# User's Guide to the ASPE Child Care Subsidy Duration Data Tool
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**Overview**

The accompanying Excel workbook allows users to examine the length of time that low-income families received government-funded child care subsidies that paid for part or all of the cost of their care arrangements during fiscal years 2004 through 2014, prior to the reauthorization of the Child Care and Development Block Grant (CCDBG) Act. Statistics of subsidy duration provide a description of the interval of time that families utilized subsidies and document the calendar months when they were more or less likely to enter and exit the programs. These statistics are useful to researchers and policymakers because the patterns may be related to adult employment and child care stability outcomes, and they provide valuable information to program administrators who want to better understand the caseload dynamics of the subsidy programs. Researchers may also want to use this data to compare caseload durations across states and time. The following is a description of the data presented in the Excel workbook followed by the methodologies used to create each of the charts and data tables.

**ACF-801 Data**

The data presented in the Excel notebook were tabulated from the ACF-801 child care subsidy administrative records database, overseen by the Office of Child Care at the U.S. Department of Health and Human Services (HHS). The ACF-801 data consist of monthly records submitted by state child care programs to HHS. The Excel tool uses data from federal Fiscal Years 2004 through 2014 that are linked longitudinally by matching the Social Security Numbers (SSNs) of the family heads of household. The ACF-801 data include all families that received subsidies from the Child Care and Development Fund (CCDF) including those funded through the Child Care Development Block Grant (CCDBG), those funded with transfers from the Temporary Assistance for Needy Families (TANF) program, and those funded with state matching and maintenance of effort (MOE) funds related to the CCDBG. States also have the option of including families receiving subsidies from other funding sources such as the Social Services Block Grant (SSBG), direct TANF funds, or state-funded sources, but not all states include these records in the ACF-801 data. Some states pool several child care subsidy funding sources and operate a single program, while other states operate separate child care subsidy programs. For example, some states administer separate subsidy programs for families receiving assistance or job training from the TANF program and states may or may not submit these records along with their ACF-801 data submissions. Therefore, it is important for the users of this Excel tool to keep this in mind when interpreting the data in this Excel tool.

Not all states were included in the analysis. Some states reported state-created unique case identifiers of the family heads of household instead of Social Security Numbers (SSN). Records without SSNs were excluded because many of the non-SSN unique numbers were reported inconsistently across the months (or fiscal years) and their inclusion could bias the analysis. All SSNs were scrambled to protect

the identity of the recipients. Another challenge with examining data from states with different types of caseloads is that the states varied in the percentage of their caseloads that received care because they were in protective services. Since these children were likely to have different characteristics than other children they were excluded from the analysis. The records from several states were excluded from some or all of the months, as summarized in Table 1 below. States that submitted samples instead of their full subsidy caseloads to HHS were left out because longitudinal analysis is not possible with sample data. For example, if a family had a record one month but not the next month then it would not be possible to determine whether the family exited the program or received a subsidy but didn't get sampled. Some states submitted their full subsidy populations to HHS, but their records were excluded from this analysis for some or all of the months in the dataset because they did not submit the SSNs for the heads of household.

One complex issue encountered was the presence of multiple records in the data with the same SSNs during the same months. Some of these cases appear to reflect transitions of families from one office or administrative process to another. For example, in some cases the multiple records appear to reflect benefit redeterminations or transitions into or out of the Temporary Assistance for Needy Families (TANF) program or changes in geographic locations. However, it appears that many of the multiple records were a result of misreporting and all families containing a duplicate SSN for any of the months in the analysis were excluded.

Many users of this tool have expressed an interest in having a national total to serve as a benchmark to compare to each of the states. Since not all states were included in the analysis, the tool does not present statistics that are representative of the nation as a whole. However, the tool does include an aggregate of the 32 states with valid data for all of the months in the analysis. This group of states omits states that had valid data for some, but not all of the months in the analysis including: Alaska, Florida, Illinois, Minnesota, Ohio, and Pennsylvania. The 32 state total includes about 60% of the nation's caseload for a typical month. Therefore, individual users will need to determine for themselves how to interpret the aggregate total as it relates to their research. The 32 states included in this total are presented in Table 1. A summary of the states that were excluded for some or all of the time periods are shown in Table 2.

**Table 1. States Submitting Full-Population Data for All Months**

| | | |
|---|---|---|
| Alabama | Maryland | Rhode Island |
| Arizona | Michigan | South Carolina |
| Colorado | Missouri | South Dakota |
| Delaware | Montana | Tennessee |
| Georgia | Nebraska | Texas |
| Hawaii | Nevada | Utah |
| Idaho | New Hampshire | Vermont |
| Kansas | New Jersey | West Virginia |
| Kentucky | New Mexico | Wisconsin |
| Louisiana | North Dakota | Wyoming |
| Maine | Oklahoma | |

**Table 2. States Excluded by Reason**

| State | Months Included | Notes |
|---|---|---|
| Alaska | October 2010 to September 2014 | State submitted sample data before October 2010 |
| Arkansas | No months included | Data consisted of many duplicate SSN's |
| California | No months included | State submitted sample data for all months |
| Connecticut | No months included | State did not submit SSNs |
| DC | No months included | Multiple errors |
| Florida | October 2005 to September 2014 | State did not submit SSNs before October 2005 |
| Illinois | January 2004 to October 2013 | State did not submit SSNs after October 2013 |
| Indiana | No months included | State submitted sample data for all months |
| Iowa | No months included | State submitted sample data for all months |
| Massachusetts | No months included | State submitted sample data for all months |
| Minnesota | October 2009 to September 2014 | State submitted sample data before October 2009 |
| Mississippi | No months included | Data consisted of many duplicate SSNs |
| New York | No months included | State submitted sample data for all months |
| North Carolina | No months included | State submitted sample data for all months |
| Ohio | January 2004 to July 2013 | Data problems with August and September 2013 |
| Oregon | No months included | Data consisted of many duplicate SSNs |
| Pennsylvania | October 2007 to September 2014 | State submitted sample data before October 2007 |
| Virginia | No months included | State submitted sample data for all months |
| Washington | No months included | State submitted sample data before October 2010 |

**Measuring the Duration (i.e., Spell Length) of Child Care Subsidy Receipt**

There are various ways in which to define the beginning and ending of a "spell" of receipt. For example, some states have their own administrative definitions that include all months in which a family is determined to be eligible to receive subsidies based on an in-take with a case worker regardless of whether or not receipt actually occurred. For example, a family that is taking a temporary break from subsidy receipt may still be considered as a program participant by some state administrators or researchers, depending on how participation is measured. In contrast, some researchers interested in the continuity of care of children may prefer to define breaks in subsidy duration with only one month and consider the month(s) that a family temporary does not receive the subsidy to be a non-participant for that period of time. In order to provide some degree of flexibility, the Excel tool allows the user to define the duration periods, also called spells, as the number of continuous months that families receive child care subsidies, preceded and followed by one or two months of non-receipt, as chosen by the user. All months of subsidy receipt are included in the spells regardless of the number of hours of participation. Spells began the months when families started using subsidies for either the first time or after at least a one- or two-month break of non-use, as determined by the user of the tool. Spells are considered completed when there is at least one/two month(s) that the families do not receive subsidies. The durations presented in this tool are statistical spells, which may differ from the methodologies that individual state administrators use to define program entries, exits, and lengths of participation. In many cases participants return to the subsidy system after they exit. Therefore, unless stated otherwise, the spell durations presented include both families receiving child care subsidies for the first time and families re-entering after a break without receipt.

**Issues With Incomplete Data**

The data presented in this workbook do not include subsidy participation before FY 2004 or after FY 2014, which means that information gaps exist that could impact certain types of analysis. The incomplete data could potentially impact the results in two ways. The first is often referred to as "left-censoring" and occurs when calculations require information about the families during the study period (i.e., FY 2004 through FY 2014) and before the study period (i.e., FY 2004). An example of an analysis with this type of problem would be a tabulation of families that began subsidy use for the first time in FY 2004. This tabulation could not be conducted accurately with this data because it is missing information about the families' participation before FY 2004 and, thus, cannot determine which families entered the programs for the first time. In order to mitigate issues concerning left-censoring, most of the tabulations in this tool document duration of receipt for families that began subsidy use at a particular time period regardless of whether the families were participating for the first time or were re-entering the subsidy program after a period of non-use. The exceptions to this are Chart 8 and Chart 10, which provide tabulations of families that entered the subsidy programs for either the first time or after a long period of non-use. Users are encouraged to look at the methodological notes shown below for Chart 8 and Chart 10 for more information on how left censoring could impact the results.

The second potential limitation concerns analysis of families that received subsidies during the study period (i.e., FY 2004 through FY 2014) and after the study period (i.e., after FY 2014). This problem is

often referred to as "right-censoring". In order to avoid bias caused by right-censoring, most of the charts and tables in this tool are presented as medians and only present medians when the values are less than the number of months of data available. The median is calculated by arranging the families' subsidy durations in numerical order from smallest to largest value and taking the middle value. This value represents the point at which half of the families have higher spell lengths and half of the families have lower spell lengths. We can determine definitively whether medians are impacted by right-censoring because the tails of the distribution are irrelevant for the calculations of the median. For example, if a cohort of families exits by month 6 then the presence or absence of data beyond month 7 is irrelevant because it would not impact the median.

An example of a tabulation impacted by censoring would be a tabulation of median spell lengths for families that entered or re-entered the subsidy programs in FY 2014. This tabulation would be problematic because the data needed to calculate the statistic are unavailable in its present form (i.e., the medians are likely to be sometime in FY 2015 but we don't know for sure because we don't have the data needed to complete the calculation). Users are encouraged to look at the methodological notes shown below for each of the charts to indicate whether right-censoring is a potential limitation. However, this Excel tool does not present any data in the charts where left- and right-censoring are significant problems.

**Excel Tool Tab Colors**

The following is a description of the individual tabs and graphs presented in the Excel workbook. The first tab, Chart Options, (Orange color) consists of documentation for the workbook and a tab where users can choose various parameters to present the data. Tabs labeled "Chart 1" to "Chart 12" (Green Color) present the tabulated data in charts. Each of these charts corresponds to an Excel tab with the underlying data used to construct the charts. A list of the charts shown in the workbook is listed in Table 3.

**Table 3. List of Charts**

| Tab Name | Chart Name |
|---|---|
| **Chart Options** | Chart Options |
| **Chart 1. Families** | Number of Families Receiving Child Care Subsidies by Month |
| **Chart 2. New Spells** | Number of Families Entering or Re-Entering the Child Care Subsidy Program by Month |
| **Chart 3. Spell Endings** | Number of Families Ending a Period of Child Care Subsidy Receipt |
| **Chart 4. Median Spell Lengths** | Number of Families Ending a Period of Child Care Subsidy Receipt |
| **Chart 5a. Two Year Follow-Up** | Percentage of Families that Received Child Care Subsidies to Particular Lengths of Time Before Ending Participation Temporarily or Permanently (Two-Year Follow-Up) |
| **Chart 5b. Four Year Follow-Up** | Percentage of Families that Received Child Care Subsidies to Particular Lengths of Time Before Ending Participation Temporarily or Permanently (Four-Year Follow-Up) |
| **Chart 6. Two State Survival** | Percentage of Families that Received Child Care Subsidies to Particular Lengths of Time Before Ending Participation Temporarily or Permanently |
| **Chart 7. Probability of Exiting** | Percentage of Families that Ended Participation in Child Care Subsidy Programs After Receiving Subsidies Up To the Prior Month |
| **Chart 8. Cumulative Months** | Families Entering Subsidy Programs for the First Time in FY 2010: Cumulative Months Receiving Child Care Subsidies in Three-Year Follow-Up |
| **Chart 9a. Months Before Entry** | Families Beginning New Spells of Child Care Subsidies: Months Since Previous Exit |
| **Chart 9b. Months Before Entry** | Families Beginning New Spells of Child Care Subsidies: Months Since Previous Exit (Two Months) |
| **Chart 10. Number of Spells** | Number of Spells of Child Care Subsidy Receipt When Entering the Program for the First Time in FY 2007 |
| **Chart 11.Type of Care** | Median Spell Length for Families Entering the Subsidy Programs in FY 2007 and FY 2012 by Type of Care Setting |
| **Chart 12. Age Youngest Child** | Median Consecutive Months that Families Received Child Care Subsidies Before Ending Subsidy Participation Temporarily or Permanently by Age of Youngest Child (FY 2012) |

### Chart Options

The Chart Options tab allows the user to define several parameters to display the data. The colored boxes signify where the user can choose a parameter. The first red-colored box in cell C3 allows the user to choose a state for analysis. The second red-colored box in cell C5 allows the user to choose whether to define a beginning and ending of a spell with one or two months of non-receipt. The third red-colored box in cell C7 labeled "Year (Charts 6 & 7)" allows the user to select the year used in charts 6 and 7 in which to examine the subsidy durations of a cohort of recipients. The forth red box in cell C9 allows the user to select a particular month or to examine all families that began new spells anytime during the fiscal year. The four blue cells (C12, C14, C16, C18) allow the user to select a comparison cohort of families to compare to the main analysis state in Chart 6. Note that data for Alaska, Florida,

Illinois, Minnesota, Ohio, and Pennsylvania are not available for all of the months and are omitted from some parts of the graphs.

**Chart 1. Families**

This chart presents caseloads as reported in the "Summary" records files in the ACF-801 data. They represent the caseload totals provided by the states to the HHS before applying the pooling factors, which are the percent of the caseload attributed to CCDF. Note that these caseload totals may differ from the caseloads reported in official CCDF caseloads because many, but not all, states include subsidized families funded through non-CCDF sources such as subsidies funded through TANF-direct or SSBG with their caseload totals. Therefore, the caseloads should be interpreted as the number of families receiving child care subsidies through CCDF (including official TANF transfers) plus possibly some other families funded through other mechanisms. Note that the caseloads presented in this chart include some families that were not included in the rest of the analysis for reasons of quality control, as discussed in the **ACF-801 Data** section above.

**Chart 2. New Spells**

This chart displays the number of families beginning new spells of subsidy use by month of entry. These trends reveal whether program entries varied by the month of the year, and whether or not they have risen/declined over time. Some of the families were receiving subsidies for the first time when these spells began while other families were re-entering the subsidy program after a period of non-participation. Note that numbers shown in this chart are likely somewhat lower than the actual number of families that entered the subsidy programs each month because this analysis omitted some records for reasons of quality control, as discussed in the **ACF-801 Data** section above. The chart only shows median spell lengths when the median can be determined. In other words, it doesn't include time periods when median spell lengths were impacted by right-censoring (see **Issues With Incomplete Data** for more information).

**Chart 3. Spell Endings**

This chart displays the number of families ending subsidy use after a period of receipt by month of exit (i.e., the last month they received the subsidy). These trends reveal whether program exits varied by the month of the year, and whether or not they have risen/declined over time. Some of the families were exiting the subsidy program for the last time while other families were only exiting for a brief period before re-entering the subsidy program at a later date. Note that the families tabulated for this Chart include only families that began subsidy use in calendar year 2004 or later. This means that the caseloads analyzed were impacted by left-censoring because a very small number of families began spells of participation that began before FY 2004 when the data were not available for the analysis. However, the bias from left-censoring is likely minimal or trivial in most cases because only a small fraction of families participate continually for several years. Note that these monthly totals are likely somewhat lower than the number of families that actually did exit the programs because this analysis excluded some families that had incomplete data or other data problems explained in the **Issues With Incomplete Data** section**.**

**Chart 4. Median Spell Lengths**

This chart displays the median spell lengths of the families that began new spells of subsidy receipt each month. The median is a simple measure of central tendency. The median is calculated by arranging the families' subsidy durations in numerical order from smallest to largest value and taking the middle value. This value represents the point at which half of the families have higher spell lengths and half of the families have lower spell lengths. Each point on the chart represents the median spell length of families that began receiving subsidies that month. In many states, median spell length varied by the season or changed somewhat over time. The chart only shows median spell lengths when the median can be determined. In other words, it doesn't include median spell lengths that are impacted by right-censoring (see **Issues With Incomplete Data** for more information).

**Chart 5a. Two Year Follow-Up**

This chart displays the percentage of families that received child care subsidies to particular lengths of time before exiting temporarily or permanently. For example, the percentage shown on the top of the bar representing 6 months states that XX% of the families received subsidies for at least 6 continuous months before discontinuing subsidy receipt temporarily or permanently. This type of graph is sometimes called a "Kaplan-Meier survival curve". The graph is restricted to a 24-month follow-up period. The chart only shows median spell lengths when the median can be determined. In other words, it doesn't include median spell lengths that are impacted by right-censoring (see **Issues With Incomplete Data** for more information). For example, consider a cohort of recipients that began spells in September 2013. Over 50 percent of the recipients in some states will exit the program before the data ends in September 2015. Medians for these states can be determined definitively but the medians for the other states cannot be determined and are not shown.

**Chart 5b. Four Year Follow-Up**

This chart replicates the data in Chart 5a but presents the data with a four-year follow-up period to provide a long-term view of the minority of participants that receive subsidies continuously for over two years. The chart only shows median spell lengths when the median can be determined. In other words, it doesn't include median spell lengths that are impacted by right-censoring (see **Issues With Incomplete Data** for more information).

**Chart 6. Two State Comparison**

This chart allows the user to compare the length of time of subsidy receipt for two states. It uses the same methodology that was used for Chart 5 but it presents the data with a line instead of a series of bars. It also allows the user to choose in the **Chart Options** tab a second state/period/date to compare to the first state/period/date. The chart only shows median spell lengths when the median can be determined. In other words, it doesn't include median spell lengths that are impacted by right-censoring (see **Issues With Incomplete Data** for more information).

**Chart 7. Probability of Exiting**

This chart displays the percent of families that discontinue child care subsidy receipt if they participated until the previous month. It is a useful way to examine which months families are more or less likely to end a spell. For example, the number shown on the top of bar 12 represents the percentage of families that did not receive a child care subsidy in month 13 (or months 13 and 14 if defining a spell ending with two months) after participating for 12 continuous months. This way of displaying the data is sometimes called a “conditional hazard curve”. It is a useful way to examine which months families are more/less likely to end a spell.

**Chart 8. Cumulative Months**

This chart displays the total months that families received subsidies over a three-year follow-up period. Many families cycle on and off of subsidy programs several times, a pattern sometimes called “churning”. Unlike many of the other charts in the Excel workbook, this chart only includes families that had not received a subsidy within 36-months before the study period. Although the title of the chart says "Families Entering Subsidy Programs for the First Time", a very small fraction of these families received subsidies before FY 2004 but returned to the subsidy program in FY 2010 after several years of non-receipt. Therefore, a limitation of this chart is that the estimates are biased by a very small amount by left-censoring (i.e., lack of information about participation before the study period).

**Chart 9a. Months before Entry**

This chart displays the number of months without receiving child care subsidies that families experienced before re-entering the subsidy program. The blue portion of the bar represents the percentage of families that had not received subsidies within 36 months of the date of beginning a new spell, or had not previously participated in the child care subsidy programs. The red, green, purple, and orange parts of the bars signify the number of months since the families last exited the subsidy programs. *For this graph, one-month of non-receipt is used to determine beginnings and endings of spells regardless of whether "One month" is chosen on the Chart Options page.*

**Chart 9b. Months before Entry**

This graph is a replication of Chart 9a, except that it uses *two-months* of non-receipt to determine beginnings and endings of spells *regardless of whether "One month" is chosen on the Chart Options page*.

**Chart 10. Number of Spells**

This chart shows the number of different spells that families participated during a 36-month period. Unlike many of the other charts in the Excel workbook, this chart only includes families that had not received a subsidy within 36-months before the study period. Although the title of the chart says "Families Entering Subsidy Programs for the First Time", a very small fraction of these families received subsidies before FY 2004 but returned to the subsidy program in FY 2007 after several years of non-

receipt. Therefore, a limitation of this chart is that the estimates are biased a very small amount by left-censoring (i.e., lack of information about participation before the study period).

**Chart 11. Type of Care**

This chart displays the median spell length for families in four different types of care arrangements for FY 2007 and FY 2012. Note that some states do not subsidize certain types of arrangements and, therefore, the spell length will appear as zero for those cases.

**Chart 12. Age of Youngest Child**

This chart displays the median spell length that families received child care subsidies before exiting the programs by age of the youngest *subsidized* child. In some cases the youngest child may be in a care arrangement that is unsubsidized.

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