Case Complexity Tool
User Manual

Version 1.0

Strong Foundations SM
Improving Outcomes for Families

Under the Support of
Embrace Families

Prepared by Adventurous Analytics, LLC

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Background

The Case Complexity Tool (CCT) was developed to help ensure more equitable caseloads for individuals in the case management role and to increase their capacity to serve the children and families in Florida. The tool was specifically designed to assist supervisors with assigning cases in an equitable way by providing an objective measure of the complexity of cases. To determine complexity levels of cases, input was provided from case managers and case manager supervisors across Florida. Feedback regarding what drives case complexity was collected to understand what data was needed from Florida Safe Families Network (FSFN) to inform the tool.

As part of a validation process, case managers and case manager supervisors were surveyed to rate cases based on the important factors previously identified. The scores from the surveys trained machine learning algorithms to learn what ultimately makes a case complex. From the trained machine learning model, predictions were created giving each case a complexity score on a scale from 1 to 9, with 1 being the least complex cases and 9 being the most complex. Using the case score in conjunction with other factors and dynamics related to circumstances within teams, supervisors can make informed decisions about case assignments.

This guide was developed specifically for the person or persons making the case assignment decisions in the case management organization. The tool is not intended to replace discretion when assigning cases, rather it should be used as a source of information to assist in the decision-making process. Please note that there are multiple factors and issues related to case managers and teams that cannot be accounted for in this model. One example of a factor not considered in the model is the family's primary language. Families that primarily speak Spanish would be best served by a case worker that also speaks Spanish regardless of their total case score or complexity of their caseload.

How to Use the Case Complexity Tool (CCT)

Introduction

The Case Complexity Tool (CCT) produces an Excel file (report) that contains case scores and summary statistics for cases at your agency. The system administrator can direct users where to find the report and can establish a process to generate regular reporting. Reports in the form of Excel files provide a familiar and easy to use format. The file contains five separate worksheets (tabs) described in Table 1 below.

Table 1. CCT Excel Worksheet Descriptions

Worksheet Name	Description
Case Scores	The main output of the Case Complexity Tool containing case id and case score along with associated agency, unit and worker information. This worksheet is pre-sorted by worker name and case name.
Unit Worker Summary	Case score statistics at the unit-worker level. This is the primary worksheet for unit supervisors to use in making case assignments. This worksheet is pre-sorted by the Unit ID (lowest to highest) and the score total (lowest to highest).
Worker Summary	Case score statistics at the worker level. This worksheet is pre-sorted by the worker name.
Unit Summary	Case score statistics at the unit level. This worksheet is pre-sorted by the Unit ID (lowest to highest).
Agency Summary	Case score statistics at the agency level. This worksheet is pre-sorted by the agency type and agency name.

Each worksheet has multiple columns that provide the information necessary to make case assignment decisions. Worksheet columns are described in Table 2 below.

Table 2. Worksheet Column Descriptions

Column	Description
Child Count	Total number of children receiving services on the cases assigned to the worker as primary.
Case Count	Total number of cases assigned to the worker as primary.
Case Score	The score assigned to the case by the Case Complexity Tool based on complexity factors pulled from FSFN.

Score Total	A combined total of all case scores for the cases assigned to the worker (or supervisor unit on the Unit Summary worksheet) as primary. Ex: If a worker has 5 cases with scores of 2, 4, 5, 7, 9. The score total is 27.
Score Mean	The total of the case scores assigned to the worker as primary divided by the number of cases assigned to the worker as primary. Ex: If a worker has 5 cases with scores of 2, 4, 5, 7, 9. The mean is 5.4.
Score Median	The middle number in the set of case scores assigned to the worker as primary. Ex: If a worker has 5 cases with scores of 2, 4, 5, 7, 9. The median case score is 5.
Score Min (minimum)	The lowest score of all of the cases assigned to the worker as primary. Ex: If a worker has 5 cases with scores of 2, 4, 5, 7, 9. The min case score is 2.
Score Max (maximum)	The highest score of all of the cases assigned to the worker as primary. Ex: If a worker has 5 cases with scores of 2, 4, 5, 7, 9. The max case score is 9.
Worker Count	The total number of workers in the supervisor unit.
Cases per Worker	The total number of cases assigned in the supervisor unit divided by the total number of workers in the supervisor unit.
Children per Worker	The total number of active children in the cases assigned to the supervisor unit divided by the total number of workers in the supervisor unit.
Score per Worker	The combined total of all case scores in the supervisor unit divided by the total number of workers in the supervisor unit.

Most of the work the tool does is behind the scenes running in an automated, daily process that scores every case, every day. In this way the scores on any given day are based on the most recent conditions of that case from FSFN data. Accordingly, scores will change as complexity of cases change over time. The tool works at an optimal level when FSFN has the most updated information available about cases. Additional information about maintaining FSFN to ensure the most accurate case scores is included in the Ongoing Maintenance section of this guide.

Preparing to Assign Cases

This guide provides direction on how to use the Case Complexity Tool when assigning both new and internal transfer cases to workers at the agency. The first step is to identify the type of case to be assigned. Cases that are transferred from child protective investigations or from an agency outside (such as a different case management organization, community based care agency or from another jurisdiction) are considered new cases. Cases that are transferred to a worker within the same agency are considered internal transfer cases. The assignment process for internal transfer cases has an

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additional step to help the assigner make a more informed assignment decision. Once the type of case is identified, the assigning supervisor or other agency representative will review the available information as described below.

Reviewing Reports

The assigning supervisor or other agency representative should review the unit-worker-summary worksheet for the unit receiving the new or internal transfer case. The worksheet is pre-sorted by the unit ID and score total, placing the worker with the lowest score total at the top of the list for each unit. The assigner should start by filtering the worksheet for the unit receiving the case. If the assigner needs additional direction to select the receiving unit, guidance can be found in the Unit Scores section of this document. The example below uses unit 079234-Embrace CHS ORANGE. Figure 1 shows the unit-worker-summary worksheet filtered for this unit. Worker 100236132 currently has the lowest combined score total for cases assigned to them compared to the other workers in unit 079234-Embrace CHS ORANGE. The worksheet also provides statistics on child count, case count, and score mean, median, minimum, and maximum that can help guide the case assignment decision.

Figure 1. Example Unit Worker Summary Worksheet

Unit	Unit ID	Unit Supervisor Name	Worker Name	Worker ID	Child Count	Case Count	Score Total	Score Mean	Score Median	Score Min	Score Max
079234-EMBRACE CHS ORANGE	100005133	<supervisor name>	<worker name>	100236132	21	12	50	4.2	4	3	5
079234-EMBRACE CHS ORANGE	100005133	<supervisor name>	<worker name>	100240424	31	20	95	4.8	5	3	6
079234-EMBRACE CHS ORANGE	100005133	<supervisor name>	<worker name>	100226794	35	19	98	5.2	5	3	7
079234-EMBRACE CHS ORANGE	100005133	<supervisor name>	<worker name>	100236612	36	19	100	5.3	5	2	8

Internal Transfers

In cases involving an internal transfer, the assigner should also consider the current complexity score of the case being transferred to the unit using the Case Scores worksheet. This worksheet provides the case's individual score as well as the total number of active children on the case. Using the FSFN case ID or the case name of the internal transfer case, the assigner can locate the case on the worksheet. Figure 2 provides an example of the Case Scores worksheet. For this example, let's assume that Case ID 100647380 needs to be transferred to a new worker because the current worker is no longer with the agency. This case has a case score of 5 and 2 active children on the case. In the previous steps, the assigner identified the unit and workers that are eligible to receive a case based on their total case scores. The assigner can also consider how much additional complexity the internal transfer case will add to the caseload of the workers based on the current case score for that case. This information is especially helpful when multiple workers have similar total case scores and/or there are multiple cases that require assignment.

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Figure 2. Example Case Scores Worksheet

Case ID	Case Name	Case Score	Child Count	Worker Name	Unit Supervisor Name	Unit	Agency	Agency Type
101227987	<case name 1>	4	1	<worker name>	<supervisor name>	079266-CBCCF GC Osceola	Embrace Families CBC	CBC Lead Agency
100647380	<case name 2>	5	2	<worker name>	<supervisor name>	079266-CBCCF GC Osceola	Embrace Families CBC	CBC Lead Agency
101904767	<case name 3>	5	1	<worker name>	<supervisor name>	079266-CBCCF GC Osceola	Embrace Families CBC	CBC Lead Agency
102332832	<case name 4>	6	1	<worker name>	<supervisor name>	079266-CBCCF GC Osceola	Embrace Families CBC	CBC Lead Agency
100252125	<case name 5>	5	2	<worker name 2>	<supervisor name 2>	079231-CBCCF-CHS Orange	Embrace Families CBC	CBC Lead Agency
102482989	<case name 6>	4	2	<worker name 2>	<supervisor name 2>	079231-CBCCF-CHS Orange	Embrace Families CBC	CBC Lead Agency

Assignment Decision

After the assigner has gathered the current case score totals for the workers in the unit selected to receive a case from the Unit Worker Summary worksheet and any additional information that is known if the case is an internal transfer from the Case Scores Worksheet, the assigner should choose the worker with the lowest total case score that has sufficient space on their caseload to receive the incoming case.

In the example used in the previous section (Figure 1), the next case coming in to the unit selected (Unit 079234-Embrace CHS ORANGE) should be assigned to worker 100236132. This worker has the lowest case score total with 50. Adding the transfer case (Case ID 100647380) to worker 100236132 would increase the worker's score by 5 additional points and add 2 new active children to their caseload. This decision brings the worker up to a total case score of 55 and child count to 23. The worker is still well below their other unit teammates whose next closest case score total is 95.

In some situations additional factors not part of the CCT need to be considered when making the final case assignment. These include the family's primary language, specialized training or skill set on the part of the case managers, prior relationship with the family, protected caseloads, etc. The assigner is encouraged to use their discretion to make the final assignment determination.

Once the case assignment is made in FSFN, the next time the Case Complexity Tool runs, the newly assigned worker's score total will update to reflect the predicted case complexity score of the newly assigned case and any changes to the complexity scores of the previously assigned cases.

Ongoing Maintenance

In order for the Case Complexity Tool to continue to function at an optimal level and generate accurate complexity scores, the data in FSFN must be current and accurate. The Case Complexity tool pulls the information available in FSFN in order predict the case scores. To help agencies ensure their scores are

accurate, a list of FSFN indicators that require ongoing maintenance is included below.

- Placement type and location including DJJ and runaway episodes
- Linked prior investigations
- Family household income
- Case type
- Case goal
- Child and parent demographic information
- Education information
- Ongoing family assessments including scaling of parent and child needs, stages of change and safety analysis
- Human trafficking indicators
- Caregiver income in the FSFN Home study
- Caseworker visits with parents
- Caseworker visits with children
- Case Managers assigned primary cases only under 1 unit/profile

Additional Data Available

Individual Case Scores

There are times when assigners will want additional information on the individual cases assigned to workers to help make case decisions when workers have same or similar total case scores. The Case Scores worksheet offers this level of detail. Assigners can filter the case scores worksheet to the show the specific unit and/or worker desired.   Figure 3 shows an example of filtering the case scores worksheet to show the 12 cases assigned to worker 100236132.

Figure 3. Case Scores Filtered to Worker 100236132

Case ID	Case Name	Case Score	Child Count	Worker Name	Unit Supervisor Name	Unit	Agency	Worker ID
101190620	<case name>	4	2	<worker name>	<supervisor name>	079234-EMBRACE CHS ORANGE	Embrace Families CBC	100236132
102464325	<case name>	4	1	<worker name>	<supervisor name>	079234-EMBRACE CHS ORANGE	Embrace Families CBC	100236132
101639601	<case name>	4	1	<worker name>	<supervisor name>	079234-EMBRACE CHS ORANGE	Embrace Families CBC	100236132
101765984	<case name>	3	1	<worker name>	<supervisor name>	079234-EMBRACE CHS ORANGE	Embrace Families CBC	100236132
2407791	<case name>	4	1	<worker name>	<supervisor name>	079234-EMBRACE CHS ORANGE	Embrace Families CBC	100236132
101863104	<case name>	5	3	<worker name>	<supervisor name>	079234-EMBRACE CHS ORANGE	Embrace Families CBC	100236132
102269765	<case name>	4	2	<worker name>	<supervisor name>	079234-EMBRACE CHS ORANGE	Embrace Families CBC	100236132
101822327	<case name>	3	1	<worker name>	<supervisor name>	079234-EMBRACE CHS ORANGE	Embrace Families CBC	100236132
101620544	<case name>	4	1	<worker name>	<supervisor name>	079234-EMBRACE CHS ORANGE	Embrace Families CBC	100236132
101689909	<case name>	5	2	<worker name>	<supervisor name>	079234-EMBRACE CHS ORANGE	Embrace Families CBC	100236132
100738993	<case name>	5	2	<worker name>	<supervisor name>	079234-EMBRACE CHS ORANGE	Embrace Families CBC	100236132
102363057	<case name>	5	4	<worker name>	<supervisor name>	079234-EMBRACE CHS ORANGE	Embrace Families CBC	100236132

Unit Scores

Assigners may want additional information before choosing the unit that will receive the next incoming case if they are not using a rotation or other case assignment schedule.   Information on the Unit

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Summary worksheet and the Unit Worker Summary worksheet can help assigners with this decision (See Figures 4 and 5). Both worksheets are pre-sorted by Unit ID number. The Unit Worker Summary worksheet is also sorted by score total. The assigner can filter the sheets to only include the units they want to compare. The assigner can see the total unit score in the Unit Summary worksheet (see highlighted cells in Figure 4). This information can be used to compare across units. It is important to consider that each unit may not have the same number of workers and the unit score total could be very different. For this reason, the last three columns of the Unit Summary have metrics per worker to assist in comparison across units.

Figure 4: Unit Summary

Unit	Unit ID	Unit Supervisor Name	Child Count	Case Count	Score Total	Score Mean	Score Median	Score Min	Score Max	Worker Count	Cases per Worker	Children per Worker	Score per Worker
077314-SEMINOLE-CBC-CHS	40110	<supervisor name>	113	64	303	4.7	5	2	7	5	12.8	22.6	60.6
077311-SEMINOLE-CBC-CHS	41868	<supervisor name>	98	54	273	5.1	5	3	8	4	13.5	24.5	68.2
077312-SEMINOLE-CBC-CHS	42010	<supervisor name>	131	78	343	4.4	4	2	8	5	15.6	26.2	68.6

For more detailed information on each worker's assignments in the unit, the assigner may cross reference the Unit Worker Summary worksheet. Note the highlighted Score Totals in Figure 5 sum to corresponding unit's (highlight color) Score Total and the count matches the Worker Count in Figure 4.

Figure 5. Unit Worker Summary

Unit	Unit ID	Unit Supervisor Name	Worker Name	Worker ID	Child Count	Case Count	Score Total	Score Mean	Score Median	Score Min	Score Max
077314-SEMINOLE-CBC-CHS	40110	<supervisor name>	<worker name>	100185085	5	4	13	3.2	3.5	2	4
077314-SEMINOLE-CBC-CHS	40110	<supervisor name>	<worker name>	100184917	11	7	27	3.9	4	2	6
077314-SEMINOLE-CBC-CHS	40110	<supervisor name>	<worker name>	100237530	30	15	77	5.1	5	2	7
077314-SEMINOLE-CBC-CHS	40110	<supervisor name>	<worker name>	100205122	31	18	88	4.9	5	3	7
077314-SEMINOLE-CBC-CHS	40110	<supervisor name>	<worker name>	100231541	36	20	98	4.9	5	2	7
077311-SEMINOLE-CBC-CHS	41868	<supervisor name>	<worker name>	100225633	4	2	9	4.5	4.5	3	6
077311-SEMINOLE-CBC-CHS	41868	<supervisor name>	<worker name>	100244922	25	15	75	5	5	3	8
077311-SEMINOLE-CBC-CHS	41868	<supervisor name>	<worker name>	100238835	36	16	83	5.2	5	3	8
077311-SEMINOLE-CBC-CHS	41868	<supervisor name>	<worker name>	100236996	33	21	106	5	5	3	7
077312-SEMINOLE-CBC-CHS	42010	<supervisor name>	<worker name>	100233410	1	1	5	5	5	5	5
077312-SEMINOLE-CBC-CHS	42010	<supervisor name>	<worker name>	100226949	30	18	77	4.3	4	2	8
077312-SEMINOLE-CBC-CHS	42010	<supervisor name>	<worker name>	100239927	32	17	81	4.8	4	3	7
077312-SEMINOLE-CBC-CHS	42010	<supervisor name>	<worker name>	100244928	35	21	88	4.2	4	2	7
077312-SEMINOLE-CBC-CHS	42010	<supervisor name>	<worker name>	100230597	33	21	92	4.4	4	2	7

Figure 4 provides an example of how to use the data to make a unit determination for case assignment. In this example units 40110, 41868 and 42010 are being considered for the next case assignment. Unit 40110 case score total is 303 (sum of score total column for all workers in unit 40110). Unit 41868 has a case score total of 273 and Unit 42010 has a case score total of 343. Based on this information, the assigner would likely decide to assign the next case to unit 40110 as they have the lowest Cases per Worker, Children per Worker, and Score per Worker values seen in the last 3 columns of Figure 4.

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Quick Reference Guide

The quick reference assumes you have familiarity with the Case Complexity Tool Excel file. Please review the full manual for more detailed explanations. After determining if the case is a *new case* or an *internal transfer case*, follow the instructions:

Using Case Complexity Tool to Prepare for New Case Assignment

1. Filter Unit Worker Summary Worksheet for the unit receiving the case and note the score totals of the unit.
2. If a more detailed look at worker case scores is needed, filter the Case Scores Worksheet to the unit and/or worker to see the individual case scores.
3. Assign the new case based on above gathered information.

Using Case Complexity Tool to Prepare for Internal Transfer Case Assignment

1. Filter Unit Worker Summary Worksheet for the unit receiving the case and note the score totals of each unit team member.
2. If a more detailed look at worker case scores is needed, filter the Case Scores worksheet to the unit and/or worker to see the individual case scores.
3. Filter Case Scores worksheet for the FSFN Case ID of the internal transfer case.
4. Assign the new case based on above gathered information.

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