacy of interventions plays an important role on client outcomes. For this reason, the FDM/ Pathway model used the "Pathways for the Prevention of Child Abuse and Neglect" model based on Lizbeth Schore's Pathway Mapping Initiative. The Pathway Model interventions were entered in the FDM to guide case managers as they agreed on adequate interventions with their case families during the empowerment plan. The 17 Pathway Interventions were linked in the FDM to specific indicators so that case mangers could choose the most appropriate given the specific family circumstances. Table 7 presents the Pathway interventions used by the FDM and how frequently they were employed with the 5,579 families that received a first assessment. Table 7 shows that the most common interventions were "Connection to financial supports for self-sufficiency," "Positive parenting education,"

"Connecting parents to support groups and education," "Connecting families to informal community supports," and "Providing Health Information." These 5 interventions together represented about 55% of all the Pathways interventions assigned for families in the first assessment. The remaining 12 Pathway interventions were used as well, but on a lower scale. This finding was not surprising given the types of needs the majority of families have when they receive a first assessment as shown previously in Figure 11.

While the Pathway interventions are an integral part in the FDM to provide a framework of action collaboratives could use in their case management as well as a theoretical anchor guiding the project, the FDM was flexible enough to allow collaboratives to introduce their own interventions into the system. Collaboratives designed their own "Custom" interventions that reflected their own community resources and needs. Table 8 presents distributions of Pathway and Custom interventions used by FRCs for each indicator. Interestingly, as the table shows, the relative frequencies for Pathway interventions across indicators are relatively similar to the relative frequencies for custom interventions. The largest difference between relative frequencies is given for the employment indicator where 16% of all Custom interventions were assigned for employment while only 9% of Pathway interventions were assigned for employment.

The similarity between relative frequencies means that collaboratives seem to be using Custom and Pathway interventions equally across indicators. This may be an indication that that Custom interventions fall, for the most part, under the umbrella of Pathway interventions. However, more analysis would be necessary to determine the extent to which Pathway and Custom interventions are aligned. This is a necessary step in the future analysis that will assess the impact of interventions on family outcomes. This report does not contain such analysis for it will be a part of the future steps on the evaluation of the FDM project between 2011 and 2014.

Table 7
Distribution of Pathway Interventions by type

Pathway Intervention	Frequency	%
Provide health information	426	7.15
Identify developmental concerns	302	5.07
Connect to child care opportunities	268	4.5
Positive parenting education	654	10.97
Effectively involve fathers and other relatives	151	2.53
Connect to parent support groups and education	635	10.65
Connect to financial supports for self sufficiency	1,154	19.36
Work in partnership with Child Welfare	200	3.36
Participate in Multi-disciplinary teams	415	6.96
Support family to advocate for child in school	134	2.25
Connect to weekly group meetings for parents and child	209	3.51
Provide linkages to remove barriers to service	216	3.62
Provide transportation to access medical care	186	3.12
Connect family to informal community supports	452	7.58
Work with families to identify system gaps	325	5.45
Confirm Safety of Child	134	2.25
Support children's social and emotional needs	99	1.66
TOTAL	5,960	100

In conclusion, the data shows that all Pathway interventions have been used during the first assessment. Additionally, the distribution of Pathway interventions mirrors the types of indicators families are more likely to be at risk or in crisis when they complete their first empowerment plan. Finally, a comparison of how Custom and Pathway interventions are distributed across indicators suggests that the two are being used equally. This may be an indication that Custom interventions can be aligned with Pathway interventions, but more research is needed on that front before an assessment of the importance of interventions on family outcomes is completed in the next phase of the project.

Table 8
Distribution of interventions by indicators and intervention type

Indicator	Pathway interventions		Custom interventions		Total number of Interventions
	Frequency	%	Frequency	%	
Access To Transportation	191	3.2	164	2.70	355
Appropriate Development	323	5.42	179	2.95	502
Budgeting	313	5.25	402	6.62	715
Child Care	346	5.81	122	2.01	468
Child Health Insurance	315	5.29	236	3.89	551
Clothing	317	5.32	329	5.42	646
Community Resources Knowledge	525	8.81	593	9.77	1,118
Emotional Well being Sense	447	7.50	582	9.59	1,029
Employment	546	9.16	1,006	16.58	1,552
Family Communication Skills	453	7.60	450	7.42	903
Health Services	201	3.37	196	3.23	397
Home Environment	60	1.01	103	1.70	163
Nurturing	169	2.84	57	.94	226
Nutrition	80	1.34	125	2.06	205
Parenting Skills	571	9.58	288	4.75	859
Presence Abuse	176	2.95	118	1.94	294
Risk Of Emotional Or Sexual abuse	282	4.73	475	7.83	757
Stability Home Shelter	157	2.63	364	6.00	521
Supervision	50	0.84	22	0.36	72
Support System	438	7.35	257	4.24	695
Total	5,960		6,068		12,028

3. CONCLUSIONS AND FUTURE STEPS

This evaluation report presented the results of a quasi-experimental design used to evaluate the impact of the FDM as an information system and an analysis of FDM data to describe family outcomes from the first to second assessment as well as some of the factors that may be related to those outcomes. The results are very promising. FDM usage tends to increase participating agencies' perceptions of the capability of their information systems (especially on their system's potential as an evaluation tool). Further, results show that the average time required to maximize agency perceptions on their system's potential is between 8 and 9 months.

Analysis of FDM data revealed that most families that start with specific areas of concern in the first assessment and receive a second assessment are able to achieve positive changes in less than 6 months. These positive changes seem to be strongly related to family engagement as measured by the FDM, and to some extent related to how close case managers are able to follow the established case management protocol. We also find that agencies are using Pathway interventions in their case management, but also are making use of Custom interventions designed at the collaborative level. Further, the number and relative frequencies of Custom interventions were fairly similar to those of Pathway interventions across indicators, meaning that, on the aggregate, agencies are not necessarily replacing Pathway with Custom interventions or vice versa.

Even though the results are encouraging, there are many questions that could be addressed in future evaluations of the FDM/Pathways project:

1. Can indicators be grouped into larger constructs that reflect areas of family strength or concern?
2. To what extent can Custom and Pathway interventions be aligned?
3. To what extent is change in outcomes explained by interventions?
4. What are the reasons that families dropout of the system (i.e. not receive a second or third assessment within 6 months of the previous one)?
5. What factors are associated with family engagement?
6. To what extent can the FDM be used with other information systems in Child Welfare agencies?
7. How are agencies using FDM data to evaluate their work?
8. How are agencies collaborating with each other and with other community resources as they serve families?

Answers to these questions will not only enhance the way participating collaboratives fulfill their goals of helping families, but will also represent a valuable contribution to the field of child abuse and neglect prevention.